The effect of special exercises of the info-graphic technique in teaching female students the leaping step skill with the tape in the rhythmic gymnastics

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Abstract

The aim of the current study is to identify (The effect of special exercises of the info-graphic technique in teaching female students the leaping step skill with the tape in the rhythmic gymnastics). The sample of the study is consisted of (20) students, (10) students are represented the experimental group and the control group is also represented by (10) students. Furthermore, the results of the study showed that there were statistically significant differences at the level of significance (0.05) between the level scores of the experimental group and the control group in the post-test of the stepping skill with the ball and in favor of the experimental group. According to the results of the research, the researcher concluded that the use of the info-graphic technique has an effective effect in improving the learning of the leaping step skill with the tape for the experimental group students.

Keywords:

Special exercises, info-graphic technique, leaping gap with tape, rhythmic gymnastics.

Introduction

Developed countries have distinguished in all fields especially in educational, cultural, and sports fields. It is possible to observe progress in educational methods using technological innovations in order to increase and upgrade the educational process data, which requires understanding scientific and technology changes, benefiting from them and using them in the educational process, especially in the field of sports(1). These new techniques and methods are among the important elements that must be available in the rhythmic gymnastics lesson to create motivation for learning and aspiration, to discover creative abilities, and to learn basic skills faster(2). The info-graphic technique is one of the latest technologies that combine the image and the word together to deliver information to the students' minds in a simple and clear manner, and use the senses of hearing and sight together to enable the students to realize the basic skills and learn them mentally in preparation for kinesthetic learning in the training halls(3).

The problem of the study

Rhythmic gymnastics skills are among the skills that require high mastery in technical performance, which depend mainly on continuous training in addition to the use of assistive techniques such as info-graphics(4) in order to prepare female teachers and coaches capable of

performing the movements of sports events so that they, in turn, teach them effectively to female students.

This depends on their ability to learn rhythmic gymnastics skills, including the leaping step skill with the tape. Thus, their ability to learn these skills is linked to their ability to perform them as a model for presenting to female students in their future careers. This requires the use of info-graphic technology to present its exercises to the students in a clear and simplified manner to involve all the senses of the learners in learning to form a mental perception and prepare to apply the practical application in the gymnastics hall.

From the above, the study problem can be identified in the following question:

What is the effect of special exercises of the info-graphic technique in teaching female students the leaping step skill with the tape in the rhythmic gymnastics?

The aim of the study

Identifying the effect of the special exercises of the info-graphic technique in teaching female students the leaping step skill of with tape in the rhythmic gymnastics.

The hypothesis of the study

1. There are statistically significant differences between the pre- and post-tests of the experimental group in teaching female students the leaping step skill with the tape in the rhythmic gymnastics.
2. There are statistically significant differences between the pre- and post-tests of the control group in teaching female students the leaping step skill with the tape in the rhythmic gymnastics.
3. There are statistically significant differences in the post-test for the experimental and control groups in teaching female students the leaping step skill with the tape in the rhythmic gymnastics.

The scope of the study

1- The human domain: a sample of third-year female students, Department of Physical Education and Sports Science/ College of Basic Education/ University of Diyala /2021-2-2022.
2- Temporal domain: 01/24/2021 - 10/24/2022
3- Spatial domain: Gymnastics hall in the Department of Physical Education and Sports Sciences/ College of Basic Education/ University of Diyala.

Study terms

Special exercises:
Abd al-Hadi and al-Tai (2015) defined it as repeatedly performing or completing specific work for the purpose of learning an acquired skill to prepare female students and develop their level in the sports activity in which they specialize.

Procedurally, the researcher defines the special exercises as they are a set of organized and studied movements which simulate the goal to be achieved through an integrated kinetic model to reach the educational level of the leaping step skill with the ball[5].

