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The effectiveness of educational units by single style (Compound formation) to improve the performance of some offensive skills of basketball for female students

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Abstract

The research's objectives are to create exercises for single-style and compound formations, as well as to determine how these formations affect some of the offensive skills in basketball for female students and the effects of the exercises created by the researchers on these skills' performance. Due to its applicability to the nature of the investigation, the researchers adopted the experimental method in equal groups (Experimental-control) with a before and post-test. The research group included 42 female students from the University of Kerbala's first-stage faculty of physical education and sports sciences for the academic year 2022-2023. The research sample consisted of (15) female students for each of the two groups (Control and experimental), and it was composed of (30) female students and a proportion of the research community (71.428%). The research's experimental setup is displayed in the table below. The educational unit lasts 45 minutes, of which the preparatory section takes up 10 minutes, the main section 30 minutes, the educational activity 5 minutes, and the applied activity 25 minutes (The content of the lesson activity takes up 25 minutes of the 45-minute lesson time in both the individual method and the applied part). Final section: five minutes. The application of the program took a time of (900) minutes, as the preparatory section reached (200) minutes and a percentage of (22.22) of the total time. The main section amounted to (600) minutes and a percentage of (66.66) of the total time, as this section included the educational part that occupied (100) minutes and a percentage of (11.11) of the total time, as this part contained a presentation of some offensive basketball skills that must be developed within the educational program. As for the applied part, it reached (500) minutes, at a rate of (55.55) of the total time. This part included the application of exercises for developing offensive skills in a single or double manner. As for the concluding part of (100) minutes of the total time and a percentage of (11.11) of the total time, Exercises for calming down or increasing the effort were a part of this section. One of the most significant conclusions he came to was that a key factor in raising the suspense was the instructional units in a single style with a complex formation additionally, the pupils' enthusiasm when the subject was being taught.

Keywords: Single style (Compound formation), investigation, additionally

1. Introduction

Modern science is undergoing a quick succession of changes, and a growing scientific and technological revolution has altered the way we think about education. The ability of modern technology to effectively deliver knowledge and foster the development of skills, as well as its capacity to offer a suitable learning environment, will have a long-term effect on enhancing teaching and learning. Basketball is one of the subjects that combines theoretical and practical instruction. In the first stage, the student is given theoretical and practical information from which he can benefit from identifying skills, learning them, how to perform them, common errors in them, and important points and considerations for these skills. It is known that the subjects in the College of Physical Education are divided into two types, theoretical and practical lessons. Well, the more practical an application it has, the better. Basketball is one of the most thrilling and well-liked team sports for both young and old players because of the thrill, speed, and suspense it brings as a result of players' physical, tactical, and skill development. This has led some to refer to basketball as the "game of multiple talents" because it calls for a high level of individual basic skill mastery on the one hand and teamwork coordination on the other.

The methods used are among the modern training methods that depend on theoretical programming for the requirements of training and the applied aspects of the process, as they

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depend on the training planned in scientific ways in terms of load components (Intensity and size) to reach the players to the integrated physical and skill preparation. In addition to what was mentioned by (Raisan, 2001) ^[1] about the two methods Single and double in that they help to develop individual qualities and capabilities and help to grow the phenomenon of saving effort and doubling the effectiveness of using functional devices during competitions with increasing psychological stability and overcoming the feeling of fatigue. (Majeed, Raisan Khraibet, 2001, p. 15) ^[1] From this point of view, the importance of this study comes in improving the performance of some offensive skills in basketball for female students through the preparation of some exercises in the individual style with the complex formation and knowing their impact on the skills researched.

1.1 Research Problem

Through the researcher's follow-up to the game, because he is interested in the game, he noticed that many female students find it difficult to perform some basketball skills, in addition to the fact that the academic demands in the college are many and varied, and because basketball is a game that needs many requirements and conditions, as well as its skill, which is characterized by its difficulty, and because the students of the first stage deal in their curriculum with learning these skills, hence the problem arose, which is the difficulty of performing these skills, and this difficulty that all students suffer from in all stages, despite the passage of several years for them in college. This prompted the researcher to study this problem by preparing exercises for the individual style and compound formation and knowing their impact on some offensive skills in basketball for female students.

