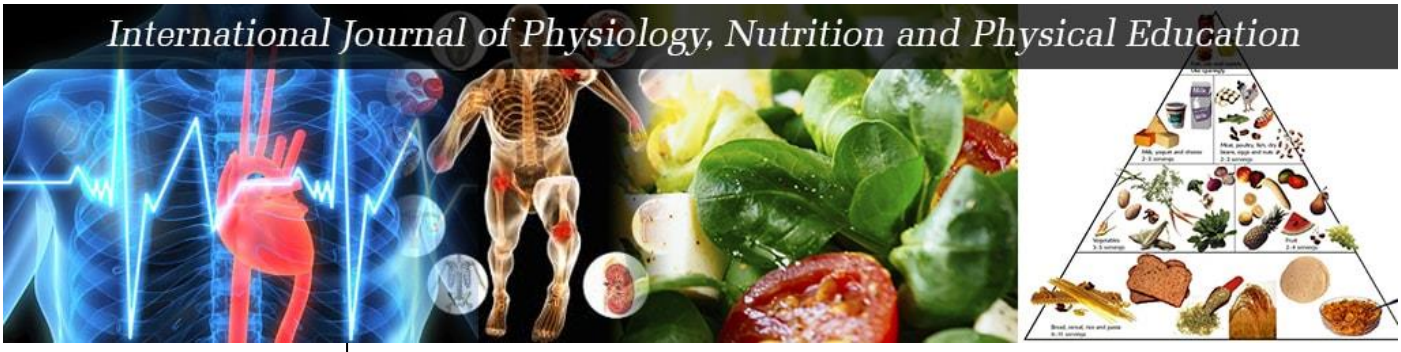

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The effect of using mutuality learning and comparative competition methods in learning the skills of throwing and receiving ball in the rhythmic gymnastics

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Abstract
The purpose of this paper is to knowing the effects of using Mutuality learning and comparative competition methods in learning the skills of throwing and receiving the ball in rhythmic gymnastics, and identifying the preference of one of the methods in learning the skills of throwing and receiving the ball in rhythmic gymnastics. The researcher used the experimental method, by designing equal groups to suit the nature of the problem to be solved. The research sample was selected from the female students of the College of Physical Education and Sports Sciences - Wasit University for the academic season 2021-2022, the second stage. The total number of the research sample reached (60) female students from the second stage. They were tested intentionally using the lottery method, so that each individual in the sample was not proficient in the skills of sending or receiving. The sample was divided into three groups, each of which contained (15) female students. One of the most important results reached by the researcher is that: There were statistically significant differences between the pre- and post-tests in the three methods, which indicates the presence of an effect of different degrees in learning the throwing and receiving skills, and The tables indicate a general sequence of the effect of the three methods in learning the throwing and receiving skills, and they were, respectively, comparative competition in the first degree, Mutuality in the second degree, competitive, then the Imperative method. One of the most important recommendations recommended by the researchers is that: Necessity of applying the comparative competition method in colleges of physical education because it suits the nature of performance, where female students need to have competition and have fun while learning better, in addition to its meeting the ambition of this age stage in its eagerness to perform and achieve good learning, and necessary to fully focus on the accuracy of performance while learning using the comparative competition method, and to fully focus on the students' acquisition of the skill before starting to learn.

Keywords: Mutuality learning, learning the skills, rhythmic gymnastics

Introduction
The expansion of methods for learning motor skills always calls on researchers to choose these methods. In the field of scientific research, to find out the best ones that are appropriate to the conditions of the learning environment, such as the type of activity, the availability of all kinds of equipment, the age stages of the students, their gender, and so on, justifications for choosing this method. Hence comes the importance of research, by applying the two methods of Mutuality learning and comparative competition, as they depend mainly on bilateral work between students. To determine the impact of each of them on the learning process, despite the importance of the two methods, the Mutuality method calls for increasing the relationship between students through joint bilateral work and implementing feedback through the role of the students as a performer and the other as an observer. As for the comparative competitive method, it also depends on bilateral work between students, but During competition among themselves, increasing their motivation to achieve better results and win the competition, and then reach a better learning level after the school ensures that its students acquire the skill in a way that allows them to conduct the competition without negatively affecting the accuracy of performance and its technical level.