Info-Graphic Technology

Hussein Abdel Basset (2015) defined them as visual representations to present useful information in a quick and clear manner through the use of graphics or images to enhance the students' visual system ability to know patterns and trends[6].
Procedurally, the researcher defines it as the process of converting the information about the leaping step skill with the tape into an educational video with written symbols and information to be presented to the students of the experimental group.

Info-Graphic Design Steps

Ylidrim (2016)[7], Mohamed Shaltout(2014)[8], and Moatazisa (2014)[9] indicated the steps that must be followed when designing the infographic, which are the following:

1. Determining the goals of the info-graphic design: Before we start designing the info-graphic, the goals of creating the info-graphic design should be determined.
2. Determining the main problem: identifying the information that represents the urgent problem faced by the learners, which caused difficulty in understanding it, which must be presented in the info-graphic.
3. Drafting questions: After defining the problem, it is necessary to formulate practical questions that can be answered in the design of the info-graphic. These questions represent the general framework in which the info-graphic will be designed.
4. Collecting the necessary data: The info-graphic designer collects the necessary data to answer a question identified in the previous step by collecting information from the Internet.
5. Transforming data or information into interactive visual images After the data or information you need to answer the edited questions that have been collected. The next step is to display the data in an interactive visual image.
6. Planning the info-graphic design: The use of balanced planning will make the design elements organized and will help direct the attention of learners from one element to another.
7. Adding the special style to the info-graphic design to give an artistic flair to the design and ensure its clarity and beauty. It is necessary to employ texts that help to understand the main skills and concepts in small paragraphs.
8. Creating the info-graphic chart and structure: This step is considered a translation of the research stage, from collecting and analyzing information and data into elements. It consists of the title, the main parts, the sub-parts, and the choice of colors.
9. Determining the tools needed for design: These are the programs used (such as Tablah, Inks cape, Adobe Photoshop, and Adobe illustrator).
10. Design revision: It is a stage to review and confirm all aspects of the info-graphic.
11. Outputting: It is the final design output from the learners, whether it is printed or animated.

Methodology and Procedures

The researcher used the experimental method of two groups, the experimental and the control groups, due to its suitability with the nature of the study and the requirements. The experimental method is the most widely used method in the mathematical field because it is based on direct and realistic dealing with different phenomena by using observation, experimentation, and comparison between study groups and proving the existence of a causal relationship between the study variables.

The study sample is selected intentionally and it was represented by all the female students of the third stage to provide the requirements to conduct the experiment after excluding (6) students due to the absence of one student and (5) female students as an exploratory sample. Thus, the total number of the sample after the exclusion became (20) students. The study sample is divided randomly by draw into two groups, the experimental group numbered (10) female students, and the control group numbered (10) female students. Generally, the researcher conducted the homogeneity between the two study groups according to the variables (height, chronological age, weight). The results showed that the skew coefficient is less than (±3), which indicates the presence of homogeneity among the individuals of the study sample. This is a good indicator, since whatever the skew coefficient is (close to zero or zero), this indicates that the distribution is moderate or close to it. Thus the sample is homogeneous[(10)]. Then, the researcher conducted the equivalence of the members of the sample by processing the two groups a test about the leaping step skill with the ball in the rhythmic gymnastics. After analyzing the tests results, the two study groups are equal in these skills.
The researcher conducted the main experiment on the experimental group by applying the integrated educational units (face-to-face and online) that included the skill exercises for learning the leaping deer skill with the ball, according to the curriculum followed for rhythmic gymnastics of female students of the third stage / first semester for the academic year 2021-2022.
The e-learning class was trained online to learn the basic skills under discussion by the subject teacher and the supervision of the researcher. While face-to-face class was trained on the day following at the rhythmic gymnastics hall in the College of Basic Education / University of Diyala. The number of academic units reached (8) units, with one unit per week, divided into (45) minutes on online classes and (90) on usual classes. The experiment began on Sunday 7/11/2021 and ended on Sunday 23/1/2022. When the researcher finished the academic units of the skill, she conducted the post-tests for the experimental and control groups with the help of the assistant work team on Monday 24/1/ 2022 and according to the pre-test procedures at the rhythmic gymnastics hall.