1.2 Research objective

- Preparing exercises for the individual style and compound formation and knowing their impact on some of the offensive skills of female students in basketball.
- To identify the effect of the exercises prepared by the researchers on improving the performance of some offensive skills in basketball for female students.

1.3 Research hypothesis

- There is a positive effect of the exercises of the individual style and the compound formation in improving some of the offensive skills of female students' basketball.

1.4 Research fields

The human field: First-stage female students at the University of Kerbala's College of Physical Education and Sports Sciences for the 2022–2023 academic year.

Time field: from 10/1/2023 to 15/3/2023.

Spatial field: Basketball court at the College of Physical Education and Sports Sciences - University of Kerbala.

1.5 Search terms

- **The single style:** The single method means that the intended effect is in the direction of developing one physical or skill trait so that all the exercises used aim to develop this trait. (Al-Hayali, Muhammad Nofal Mahmoud, 1999, p.24) ^[2]
- **Composite formation:** It is intended by composite formation to use different types of training and education methods with different means of training, that is, when using this method to develop a physical characteristic, we use different training methods with different means of training in the same unit. (Al-Hayali, Muhammad Nofal Mahmoud, (1999, p.25) ^[2].

2. Research methodology and field procedures

2.1 Research Methodology

The researcher used the experimental method with equal groups (experimental-control) with a pre and post-tested to its suitability to the nature of the study.

2.1.1 Community and sample research

The research group included 42 female students from the University of Karbala's first-stage faculty of physical education and sports sciences for the academic year 2022-2023.

The research sample consisted of (15) female students for each of the two groups (control and experimental), and it was composed of (30) female students and a proportion of the research community (71.428%). The research's experimental setup is displayed in the table below.

Table 1: Displays the study's experimental plan.

Groups	Pre-test	Procedure	Post-test
Experimental	<ul style="list-style-type: none"> ▪ Offensive skills ▪ Set shooting ▪ Chest passing ▪ Lay-up shooting 	Educational units in the single style with the compound formation	<ul style="list-style-type: none"> ▪ Offensive skills ▪ Set shooting ▪ Chest passing ▪ Lay-up shooting
Control	<ul style="list-style-type: none"> ▪ Offensive skills ▪ Set shooting ▪ Chest passing ▪ Lay-up shooting 	The method used by the subject teacher	<ul style="list-style-type: none"> ▪ Offensive skills ▪ Set shooting ▪ Chest passing ▪ Lay-up shooting

2.1.1.1 Homogeneity of the sample:

Homogenization was performed on the basic variables of

the experimental and control groups to ensure starting from one starting line, as shown in Table (2).

Table 2: Shown The research sample's homogeneity for the variables (Age, Length, and Mass)

N	Variables	Measuring unit	Mean	Mode	Std. Deviation	Skew ness
1	Age	Year	185.9	186	2.55	0.11
2	Length	Cm	162.9	163	2.71	0.11
3	Mass	Kg	53.75	52.5	4.39	0.85

Table (2) shows the arithmetic mean, median, standard deviation, and skewness values for the researched variables, where the skewness coefficient value was confined between (0.85 - 0.11), which are values close to one whole number, which indicates that the sample members are homogeneous in the variables of the research.

Table 3: Shows the mean and standard deviation for the researched skills.

Variables	Control		Experimental		T value	Sig level	Sig type
	Mean	Std. deviation	Mean	Std. deviation			
Chest passing	10.22	0.672	10.12	0.629	1.872	0.163	Non Sig
Lay-up shooting	4.87	0.421	4.521	0.412	1.912	0.089	Non Sig
Set shooting	9.89	0.432	10.82	0.541	2.112	0.241	Non Sig

The value of (sig) is clearly greater than the value of 0.05 in Table 3, which indicates that there are no disparities between the study groups with regard to the skills being studied. This supports the hypothesis that the research samples are equal.

