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The Effect of Using the Forrest Strategy (A Picture is Worth a Thousand Words) on Developing the Learning of Chest Pass and Changing-Direction Dribbling Skills for Female Students

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Abstract: The research aims to identify the effect of using the Forrest Strategy (A Picture is Worth a Thousand Words) on developing the learning of the chest pass and changing-direction dribbling skills in basketball among female students. The researcher used the experimental approach due to its suitability to the research problem. The research sample consisted of first-year female students in the morning study at the Department of Physical Education and Sports Sciences at Al-Maarif College, totaling (50) students. The researcher used the Statistical Package for the Social Sciences (SPSS) to process the data statistically. The researcher concluded that the Forrest Strategy has a positive effect on developing the learning of the chest pass and changing-direction dribbling skills in a very positive time. The researcher recommends the necessity of applying strategies that use pictures as a visual stimulus to increase students' interaction and attraction.

Keywords: Forrest Strategy, Chest Pass, Changing-Direction Dribbling, Female Students, Basketball.

Introduction

The physical education and sports sciences lesson at present has undergone many rapid changes and developments in the foundations of its presentation. These developments came as a result of the technological advancement that included all fields of scientific and educational life in general, and specifically the physical education and sports sciences lesson. This is due to the characteristics of the learning process in this field, which differ from other fields due to the specificity of the lesson itself. This difference has significantly increased the responsibility placed on the shoulders of the physical education and sports sciences teacher, as they are primarily responsible for delivering a successful applied lesson according to the latest strategies and methods that keep pace with this development. Therefore, they must be constantly informed about the latest strategies and methods.

The Forrest strategy is one of these strategies, considered a modern educational technique that aligns with the inputs of modern education where the student is the center of the educational process. It is regarded as one of the educational tools that help the learner

acquire concepts in an interconnected manner and aids in providing students with a deeper understanding of the cognitive content of the study material, in addition to continuously revitalizing the study material and facilitating the teaching and learning processes simultaneously. It also develops the thinking of learners, which is the true learning we seek as a pattern of school learning wherein the idea is brought closer to the learner on the one hand, and makes them capable of comprehending the educational material on the other hand.

It increases the opportunities available to students to learn concepts well. The game of basketball is one of the team sports that has attracted the interest of many amateurs and has taken the lead in terms of spread in many countries around the world. This game relies on basic skills as an important foundation, and to progress in this game, all its skills must be mastered, as mastering them is considered the first step towards advancing to a high level of learning.

Research Problem

There is a discrepancy in learning some basic basketball skills, and this is due to the lack of diversification and innovation in using modern strategies that simulate and engage the learner's mind, driving them to think in order to reach the correct information through the image that occupies the learner's mind. Furthermore, the use of the customary (traditional) method is characterized by the disappearance of the element of real interaction between the teacher and the student, except rarely, and it does not prompt students to exercise their mental processes and make decisions.

This prompted the researcher to use modern strategies that support modern educational trends emphasizing the learner's role, through which we can achieve development and progress in the level of the learner's mental abilities, subsequently developing their performance level and accelerating the acquisition of correct performance while saving time and effort.

Research Objective

To identify the effect of using the Forrest strategy (A Picture is Worth a Thousand Words) on learning the chest pass and changing-direction dribbling skills in basketball.

Research Hypotheses

1. There are statistically significant differences between the results of the pre-tests and post-tests for the experimental and control groups in the basketball skills under study.
2. There are statistically significant differences between the results of the experimental and control groups in the post-tests of the basketball skills under

Methodology

Research Approach

The researcher used the experimental approach due to its suitability to the nature of the research problem (Mohammed Hammood et al., 2025; Mohammed et al., 2025; Omar et al., 2025).

Research Sample

The research sample was chosen purposively, represented by the first-year female students for the morning study in the Department of Physical Education and Sports Sciences at Al-Maarif University College for the academic year (2018-2019), totaling (50) students. Ten (10) students were chosen randomly for the purpose of conducting the pilot experiment and were excluded from the main research sample. Thus, the main sample consisted of (40) students, representing (80%) of the original population. The research sample was divided into an experimental group and a control group by lot, where the first group represents the experimental group that applies the Forrest strategy (A Picture is Worth a Thousand Words), and the second group is the control group that applies the traditional method used by the female instructor.

Experimental Design

The researcher used the two-group design (an experimental group and a control group) with random selection and a pre- and post-test. The pre-test is conducted for both groups, then the experimental variable is introduced to the experimental group, followed by the post-test for both groups.