Info-graphic Preparation

The researcher followed several steps in designing an animated info-graphic video as follows:

1- Determining the exercises for the skills of rhythmic gymnastics that were videotaped to be the moving info-graphic material.

2- Determining the model that will perform the skill exercises.

3- Preparing the photographic equipment:

- Sony camera.

- Tripod camera holder.

- Rhythmic gymnastics tools that are used in performing skills (ball and tape).

4 - Choosing filming location (i.e. the rhythmic gymnastics hall in the College of Basic Education/University of Diyala).

5 - Determining filming time (i.e. the day and date)

6 - Shooting Preparation: It includes the position of the cameras (There are two cameras are used for video shooting: the first camera (portable) was placed on the right side, three and a half meters away, to film the movement from the side. The second camera was placed in the front at a distance of 7 meters in order to record the movement from the front).

7- The phase of practicing the movement several times before filming.

8- Shooting phase.

9- Montage phase and delete unwanted movements.

10- The phase of cutting the video into still images. Each image expresses a movement.

11- Video speed-up and slow-down phase.

12- Commentary phase with written text explaining each exercise.

13- Using symbols on the relevant movement in the video to draw the students' attention to the intended movement.

14- Setting appropriate music to display the info-graphic.

15- Determining the time and number of scenes for each lecture.

16- Final reviewing of the info-graphic to ensure consistency and integrity of the info-graphic content.

17- The video was shown to a group of experts in rhythmic gymnastics and teaching methods to benefit from their opinions in modifying and adding to some videos.

The Main Experiment

The researcher conducted the main experiment on the experimental group by applying the academic units presented with the info-graphic technique for learning third stage female students / first semester 2021-2022 the leaping step skill with the tape according to the curriculum followed of rhythmic gymnastics. The number of academic units reached (8) units with a time of (90) minutes for each educational unit, with an educational unit per week divided into (45) minutes of the info-graphic displayed (45) in the hall part, and the experiment began on 7/11/2021 and ended on 7/ 1/2022.

Post-tests

When the researcher finished the academic units of the skills, she conducted post-tests for the experimental and control groups with the help of the assistant work team on Sunday, 8/1/2022.

Presentation, Analysis and Discussion of Results

This section includes presenting, analyzing and discussing the results of skills tests for the experimental and control groups in the pre- and post-tests in the light of the study hypotheses.

Presenting and analyzing the results of the pre- and post-test of the experimental group of the rhythmic gymnastics skills:

Table (1)

Shows the values of arithmetic mean, standard deviations, arithmetic mean difference, the standard deviations of the differences, and the calculated (T) value for the experimental group of the leaping step skill of the pre- and post-tests used

Skills	Pre-Test		Post-Test		S Q	A Q	(T) Value	The differences significance
	S-	A±	S-	A±				
Leaping Step	3.000	1.247	7.700	0.948	4.700	0.299	8.127	Significant

The degree of freedom (9) and tabularity (2.26) with an error rate of (0.05).

From Table No. (1), we can make a comparison between the results of the pre and post tests for each skill as follows:
The arithmetic mean of the pre-test of the leaping step was (3.000), with a standard deviation of (1.247). The arithmetic mean of the post-test was (7.700), standard deviation (0.948), and the calculated T value (8.127), which is higher than the tabular T value and this indicates the existence of statistically significant differences in favor of the post-test.

Presenting and analyzing the results of the pre- and post-test of the control group of the rhythmic gymnastics skills:

Table (2)

Shows the values of arithmetic mean, standard deviations, arithmetic mean difference, the standard deviations of the differences, and the calculated (T) value for the control group of the pre- and post-tests of the leaping step skill.