2.2 Means, devices and tools used in the research

- Note
- Tests and metrics.
- Tape measure in centimetres.
- Balance for measuring weight type (Seca).
- Basketball number (20).
- Characters.
- Two (2) electronic stopwatches to measure time.
- Electronic Calculator (Casio)

2.3 Field research procedures

2.3.1 Determine the research tests

2.3.1.1 Chest passing test: (Amin, Ahmed & Salameh, Mohamed Abdel-Aziz, 1986, p. 410) ^[3]

Purpose of the test: to measure the ability of the laboratory to speed in thoracic passing and receiving.

Tools used: flat ground, flat and smooth wall, stopwatch, basketball.

Performance Description: When the signal is given, the player stands behind a line marked on the ground nine feet (270 cm) from the wall. The player then handles the ball to the wall and receives it, so long as these passing are done as quickly and at the level of the laboratory's head as possible so that he completes ten passing.

Conditions

- 1- All passing must be performed from behind the line drawn on the ground.
1. It is not allowed to hit the ball after it bounced off the wall, as it must be received and then re-passing.
2. The ball is allowed to touch the wall at any height.
3. In the event that the ball falls to the ground during the performance, the tester has to regain possession of the ball and continue to perform from behind the line, provided that only the correct tackles whose path is from the tester to the wall and then back to the tester directly without the ball touching the ground are counted.
4. The tester is allowed two attempts on the test, provided that the best one is calculated for him.

2.1.1.2 Equivalence of the sample

The researcher equalized the sample with the dependent variables (Set shooting, Chest Passing and Lay-up shooting) as shown in the following table:

Register: The time of performing the test is calculated from the moment the ball touches the wall in the first passing until the ball touches the wall in the last passing. The tester is given two attempts and the minimum attempt time is calculated.

2.3.1.2 Free throw test: (Amin, Ahmed & Salameh, Mohamed Abdel-Aziz, 1986, p. 410) ^[3]

Purpose of the test: To assess the precision of set shooting.

Tools

- Basketball court.
- Basketball goal.
- Basketballs number (15)

Performance description:

- With the ball behind the centre of the free throw line, the student stands.
- Each student makes (20) attempts, provided that the throws are performed in the form of 4 groups, each group (5) throws.
- After finishing, the next student starts and so on until it is the turn again to perform the second set of throws, and so on until the 20 throws are completed.

Test instructions

- The student can perform some corrections before the start of the test as an experiment.
- Each student has the right to perform (20) throws.

Test administration

Recorder: Prior to recording the outcomes of the repairs, he shouts out the names.

Referee: Stands near the student to give him the ball.

Register

- For each successful shot (a ball that goes into the basket), the student receives one point, which is tallied and recorded.
- The student is not awarded any score when the ball does not enter the basket (a failed shot).
- The student's score is equal to the total points obtained in the (20) corrections.
- The maximum score for the test is (20) marks.

2.3.1.3 Lay-up shooting test: (Hamoudat, Fayez Bashir & Jassim, Moayad Abdullah, 1999, p. 201) ^[4]

Purpose of the test: Measuring the accuracy of scoring after performing the skills of tapping and lay-up shooting.

Tools: A basketball court, a legal basketball goal, (4) basketballs, a whistle to give the start signal.

Performance description: The tester performs a tap from the middle of the field towards the goal to perform the peaceful movement and then score. Each tester is given (10) attempts and one point is counted for each successful attempt at scoring without legal errors.

Register: Register the number of goals achieved by the laboratory after (10) attempts, noting that the highest points that can be obtained are (10) points.

