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## The effect of complex exercises play- manner on kinetic coordination and learning the skill of rotating the hoop in front of the body above the head in rhythmic gymnastics among third-year female students

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### Abstract

The purpose of this paper is to preparing complex exercises using the learning-by-play method in rhythmic gymnastics for third-year female students, and identifying kinetic coordination and the skill of rotating the hoop in front of the body above the head in rhythmic gymnastics among third-year female students. The researcher used the experimental method for its suitability and the nature of the research and its objectives. The research community consists of third-year female students/College of Physical Education and Sports Sciences/University of Baghdad (2022-2023), who number (75) students. The research sample (34) female students was randomly selected from the female students of the third stage, Division (C), and the students were divided into (15) female students, an experimental group, (15) a control group, and (4) an exploratory experiment group, and the percentage represented 40% of the research community. One of the most important results reached by the researcher is that: Combined exercises using the playful learning method contributed to raising the level of the students' skill performance, and exercises similar to playing showed a positive effect on the kinetic coordination of female students. One of the most important recommendations recommended by the researchers is that: Urging teachers to diversify their teaching methods and employ everything new in teaching the subject of rhythmic gymnastics, and possibility of involving female teachers in awareness and development courses aimed at acquainting themselves with modern teaching methods and models.

**Keywords:** Learning by playing, kinetic compatibility

### Introduction

Paying attention to teaching, its methods and techniques was and still is the main concern of educational institutions in order to raise the level of students scientifically and skillfully and prepare them well. Teaching mathematical skills most of them depend in their learning on repetition and training, and this is what places on the teacher of the practical subject the responsibility of trying to give the maximum possible during this lecture to deliver the material practically, all of the above entrusts the teacher with the task of diversifying the methods and techniques used in teaching in order to reach the best results in the skills aspect of the students. The educational method no longer depends on the teacher teaching the students, but rather its concept has become focused on the style and manner in which the teacher directs his students. It effectively enables them to learn on their own by providing them with an educational atmosphere, directing their activities towards the planned goal, and then it is his responsibility to evaluate the results of that learning. Teaching methods are defined as the series of organized activities that the teacher manages within the classroom to achieve his goals, that is, how the teacher organizes the educational situations and his use of the various means and activities, according to the steps of the educational situations and his use of the various means and activities and according to organized steps for the purpose of helping learners in acquiring skill performance. The researcher believes that using play-style learning may increase the improvement of kinetic coordination as well as achieving a better level of skill performance,

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through their follow-up and competition among themselves, as each of them will try to outperform his competitors (colleagues) through the games that take place between them. Therefore, the researcher here tries to find an effective educational method that uses the students' motivations and motivates them to perform competitively in order to improve their skill level.

**Research problem**

Rhythmic gymnastics is one of the activities that gives the student an opportunity to express her personal abilities through harmony and compatibility between the movements of different parts of the body. It is a sport that requires specific kinetic duties and tasks, which makes it necessary for those in charge of the educational process to use many complex exercises in the style of play in education, through which the Bringing the student to the best level of skill performance. Through the researcher's experience in teaching and the presence of many strategies used in the lessons, she noticed that the basic skills for this activity are not improved appropriately because the methods used in the lesson do not suit the student's capabilities, as well as because of her low kinetic coordination, especially since using the hoop requires neuromuscular coordination, which It contributes to good performance and not using exercises in the form of games that help create interaction between students and develop their compatibility. Accordingly, the researcher decided to conduct an experimental study through complex play-style exercises given to the student in order to learn to perform the skill using the hoop in rhythmic gymnastics, in addition to developing the skill performance to reach the best levels of performance.

**Research objective**

- Preparing complex exercises using the learning-by-play method in rhythmic gymnastics for third-year female students.
- Identifying kinetic coordination and the skill of rotating the hoop in front of the body above the head in rhythmic gymnastics among third-year female students.

**Research hypotheses**

- The current research assumes that there are statistically significant differences between both the pre- and post-tests for the control and experimental groups for female students, in favor of the post-tests.
- There are statistically significant differences between the two groups (control and experimental) in favor of the

post-test

**Research fields**

- **Human field:** Third stage female students, College of Physical Education and Sports Sciences/University of Baghdad
- **Time field:** (2/10/2022) to (10/1/2023)
- **Spatial field:** Rhythmic gymnastics hall, College of Physical Education and Sports Sciences/University of Baghdad

**Definition of terms**

- **Kinetic coordination:** It is the individual's ability to perform types of movements in a single template characterized by fluidity, postures, and good performance. (Muhammad Sobhi Hassanein, 1997, p. 391) [1].
- **Learning through play:** Learning through play is a term used in education and psychology that describes the possibility of a child learning and understanding the world around him. Through play, the child can acquire social and cognitive skills, emotional maturity, and the necessary self-confidence that helps him go through new experiences and environments. (Qasim Hassan Hussein, 1998, p. 82) [3].