Skills	Pre-Test		Post-Test		S Q	A Q	(T) Value	The differences significance
	S-	A±	S-	A±				
Leaping Step	2.600	0.9660	5.800	1.135	3.200	0.169	7.236	Significant

The degree of freedom (9) and tabularity (2.26) with an error rate of (0.05).

According to Table (**2**), a comparison can be made between the two tests showing the results of the pre and post tests for each skill, as follows:
The arithmetic mean of the pre-test of the leaping deer was (2.600), with a standard deviation of (0.9660). While the arithmetic mean of the post-test was (5.800), with a standard deviation (1.135), and the calculated value of (T) was (7.236). Thus, it is considered higher than the tabular (T) value, which indicates the existence of statistically significant differences in favor of the post-test of the leaping step skill.

Presenting and analyzing the results of the pre- and post-test of the experimental and control groups of the rhythmic gymnastics skills:

Table (3)

The table below shows the values of the arithmetic means, the standard deviations of the means, the (t) value, and the error rate of the experimental and control groups for the post-tests of the skill tests used.

Variables	Group	Arithmetic mean	Standard deviation	T Value	Error Rate	Statistical significance
	Control	5.800	1.135			
Leaping Deer	Experimental	7.700	0.948	4.061	0.001	significant
	Control	1.135	5.800			

The degree of freedom (18) and tabularity (2.87) with an error rate (0.05).
Table (3) illustrates the results of the post tests of the experimental and control groups for each skill as follows:
The arithmetic mean of the post-test of the leaping step of the experimental group was (7.700), with a standard deviation of (0.948). While the control group, the arithmetic mean of the post-test reached (5.800), standard deviation (1.135), and the calculated (T) value (4.061), which is higher than the tabular (T) value. This indicates that there are statistically significant differences in favor of the experimental group in the skill of the leaping step.

Discussion

The results of the study in Table (3) showed that there were statistically significant differences at the level of significance (0.05) between the average scores of the experimental group and the control group in the post test of the rhythmic gymnastics skills and in favor of the experimental group. The researcher attributes the superiority of the experimental group in learning special exercises using the info-graphic technique which increase the percentage of learning the leaping step skill with the tape , as this helped in the integration of female students and their interaction with e-learning and classroom learning in the gymnastics hall. In addition, the info-graphic technique contributed to giving a new visual form in the presentation of the exercises in an interesting way, and the researcher agrees with what was confirmed by (Shaltoth, 2014, p. 47) that the infographic technique helps those in charge of the educational process in presenting information in an interesting and attractive manner. The researcher believes that the use of info-graphic technology has simplified movements and exercises and eased their visualization, which helped to perform them correctly, and this was confirmed by Abdul Basit (2015, p.) who indicated that the brain's processing of visual information is less complex than the processing of written information.

This was confirmed by Darwish and Al-Radi (2015, p. 272) that the visual representation of the exercises contributes to attracting learners' attention and increases their ability to build mental images of them. Some studies, including the study of Lister (2006) which indicated that learners have the ability to return and retrieve (70%) of the information that was previously received by the eye, compared to (20%) of the read information and (10%) of the audible information. This is consistent with the "All l97/ paryo" theory called "Dnal coding theory", which asserts that it is easier for humans to recall pictorial information than verbal information. In confirmation of the above, both Senga JM end GS (2013) and Asmaa El-Sayed (2018) (11) believe that training through e-learning environments helps to overcome the shortcomings of traditional education systems, since it is characterized of (comprehensive, interactive, integrative, Diversity, flexibility, update, continuous and availability).

Finally, the current study agreed with the study of Mohammed Darwish, (2016) (12), the study of Ahmed Rahim Latif (2020) (13) and the study of Walaa Jabbar (2020) (14) in that the use of info-graphic technology has effectively contributed to learning some mathematical skills.

Suggestions

In the light of the presenting and analyzing the results, the researcher concluded that the use of the info-graphic technique has an effective effect in improving the learning of the skill of stepping with the tape among the students of the experimental group.

Resources

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