2.4. Exploratory Experience

On December 20, 2022, the researcher performed an exploratory experiment on a sample of five students who were not part of the main research sample. Its purpose was to make sure the candidate tests were genuine and to attempt to fix any issues that might arise when running the main experiment. The participants in the sample were aware of the tests utilised and the accuracy of their results. To calculate the duration of the research's relevant tests.

2.5 The main procedures of the research

2.5.1 Pre-test

The researcher conducted tribal measurements on 3/1/2023 in the boarding room of the College of Physical Education

and Sports Sciences, Kerbala University, at exactly ten o'clock in the morning, and the initial data of the experimental and control research samples were collected and unloaded in a special form and processed statistically.

2.5.2 Educational units prepared by the researcher

After examining the researcher with the most available scientific sources in the field of motor learning, training science, teaching methods and basketball, the researcher prepared the educational units in the individual style and in the complex formation, taking into account the time and divisions of the lesson in addition to the skills and activities set centrally by the ministerially followed curriculum in addition to the available devices and tools, then it was presented to a group of specialists, and they decided the validity of the proposed curriculum and its suitability with the age group. After that, the researcher implemented the curriculum prepared for the experimental groups, after that the post-tests were conducted by repeating the vocabulary of the tribal tests on the same research sample. Among the most important details of the educational units are:

- 1- The instructional unit lasts 45 minutes, of which the preparatory section takes up 10 minutes, the main section 30 minutes, the educational activity 5 minutes, and the applied activity 25 minutes (the content of the lesson activity takes up 25 minutes in both the individual method and the applied part). The ending segment took five minutes out of the lesson's 45 minutes (Al-Dairy, Ali Ahmed Btaniya, 1986, p. 77) ^[5]. According to Table (4).

Table 4: Shows the sections of the educational unit, its time, the total number of educational units, and the percentage of the units' sections:

Sections of the educational unit	Teaching unit per minute	Total educational units (20) units/minute	The percentage of educational unit sections
Preparatory section	10	200	22.22
main section	30	600	66.66
The educational part	5	100	11.11
applied part	25	500	55.55
Concluding section	5	100	11.11

The application of the program took a time of (900) minutes, as the preparatory section reached (200) minutes and a percentage of (22.22) of the total time. The main section amounted to (600) minutes and a percentage of (66.66) of the total time, as this section included the educational part that occupied (100) minutes and a percentage of (11.11) of the total time, as this part contained a presentation of some offensive basketball skills that must be developed within the educational program. As for the applied part, it reached (500) minutes, at a rate of (55.55) of the total time. This part included the application of exercises for developing offensive skills in a single or double manner. As for the final part of (100) minutes of the total time and a percentage of (11.11) of the total time, this part included calming down exercises or raising the effort and leaving.

2.5.3. The main experience

The main experiment was carried out on the (15) first-year students in the experimental group at the Faculty of Physical Education and Sports Sciences at the University of Karbala during the academic year 2022–2023 between July 1 and October 3, 2023.

2.5.4 Post-test

The researcher used the same procedures used in the pre-test to conduct the post-test on 12/3/2023 at precisely ten in the morning in the closed hall of the College of Physical Education and Sports Sciences - University of Kerbala.

2.6 The statistical methods used in the research:

The researchers used the statistical package (SPSS).

- Pearson correlation coefficient.
- Mean.
- Std. Deviation.
- Mode.
- Skew ness.
- t-test.

3. Presentation, analysis and discussion of the results

After emptying the data obtained by the researcher, and verifying the validity of the hypothesis and the goal of the research, the data was analyzed statistically using appropriate statistical methods.

3.1. Presentation and analysis of the results of the researched skills, the pre and post-tests of the two research groups

3.1.1 Presentation and analysis of the results of the skills researched between the pre and post-tests of the experimental group.

Table 5: Shows the mean, standard deviation, and t-value calculated for the experimental group in the variables studied.