Devices, Tools, and Information Gathering Means

(Electronic calculator - Video camera - Laptop computer - Stopwatch - Cones (22) - Whistle - Adhesive tape - Metric measuring tape - Basketballs (20) - Standard basketball court - Chalk - Arabic and foreign sources - Personal interviews - Questionnaire form - The Internet - Tests and measurements).

Skill Tests First: Chest Pass Test (Al-Hakim, 2004)

- **Test Name:** Passing and receiving the ball against a wall from a distance of (2.70) meters.
- **Purpose of the Test:** Measuring the speed of passing the ball (direct chest pass) and receiving it.
- **Tools and Equipment:** A smooth wall, a metric measuring tape, (2) standard basketballs, chalk, a whistle to give the start and end signal, an electronic stopwatch, as illustrated in Figure (3).

Procedures:

- Draw a line on the smooth wall at a distance of (90) cm from the ground surface.
- Draw a starting line parallel to the wall on the ground at a distance of (2.70) meters from it.

Performance Description

- The tested player stands directly behind the starting line, holding the ball in their hands.
- The starting signal is given to the tested player, who proceeds to pass the ball (chest pass) quickly towards the smooth wall and receive it after it rebounds.
- The player continues to repeat this performance for (10) consecutive passes.
- The ball must not touch the ground during the ten passes.
- The tested player must not cross the starting line during the performance.
- The ball is allowed to touch the smooth wall at a height above the line drawn on it.

Scoring: The time it takes the tested player to perform the test is calculated and recorded, from the moment the ball touches the wall in the first successful pass until the ball touches the wall in the tenth successful pass.

Unit of Measurement: Second.

Second: Changing-Direction Dribbling Test (Al-Zaidan, 1997):

Objective of the Test: Evaluating the technical performance level (technique) of changing-direction dribbling.

Performance Description: The player dribbles in a zigzag pattern to the end of the basketball court across seven hurdles, then returns in a straight line (the distance between one hurdle and the next is three meters).

Scoring: The best time out of two attempts is recorded.

Unit of Measurement: Second.

Field Research Procedures

Pre-tests

The researcher conducted the skill tests for the experimental group and the control group for the skills under study over two consecutive days, which were Monday and Tuesday, corresponding to (1-2/10/2018). The experimental and control groups were tested on Saturday, as the female students of the experimental group represent Section (A) of the first year, totaling (20) students, and the control group represents Section (B), which also totals (20) students. The tests were conducted by an assisting work team under the supervision of the researcher, for each group separately. The tests were conducted under the same conditions in which the tests were carried out for both groups.

Main Experiment

Before implementing the sessions in the educational curriculum, the researcher conducted two introductory teaching sessions to familiarize the students with the Forrest strategy (A Picture is Worth a Thousand Words). On Saturday (6/10/2018), the researcher began implementing the main experiment, where the curriculum included (24) educational units. Then, the Forrest strategy (A Picture is Worth a Thousand Words) under study was introduced to these units in the educational part of the main section of the educational unit. There were three units per week over the course of (8) weeks. The curriculum was implemented in the indoor hall dedicated to female students in the Department of Physical Education and Sports Sciences at Al-Maarif College. The number of units regarding the teaching of each skill separately was distributed by specialists. Twelve (12) educational units were allocated to the chest pass skill and (12) educational units to the changing-direction

dribbling skill, according to the specialists' opinion. The experimental group was taught using the Forrest strategy (A Picture is Worth a Thousand Words), while the control group was taught using the command style followed by the female instructor. Regarding the experimental group, after explaining the skill to be learned and after it was demonstrated by the instructor, the female instructor divided the students into three small groups. One student from each group was designated to take notes. Then, the picture is displayed to the first group only, and the first group builds the first sentences of the topic and sends the paper to the second group. The second group builds a second paragraph based on what is stated in the paper from the first group, through discussions and dialogues, and the ideas are written on a second paper and both papers are sent to the third group. The third group reads both papers, and discussions and dialogue take place among the students of this group. Ideas and the third sentence are written down, and the papers are sent to the first group. After that, the picture is displayed to all three groups so that discussions, dialogues, and the recording of ideas about the skill specific to the educational unit can take place. The implementation of this curriculum continued under the supervision of the researcher for all steps of the main experiment. The researcher finished executing the curriculum on Monday (10/12/2018), which was the last day of the experiment, after which two days were set aside to conduct the post-tests.

Post-tests

Upon completing the implementation of the main research experiment, the researcher conducted the post-tests for the experimental group on Tuesday and Wednesday (11-12/12/2018) at 10:00 AM. The post-tests for the control group were conducted under the exact same conditions and time at which the experimental group's tests were conducted. The tests for all research groups were conducted in the indoor hall dedicated to female students of the Department of Physical Education and Sports Sciences at Al-Maarif University College by a specialized assisting work team.