**Research methodology and field procedures**

**Research Methodology**

The researcher used the experimental method for its suitability and the nature of the research and its objectives. This method is known as the researcher's ability to control all the basic factors affecting the dependent variables in his experiment, except for one factor, which is the independent variable, which the researcher controls in a specific way for the purpose of measuring and determining its effect on the dependent variables. (Ibrahim Al-Shouk and Rafi' Al-Kubaisi, 2004, p. 59) [2].

**Community and sample research**

The research community consists of third-year female students/ College of Physical Education and Sports Sciences/University of Baghdad (2022-2023), who number (75) students. The research sample (34) female students was randomly selected from the female students of the third stage, Division (C), and the students were divided into (15) female students, an experimental group, (15) a control group, and (4) an exploratory experiment group, and the percentage represented 40% of the research community.

**Table 1:** Shows sample homogeneity

Variables	Measuring unit	Mean	Std. Deviations	Skewness	Sample number
Length	Cm	169, 12	5, 50	0, 56-	30
Mass	Kg	60, 33	4, 56	0, 46-	
Age	Year	22, 60	0, 38	0, 73-	

**Homogeneity and evenness of the sample**

The value of the skewness coefficient is limited to +\_1, which indicates that the population distribution is moderate.

**Methods, devices and tools used in the research**

**Research methods**

(Scientific sources and references, questionnaire, personal interviews, tests and measurement)

**Equipment and tools used**

(Medical scale, measuring tape, tennis ball, gymnastics bands, laptop, camera, tape).

**Tests used**

**First: Test (throwing and receiving the ball) (Ali Salman Abdel Tarfi 2013, p. 176)**

- **Purpose of the test:** to measure eye-hand coordination
- **Tools:** tennis ball, wall, draw a line five meters from the

wall.

- **Performance specifications:** The tester stands in front of the wall and behind the line drawn on the floor, where the test is carried out according to the following sequence:
- Throwing the ball five times in a row with the right hand, with the tester receiving the ball after it bounces off the wall with the same hand.
- Throwing the ball five times in a row with the left hand, with the tester receiving the ball after it bounces off the wall with the same hand.
- Throwing the ball five times in a row with the right hand, with the laboratory receiving the ball after it bounces off the wall with the left hand.
- For each correct attempt, the laboratory is credited with a grade, meaning the final grade is (15) grades.

**Exploratory experience**

The researchers conducted an exploratory experiment on the study variables on a sample outside the research sample on Sunday, October 2, 2022, at nine in the morning, where the number was (4) female students, in order to find out all the negatives and positives.

**Field research procedures**

**Pre-test**

The researchers conducted the pre-tests (for the two groups) on Tuesday, October 4, 2022, at nine in the morning in the rhythmic gymnastics hall / College of Physical Education and Sports Sciences / University of Baghdad.

**Main experiment**

The complex exercises were applied in a play style to the experimental group. The implementation of the educational units took a period of seven weeks, starting from Tuesday, 11-10-2022, until Tuesday, 27-12-2022, at the rate of one educational unit per week, so that the number of educational units was (7), and it took time. The educational unit is (75) minutes, where the exercises were implemented only in the main section, which lasts (50) minutes, divided into the practical aspect, 20 minutes, and the educational aspect, 30 minutes. Note that the exercises were implemented by the subject school and under the supervision of the researchers.

**Post-test**

After completing the application of the complex exercises in the playing style on the research sample, the researcher conducted the post-test for the skills under study on (1/3/2023). The researchers were careful that the post-tests be similar to the conditions of the pre-test in order to obtain accurate results, noting that the same form was relied upon calendar.

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS).

**Results and discussion**

**Presentation, analysis, and discussion of the results of the pre- and post-tests of the variables under study**

**Table 2:** shows the arithmetic means and standard deviation of the experimental group for the study variables

Variables	Measuring unit	Pre-test		Post-test	
		Arithmetic means	Standard deviation	Arithmetic means	Standard deviation
Rotating the hoop in front of the body above the head	Degree	2.90	0.77	7.00	0.82
Kinetic coordination	Degree	7.30	0.82	12.70	1.06

**Table 3:** shows the differences test for the experimental group for the study variables

Variables	Arithmetic mean of difference	Standard error of the mean difference	T value	Level Sig	Type Sig
Rotating the hoop in front of the body above the head	-4.10	0.32	-12.69	0.00	Sig
Kinetic coordination	-5.40	0.31	-17.68	0.00	Sig