Variables	Pre-test		Post-test		T value	Sig level	Sig type
	Mean	Std. deviation	Mean	Std. deviation			
Chest passing	10.22	0.672	8.786	0.555	5.765	0.000	Sig
Lay-up shooting	4.87	0.421	7.998	1.320	4.904	0.000	Sig
Set shooting	9.89	0.432	15.453	2.675	7.876	0.000	Sig

Since the value of (sig) was less than the level of significance (0.05), Table (5) clearly shows that there are significant differences between the pre and post-tests in the

skills tests under consideration that are in favour of the post-test.

3.1.2 Presentation and analysis of the results of the skills researched between the pre and post-tests of the control group.

Table 6: The research variables' means, standard deviations, and t-values for the control group are displayed

Variables	Pre-test		Post-test		T value	Sig level	Sig type
	Mean	Std. deviation	Mean	Std. deviation			
Chest passing	10.12	0.629	9.987	0.987	4.767	0.000	Sig
Lay-up shooting	4.521	0.412	5.989	0.565	10.872	0.005	Sig
Set shooting	10.82	0.541	12.987	0.559	3.342	0.022	Sig

Since the value of (sig) was below the level of significance (0.05), which confirms the significant differences in favour of the post-tests, it is clear from Table (6) that there are

significant differences between the pre and post-tests in the skills tests under discussion.

3.1.3 Presentation and analysis of the researched skills between the post-test of the research groups:

Table 7: Shows the arithmetic mean, standard deviation, and the calculated t-value for the post-test between the control and experimental groups for the researched tests.

Variables	Experimental		Control		T value	Sig level	Sig type
	Mean	Std. deviation	Mean	Std. deviation			
Chest passing	8.786	0.555	9.987	0.987	9.881	0.000	Sig
Lay-up shooting	7.998	1.320	5.989	0.565	7.804	0.000	Sig
Set shooting	15.453	2.675	12.987	0.559	9.676	0.000	Sig

Given that the value of (sig) was below the level of significance (0.05), which confirms the significance of the differences and favours the post-tests of the experimental group, it is evident from Table (7) that there are significant differences between the two post-tests in the skills tests under discussion, favouring the experimental group.

4. Discussing the results

In Table (5-6-7), the results showed the superiority of the experimental group over the control group, and the researcher attributes this superiority to the effectiveness of the educational units in the individual style and the composite formation used by the experimental group. As this method works to shorten the training time, where the educator can give two skills in the same motor task, and thus the number of repetitions increases, and (Singer 1980) stressed, "In order for the exercise to take its place in learning, many repetitive attempts must be made to organize and develop the circumstances surrounding the exercise and diversify them." For the purpose of avoiding mistakes, which helps to develop the skill (). In addition, this method increases the fun and excitement of the learner and eliminates boredom during the exercise as it moves from one skill to another and from one movement to another

"Admiration for the movement and its motivation play a major role in the process of learning and mastering the skill" (Mahjoub, Wajih, 1985, p. 87) [6].

The double exercise "increases the morale of the movements, their comprehension, and the distinction between them, and this condition gives stability, firmness, and an understanding of the movement" (Shea & Zimy, (1983, p.235) [7]. Also, this method creates a state of competition in the speed of acceptance of performance, and this is what every coach seeks.

The single method is one of the methods used when learning a new skill in order to acquire its initial principles and work on mastering them. The researcher was keen to repeat the exercises continuously, sequentially, and gradually with difficulty, because "the learner needs repeated attempts to successfully complete the skill" (Schmidt, A. Richard, 1991, p.206) [8].

As for the control group, the results showed that there were significant differences with a rate of development, but it was small compared to the experimental group, and the reason for this is due to the traditional method used in directing the lesson and standing at one style in learning and not using various methods, as "diversification in the methods and methods used leads us to more comprehensive results and

achievement desired purposes. (Jawad, Adnan & others, 1999, p.140)

The researcher attributes this to the effectiveness of the experimental variable, as the method took into account the principle of gradation in giving the exercise from easy to difficult, in addition to repeating these exercises in the prepared curriculum, which made the students more controlled and controlled with the ball and less error and loss of it as a result of increasing the student's sense of the ball and gaining good compatibility that It is characterized by "being free from spasm, and the player usually gets rid of excessive and unnecessary movements" (Al-Mufti, Ibrahim, 1994, p.22) ^[10].