Research problem

Physical education has witnessed a remarkable diversity in teaching methods and learning methods, and despite the abundance of literature and research on teaching methods and methods of learning the basic skills of different games, the researcher clearly touched, through her experience in the field of teaching. The method used in learning is the Imperative (traditional) method, which is the focus of this method.

He is the teacher, the teacher takes all decisions and orders, and the student must obey them only, without participating in planning, implementation, and evaluation. Therefore, we find cases of boredom apparent during the lesson and a weakness in motivation, leading to a low learning level. Hence, the problem of research appeared and an attempt was made to find other methods and knowledge. The extent of the impact of interactive and competitive learning styles comparison in learning the skills of throwing and receiving the ball in rhythmic gymnastics.

Research objective

- Knowing the effects of using Mutuality learning and comparative competition methods in learning the skills of throwing and receiving the ball in rhythmic gymnastics.
- Identifying the preference of one of the methods in learning the skills of throwing and receiving the ball in rhythmic gymnastics.

Research hypotheses

- There are statistically significant differences for the three groups between the pre- and post-tests
- There are statistically significant differences for the post-tests of the three groups, in favor of the comparative competitive style group.

Research fields

- **Human field:** Female students of the second stage / College of Physical Education and Sports Sciences / University of Wasit.
- **Time field:** The first semester of the academic year 2021-2022.
- **Spatial field:** Hall of the College of Physical Education and Sports Sciences / University of Wasit.

Define terms

Mutuality learning method: It is the method that calls for organizing the class in pairs, giving each student a specific role, where one student performs and is called the "performer," while the other monitors the performance and is called the "ranker." The comparative competition method, defined by Mayofft (1973), is the organization of students. In the form of pairs, the two students interact with each other to achieve specific goals, as stated by (Miwowski, (198) that the comparative competition in which the two students interact with motor skills on the one hand and with each other on the other hand

Research methodology and field procedures

Research Methodology

The researcher used the experimental method, by designing equal groups to suit the nature of the problem to be solved.

Community and sample research

The research sample was selected from the female students of the College of Physical Education and Sports Sciences - Wasit University for the academic season 2021-2022, the second stage. The total number of the research sample reached (60) female students from the second stage. They were tested intentionally using the lottery method, so that each individual in the sample was not proficient in the skills of sending or receiving. The sample was divided into three groups, each of which contained (15) female students, and a number of them were excluded for the following reasons: -

Female students who are not committed to the educational program, as well as female students who are absent from taking the tests, and thus the number of members of the three groups became (45) students, and due to the importance of finding homogeneity among the study members, especially since the researcher will use the T test, one of the conditions of which is the availability of homogeneity among the sample members to indicate the sample is drawn from a single moderate, homogeneous population. Descriptive statistics were conducted on the study variable in the table below.

Table 1: Shows the homogeneity of the sample of research groups in terms of study variables, n = 45

Variables	Mean	Std. Deviations	Skewness
Chronological age (years)	15,71	0,69	0,46
weight	55,80	4,28	0,15
Length	135,75	1,96	0,87
Throwing skill	-	-	-
Receiving skill	-	-	-

Statistically significant at the level of (0.05) F tabular (3.23) with degrees of freedom (42). The table above shows that the skewness of the study variables is between (3) and (3+) and this indicates the homogeneity of the sample. After ensuring that the sample was drawn from a homogeneous population and fell below the moderation curve, the sample was divided into three groups, with an average of 15 students in each group. To prove that the three groups were equivalent, equivalence between the groups was found using the (F) test, as shown in Table No. below.