**Table 4:** shows the arithmetic means and standard deviation of the control group for the study variables

Variables	Measuring unit	Pre-test		Post-test	
		Arithmetic means	Standard deviation	Arithmetic means	Standard deviation
Rotating the hoop in front of the body above the head	Degree	2.80	0.67	5.20	0.79
Kinetic coordination	Degree	6.10	0.88	7.40	1.07

**Table 5:** shows the difference test for the control group

Variables	Arithmetic mean of difference	Standard error of the mean difference	T value	Level Sig	Type Sig
Rotating the hoop in front of the body above the head	-2.40	0.23	-10.29	0.00	Sig
Kinetic coordination	-1.30	0.54	-2.41	0.04	Non sig

**Table 6:** shows the differences between the post-tests for the two groups (control and experimental)

Variables	Arithmetic mean for experimental	Arithmetic mean for control	T value	Level Sig	Type Sig
Rotating the hoop in front of the body above the head	7.00	5.20	5.014	0.000	Sig
Kinetic coordination	12.70	7.40	11.105	0.000	Sig

**Discussion of results**

Through the presentation and analysis of the results, it was

found that there were significant differences between the pre- and post-tests and in favor of the experimental group. The

researchers attribute this to the use of complex exercises in the learning-by-play style, which helped the students improve and develop their kinetic coordination when using the hoop while performing the rotation of the hoop in front of the body above the head, as this skill is needed. To high kinetic compatibility represented by neuromuscular compatibility, and this is confirmed by (Najla Abbas and *et al.*, 2011, p. 102) [4] “All skills are successive, interconnected movements that have a final goal, but the degree of success of kinetic transfer between these movements depends on the degree of compatibility between the parts of these movements, and the muscular and nervous systems are responsible.” This is what Muhammad Sobhi referred to as he defined neurokinetic coordination as “the individual’s ability to control the work of the various parts of the body involved in performing a specific kinetic duty and to connect these parts with movement and flow with an effective dimension to accomplish that kinetic duty” (Muhammad Sobhi Hassanein, 1997, p. 391) [1]. (Hatem Falih Hafez Hussein 2004-2005) [5] points out, “The team that gets first place in the team standings has very high compatibility, and that the control and guidance processes issued by the central nervous system are important factors in directing the player’s movements, which leads to adaptation and high response speed in skill performance and thus It will generate agreement in the level of skill performance, while we find that the team that occupies last place has very weak agreement. The researchers stress the necessity of paying attention to kinetic coordination training during the educational and field units, as these trainings reflect positively on the student and her compatibility is high, and this is what is agreed with (Ali Muhammad Yassin, 2010, p. 4) [6] “The coordination between the eye and the hand is the most important factor for an athlete’s performance, as during performance there is a transmission of nerve signals between the nervous and muscular systems. Therefore, all movements performed by the individual, whether they are normal daily movements or movements related to the field of sports performance, require. A degree of compatibility between the nervous and muscular systems. The development that occurred in the skill of turning the hoop is the result of the educational units that the researchers followed through innovative playing methods in a way that aims to develop the skill and perform it smoothly.

**Conclusions and Recommendations**

**Conclusion**

- Combined exercises using the playful learning method contributed to raising the level of the students’ skill performance.

- Exercises similar to playing showed a positive effect on the kinetic coordination of female students

**Recommendations**

- Urging teachers to diversify their teaching methods and employ everything new in teaching the subject of rhythmic gymnastics.
- Possibility of involving female teachers in awareness and development courses aimed at acquainting themselves with modern teaching methods and models.

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**Appendix (1)**

**Shows the Educational unit (2)**

**Educational unit (2)**

Educational goals: Skill - With the hoop rotating in the shape of a number & in front of the body and the hoop rotating over the head with a half turn

Date: // 2022

Time: (90) minutes

Number of female students (34)

Main Section	70 minutes	Explaining the skill to the students, clarifying the exercises that are performed, and presenting them to the students by the professor or a model of the students	
educational Section	10 minutes		
Applied Section	60 minutes	<p>Exercises</p> <p>Rotate the hoop horizontally in front of the waist.</p> <p>Rotating the hoop around the head horizontally. Rotating the hoop horizontally in front of the body, then rotating the hoop horizontally above the head.</p> <p>Rotate the hoop in front of the body once horizontally, and then rotate it above the head once.</p> <p>Half a turn by lifting on the balls of the feet.</p> <p>With a half turn, lifting on the balls of the feet, rotating the hoop horizontally above the head.</p> <p>With the hoop rotating in the shape of a number &amp; in front of the body, the hoop rotates above the head.</p> <p>With the hoop rotating in the shape of a number &amp; in front of the body, the hoop rotates above the head with a half turn.</p>	Emphasis on the student’s performance

**Appendix (2)**

**Shows the kinetic compatibility test**