Statistical Means

The researcher used the Statistical Package (SPSS) to process the data (Abdullateef AbdulJabbar et al., 2025; Fayyad et al., 2025, 2026; Hammood et al., 2024).

Result and Discussion

Presenting the results of the pre-tests and post-tests for the experimental group for the chest pass skill Table (1) shows the results of the pre- and post-tests for the chest pass skill for the experimental and control research groups

Table 1. the results of the pre- and post-tests for the chest pass skill for the experimental and control research groups

Group and Measurement Unit	Number	Measurement	Arithmetic Mean	Standard Deviation	Mean of Differences	Deviation of Differences	(t)	(Sig)	Difference
Experimental (Second)	20	Pre Post	18.3 12.1	1.337 0.738	6.2	1.476	13.286	0.000	Significant

Group and Measurement Unit	Number	Measurement	Arithmetic Mean	Standard Deviation	Mean of Differences	Deviation of Differences	(t)	(Sig)	Difference
Control (Second)	20	Pre Post	18.4 14.3	1.075 1.418	4.1	1.524	8.508	0.000	Significant

(Note: "Comparison of Statistical Parameters between Pre and Post Measurement Scores for Each Group" applies to columns 4-9).

Statistically significant difference: if (Sig) > (0.05) at a significance level of (0.05) and a degree of freedom of (n)-(1).

Presenting the results of the post-tests for the basketball chest pass skill between the experimental and control research groups:

Table 2. the results of the post-tests for the chest pass skill between the experimental and control groups

Test Name	Measurement Unit	Group	Number	Arithmetic Mean	Standard Deviation	(t)	(Sig)	Significance of Difference
Passing the ball and receiving it towards the wall from a distance of (2.70) meters	(Second)	Experimental	20	12.1	0.738	4.352	0.000	Significant
		Control	20	14.3	1.418			

Statistically significant difference: (Sig) > (0.05) at a significance level of (0.05) and degrees of freedom (n1 + n2 - 2) = (38).

Presenting the results of the pre- and post-tests for the changing-direction dribbling skill in basketball for the experimental and control research groups:

Table 3. the results of the pre- and post-tests for the changing-direction dribbling skill for the experimental and control research groups

Group and Measurement Unit	Number	Measurement	Arithmetic Mean	Standard Deviation	Mean of Differences	Deviation of Differences	(t)	(Sig)	Difference
Experimental (Second)	20	Pre	20.3	1.829	5.8	1.751	10.474	0.000	Significant
		Post	14.5	0.527					
Control (Second)	20	Pre	20.6	1.713	2.9	1.595	5.749	0.000	Significant
		Post	17.7	2.003					
(Note: "Comparison of Statistical Parameters between Pre and Post Measurement Scores for Each Group" applies to columns 4-9).									

Statistically significant difference: if (Sig) > (0.05) at a significance level of (0.05) and a degree of freedom of (n)-(1).

Presenting and analyzing the results of the post-tests for the changing-direction dribbling skill in basketball between the experimental and control research groups:

Table 4. the results of the post-tests for the changing-direction dribbling skill between the experimental and control groups

Test Name	Measurement Unit	Group	Number	Arithmetic Mean	Standard Deviation	(t)	(Sig)	Significance of Difference
Changing-direction dribbling	(Second)	Experimental	20	14.5	0.527	4.886	0.000	Significant
		Control	20	17.7	2.003			

Statistically significant difference: (Sig) > (0.05) at a significance level of (0.05) and degrees of freedom (n1 + n2 - 2) = (38).

Discussion

Discussing the results of the pre- and post-tests for the basketball chest pass skill for the experimental and control research groups, and the post-tests between them:

Reviewing the results presented in Table (1) reveals that the students in the experimental and control research groups have improved their learning of the basketball chest pass skill in the post-tests compared to their results in the pre-tests. Referring to the post-test results presented in Table (2), it is evident that the students of the experimental group who received their instruction using the Forrest strategy (A Picture is Worth a Thousand Words) outperformed their peers in the control group who received their instruction using the standard method. The researcher attributes this improvement in learning and superiority to their reception of this strategy, which gave them complete freedom to unleash their creative imagination in the teaching of basic skills, as well as the process of engaging both sides of the brain in learning through the use of pictures and the discussion of ideas via images and headings.