In addition to what was included in the curriculum prepared in the single method with the complex formation of rationing the load and rest for each exercise, as the researcher was keen to give suitable rest periods between repetitions and exercises so that they are sufficient to restore recovery, in other words, the return of organs and organs to normal work. The superiority of the experimental group over the control group, as seen by the researcher, is due to the fact that the dual exercises work to increase the speed of decision-making, given that the learner has practiced situations similar to the game situation by mixing two skills in one exercise. Where it works to develop the motor coordination of the individual "Training that targets the players and puts them in positions similar to the positions of the game, produces better and even excellent results" (Jawad, Adnan & others, 1999, p. 197) ^[9] It also gives strength to the learner and allows him to develop ability, competence and skillful dexterity, and this is what the player needs in real playing sites.

5. Conclusions and recommendations

5.1. Conclusions

- 1- The advantage of the experimental group over the control group in the skill variables under investigation.
- 2- The educational units in the single style with the compound composition had a great role in increasing the suspense and excitement of the students during the implementation of the lesson.
- 3- The relevance of the single style with the complex

Appendix (1)

A model of educational units in the single style with the compound formation

Educational goals

Developing the spirit of leadership.
Increase self-confidence and take responsibility.
Control and commitment.

Learning goals

Learning Chest passing skill.
Learning Lay-up shooting skill.
Learning Set shooting skill.

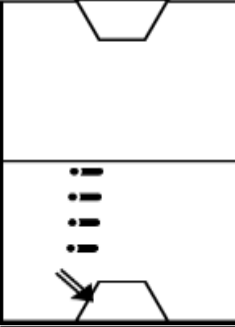
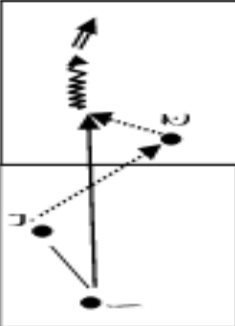
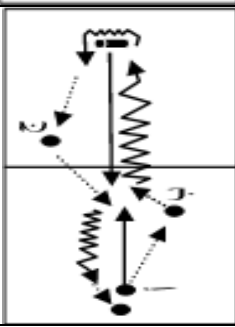
formation of the basketball skills of the researched players with the students, which increased their skill improvement.

5.2. Recommendations

- 1- Because it improves learning abilities, the single approach must be used in the composite formation of the first-stage female students at the College of Physical Education and Sports Sciences.
- 2- Conduct a similar study on other offensive skills.
- 3- Conducting a similar study using other formations on students and for other activities and games.

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Activity type	Time	Educational objective	The Skills	Organization	Notes			
					Rest			Total time
					Repetitions	Groups	Exercises	
Preparatory part 10min	10 min	Warm-up physical exercises						
The main part 30 min	5 min	Educational activity	<ul style="list-style-type: none"> The female student performs the tapping between the figures, then scoring, as shown in the figure. 		3	30sec	1 min	7.5 min
	25 min	Applied activity	<ul style="list-style-type: none"> The students stand as shown in the figure. Student A rolls the ball to B, while Student B passes a breaststroke to C. During the run, student A receives the ball from C. She taps, then shoots and returns behind the band. 		2	1 min	1.5 min	10.5 min
			<ul style="list-style-type: none"> The female students stand as shown in the figure. The student A transfers a breaststroke to B, quickly runs forward, then receives and performs the tapping from behind the person, then performs the passing with C, then the tapping and passing the ball to the second student. 		2	1 min		7 min
Concluding part 5 min	5min		Smale game leave					