Table 2: Shows the parity of the sample members among the three groups in the study variables

Variables	Mutuality		Imperative		Competitive		Between groups	Within groups	Value F	Type sig
	Arithmetic means	Standard deviations	Arithmetic means	Standard deviations	Arithmetic means	Standard deviations				
Throwing	5,13	1,06	6,33	2,12	6,06	1,03	11,91	96,00	2.60	Non sig
Receiving	7,73	0,79	8,20	0,94	7,60	1,24	2,97	42,93	1,45	Non sig

It is clear from Table (2) that all variables of the (F) tests for the variables under study are less than the table value (3.23), meaning that there are no statistically significant differences on these variables among the members of the experimental group, and this indicates the presence of parity between the members of the groups. Experiment in all measurements before starting the application of the educational and experimental programs.

Means of collecting information, research tools and devices

Methods of collecting data (sources and tests for research

skills, surveying experts' opinions, using special forms, a results recording form, and an assistant work team

Tools and equipment
(Preparation of the rhythmic gymnastics hall, 15 gymnastics balls, stopwatch, adhesive tape (5 cm) and standard metal tape).

Exploratory experiment
The exploratory experiment was conducted on a sample of (10) female students from the same academic stage outside the research sample, to find out the pros and cons, exercise timings, repetitions, and the flow and organization of work conducting tests and their conformity with the research sample and the supporting work team. It was found that the tests and the evaluation form achieve the desired goal.

Choose skills and tests
The skills were determined according to the college curriculum followed in teaching the subject of rhythmic gymnastics to female students in the second stage, and each skill was determined

- Throwing skill
- Receiving skill

As for the tests, a group of tests on throwing, receiving, and responding skills were presented to a group of specialists in rhythmic gymnastics to select what is appropriate. Appendix No. (1).

Field research procedures
The researcher conducted pre-tests for the research sample in the skills of sending and receiving, and the groups were given an educational unit before the test for the purpose of introducing the students to the skill. Then the educational curriculum was applied and the correct scientific foundations were emphasized. A set of plans were developed that were implemented in the educational program for the Mutuality method group and for the other method group. For the comparative competition method group, the proposed curriculum included (5) educational units, at a rate of (1) unit per week, with a time of (90) minutes for each educational unit. After implementing the curriculum, post-tests were conducted for all groups, under the same conditions, and with the help of the assistant work team.

Statistical methods
The researcher used the SPSS statistical package to obtain the results and used both

- Arithmetic mean
- Standard deviation t-test
- Variance decomposition test
- L.S.D test to determine the least significant difference

Results and Discussion
The T-test was used to determine the differences between the arithmetic means of the pre- and post-tests for each of the three groups (the competitive method group, the Mutuality method group, and the (imperative) method group) and to ascertain the effect of the curriculum in learning the skills of throwing and receiving the rhythmic gymnastics ball.

Table 3: Arithmetic means, standard deviations, and T-value for the pre- and post-tests of serve skill for the three educational groups (competitive - Mutuality - Imperative)

Tests	Pre-test		Post-test		T value calculated	Type sig
	Arithmetic means	Standard deviations	Arithmetic means	Standard deviations		
Competitive	5, 13	4, 37	35, 60	4, 37	28, 75	Sig
Mutuality	6, 06	1, 01	21, 20	3, 98	13, 15	Sig
Imperative	6, 33	2, 16	16, 33	3, 69	11, 52	Sig

Tabular t value (1.68) for significance level (0.05)

Table 4: Arithmetic means, standard deviations, and T-value for the pre- and post-tests of transmission skill in the three educational groups (competitive, Mutuality, and Imperative)

Tests	Pre-test		Post-test		T value calculated	Type sig
	Arithmetic means	Standard deviations	Arithmetic means	Standard deviations		
Competitive	7, 13	0, 79	36, 46	3, 64	30, 61	sig
Mutuality	7, 60	1, 24	22, 33	2, 28	18, 80	sig
Imperative	8, 33	0, 89	18, 40	3, 58	9, 72	sig

Tabular t value (1.68) for significance level (0.05)

Presentation the results of test (F)
The researcher used the (F) test for analysis of variance to determine the differences between the three groups between and within the groups for throwing and receiving skills.