This provided a simple and clear presentation to access information that improves skill performance without complications or exaggerations, taking advantage of reducing the burden of explanatory processes in the educational aspect. It also allowed for continuous access to the information provided by this strategy during the application phase of the main section of the educational units, which required them to interact within this educational environment. Guided by the instructor's directions towards the content of the pictures and discussing them among the groups, this distribution of roles and the multiplicity of educational situations for practicing the skill performance of the basketball chest pass, along with the nature of the educational tasks in this strategy, required them to select what is most correct.

This necessitated focus during the performance applications of the basketball chest pass skill and providing a space of freedom for discussion regarding its details. This supported the cognitive structure of the female students concerning the skill performance requirements for this skill in a simplified, uncomplicated manner, without obstacles or distractions when they used the Forrest strategy (A Picture is Worth a Thousand Words). This helped in refining the motor program and motor control for this skill, improving its

learning, and excelling in this skill improvement in a manner that suits their specific characteristics.

It is stated that "It is not possible to obscure the basic knowledge necessary for the skill, provided that the importance of this knowledge as a component of the skill is not exaggerated, considering that the component of actual performance applications is the most important in the skill, and one of its conditions is that it must be executed rapidly, with mastery, effectiveness, minimal effort, and low cost" (Al-Hayek, 2018).

Similarly, "The synergy between the mind and the body will contribute significantly to learning the performance of skills by linking mental abilities and body movements so that skills appear with accuracy and mastery" (Amer, 2022).

Discussing the results of the pre- and post-tests for the changing-direction dribbling skill in basketball for the experimental and control research groups, and the post-tests between them:

Reviewing the results presented in Table (3) reveals that the students in the experimental and control research groups have improved their learning of the changing-direction dribbling skill in basketball in the post-tests compared to their results in the pre-tests. Reviewing the post-test results presented in Table (4) demonstrates that the students of the experimental group who received their instruction using the Forrest strategy (A Picture is Worth a Thousand Words) outperformed their peers in the control group who received their instruction through the standard educational exercises followed by their teacher. The researcher attributes this improvement in learning and superiority to their application of the vocabulary with this strategy, which helped stimulate them to invest knowledge in performance.

Furthermore, it provided opportunities for self-reliance in performing the changing-direction dribbling skill, in alignment with the model drawn by the learners and the knowledge of its requirements via pictures and inter-group discussions. The students' repeated attempts in each exercise to reach this model by overcoming common errors and limiting their recurrence, alongside the Forrest strategy's support, stimulated the students' required reaction to change direction in basketball. In other words, they execute the knowledge they acquired in the educational unit in accordance with recalling previous experiences and linking them to the requirements of the current performance situation by preparing and raising the mind's awareness of present requirements. This aligns with the nature of this skill, which requires quick reactions to control the ball while changing its direction to achieve a surprise element in its path.

This relies on the activity of the mind and body in quick attention and focusing it along with the transition steps with the basketball. This happens due to the correct guidance by the female instructor using the Forrest strategy without excessive explanation, as well as the continuous display in one of the corners of the sports hall in the educational and applied aspects to facilitate referencing it, as previously indicated. Hence, "The learner can continue good performance using an alert and active presence of mind, provided they are familiar with the aspects of skill performance information they derive from cognitive richness in

performance, and improving that performance through appropriate repetitions of practice in varying situations" (Al-Saadawi, 2020).

Moreover, "It is essential to know that repetition (the number of performance times) alone is insufficient for the desired learning process to occur, as the process depends on observing, monitoring the performance, and sensing the performance, in addition to practicing it in an optimal manner and at the appropriate angle, noting that some complex movements require mastery to be performed" (Park & Gabbard, 2019).

"The Forrest strategy works to shift the focus from the teacher to the learner, which pushes them to extract their own ideas and aspects of learning experiences themselves, while also providing them with information relevant to the educational topic" (Muhammad, 1992).

Conclusion

- Teaching with the Forrest strategy (A Picture is Worth a Thousand Words) and the traditional method leads to an improvement in learning the basketball skills under research among the sample members, but teaching with the Forrest strategy has outperformed the standard method.
- Using the Forrest strategy (A Picture is Worth a Thousand Words) increased the process of interaction and discussion among female students through the exchange of ideas via pictures in the assignment, consequently heightening the senses in the learning process and resulting in an increase in learning mastery.

Recommendations

- The necessity of preparing courses and seminars for those in charge of teaching and guidance in physical education and sports sciences for intermediate and preparatory stages, educating them on the importance of using different and varied teaching methods in physical education activities, and training them on how to use them.
- Using modern strategies for intermediate stages to add excitement, instill a spirit of cooperation, and break away from the traditional pattern in learning basic skills for all games.

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