Table 5: Analysis of variance between the research groups in the pre- and post-measurements of the sending and receiving skills

Variables	Source of variance	Sum of squares	Degrees of freedom	Mean squares	F value	Type sig
Throwing	Between groups	3011, 24	2	1505, 62	92, 812	Sig
	Within groups	681, 33	42	16, 22		

Table 6: Results of the (L, S, D) test to determine the value of the least significant difference between the three groups

Groups	Difference between the Mean	Difference results	Test (LSD)
M1-M2	35, 6-21.20	14, 40	2, 46
M1-M2	35.6-16.33	19, 26	
M3-M3	21.20-16.331	4, 86	

In order to identify the significance of the differences between the three mathematical methods for learning the skill of receiving the ball in rhythmic gymnastics, the researcher used the (LSD) test in order to determine the least significant difference between the three methods in influencing learning.

Table 7: Shows the used the (LSD) test in order to determine the least significant difference between the three methods in influencing learning

Variables	Source of variance	Sum of squares	Degrees of freedom	Mean squares	F value	Type sig
Receiving	Between groups	2708, 133	2	1354, 06	129, 64	Sig
	Within groups	438, 66	42	10, 44		

Table 8: Shows the groups, difference between mean, difference results and Test (LSD)

Groups	Difference between the Mean	Difference results	Test (LSD)
M1-M2	36.46-22, 33	14,13	2,46
M1-M2	36,46-18, 4	18,6	
M3-M3	33-22-18, 4	3,93	

Discuss the Results

It is clear from Table No. (6.8) that there are significant differences in the variables of the study, which indicates that there has been learning and development of those variables and in favor of the group that used the comparative competitive method, as it appeared to be the most effective method in acquiring and learning the skills of throwing and receiving the ball from the Mutuality and Imperative methods, and this is spent The result is in line with (Azza Abdel Fattah) concluded that the competition method is better than the American method in learning the basic skills in rhythmic gymnastics. The research results are also consistent with what was confirmed by (Abdul Rahman Muhammad (2019) Sports competitions contribute a large share in influencing the development and development of an individual's skills and abilities. The researcher believes that using the comparative competition method makes female students exert their utmost effort in performing well in the skills they learn and apply during the curriculum units, as humans by nature tend toward high performance, so they devote themselves during Implementing these units without any hesitation or wasting time, investing in collecting the paragraphs of the applied curriculum, taking advantage of almost the entire unit implementation time. This is confirmed by (Muhammad Hassan Allawi (1989) that one of the biggest advantages of Azza Abdel Fattah is the effect of using the competition method in learning the basic skills with the ball tool in rhythmic gymnastics on motor achievement and developing group performance. (A collection of master's and doctoral theses in physical education, Al-Rowad Press, Baghdad, 1991 (Muhammad Hassan Allawi (1978) [4, 11].

In addition to the above, the process of placing the student in an atmosphere similar to the real performance atmosphere, which includes possibilities and the presence of difficult skills, which raises the motivation to learn and acquire those skills. Hanafi Al-Mukhtar confirms. Learning skills in match conditions, such as training and practicing with a colleague, requires the learner to perform the skills correctly and extensively under pressure from a competing colleague. This is in addition to the fact that these exercises give the student experience that makes him economize his efforts during the performance, with the ability to behave well during the performance, and in addition to that, there is a factor Self-confidence is very important and has a significant impact on the learner's performance. This is also confirmed by (Muhammad Hassan Allawi) for the learning process to occur, there must be a motive that moves the organism towards the activity that leads to satisfying the need, and the stronger the motive of the organism, the stronger the organism's tendency toward the activity that leads to learning. (Ahmed) also mentioned this by saying, "Motivation is an important condition for learning, as there is no learning without the availability of a certain motivation that drives the individual to learn." In addition to indicating motivation among the female students and putting them in an atmosphere of actual performance, the researcher believes that the female students' use of the comparative competitive method worked to develop both aspects. Physical and skill-based skills through repetition of the skills and exercises contained in the educational units, under conditions characterized by difficulty, and the following variables that may occur during competition interfere. Therefore, it was necessary for the female students who learned according to this method to excel over the female students of the other two methods during the evaluation process. The results also show that the Mutuality method has it came second in terms of learning the skills of throwing and receiving among the individuals of his sample, the search and then the imperative method. This result is consistent with (Ali Al-Dairi and Ahmed Batayneh) mentioned that the preference of learning in the Mutuality method over learning in the imperative method is related to the fact that the student learns better when she realizes the results of achievement from during follow-up.

Conclusions and Recommendations

According to the results reached by the researcher, she came to the following conclusions:

- There were statistically significant differences between the pre- and post-tests in the three methods, which indicates the presence of an effect of different degrees in learning the throwing and receiving skills.
- The tables indicate a general sequence of the effect of the three methods in learning the throwing and receiving skills, and they were, respectively, comparative competition in the first degree, Mutuality in the second degree, competitive, then the Imperative method.

Recommendations

- Necessity of applying the comparative competition method in colleges of physical education because it suits the nature of performance, where female students need to have competition and have fun while learning better, in addition to its meeting the ambition of this age stage in its eagerness to perform and achieve good learning.
- Necessary to fully focus on the accuracy of performance while learning using the comparative competition method, and to fully focus on the students' acquisition of the skill before starting to learn.

- Organizing training courses for teachers to learn about learning methods for all academic levels and choose the best method.

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Appendix (1) Names of experts and specialists

Names	Specialists	Affiliations
Prof. Dr. Amira Abdel Wahed Mounir	Gymnastics	College of Physical Education / University of Baghdad
Prof. Dr. Zahra Shehab	Gymnastics	College of Physical Education / University of Baghdad
Prof. Dr. Sahira Razzaq Kazem.	Gymnastics	College of Physical Education / University of Baghdad
Prof. Dr. Muhammad Jassim Al-Yasiri	Tests and measurement	College of Physical Education/University of Baghdad
Lec. Dr. Osama. Abd Almonem	Tests and measurement	College of Physical Education/University of Baghdad

Appendix (2) Names of tests used in the research

First test

- Test name: jump from standstill
- **Objective of the test:** To measure the explosive force of the muscles of the lower extremities.
- **Necessary tools:** Flat ground, starting line, measuring tape placed on the ground at the starting line.

Procedures

- **Layout of the selection area:** The student stands behind the starting line. The student rises with her feet together. The student stands still at a distance. Landing on her feet is also possible. During the performance, the student is allowed to bend the knees and swing the arms. The feet are not left on the ground while bending the knees and swinging the arms except when starting to perform the forward jumping movement.
- **Recording method:** Measuring the distance from the starting line to the nearest trace of the student's foot, and the closest will be a meter. The student's best attempt is calculated from the three attempts.

Second test

- **Test name:** Sitting from lying on the knees for (10) seconds.
- **Purpose of the test:** to measure the strength and speed of the abdominal and back muscles
- Tools used: stop watch.
- **Performance specifications:** From a lying position with the palms together behind the neck and the knees bent (with the feet fixed on the ground by the female colleague). Upon hearing the start signal, the experimenter bends the torso to reach the sitting position. The exercise must be repeated as many times as possible within (10) seconds.
- **Recording:** The number of repetitions is recorded within (10) seconds.

Third test

- **Test name:** Running in the form.
- **Purpose of the test:** To measure the individual's ability to change the position of the body while moving. To change the position of the body while moving forward and quickly
- **Tools used:** Standing and jumping high with a distance of (10 m) between them. A crossbar is placed on it at an evening height in the middle of the laboratory. A stop watch. Performance specifications: You stand at the right side of one of the standers and when you hear the start signal, you run in the form of (8), where you make four cycles (the cycle). It ends in the same place where the test began. You must follow the specified route and not touch the posts or the crossbar
- **Recording:** The experimenter records the time in which the four cycles are completed