THE EFFECT OF ANIMATED IMAGES WITH AND WITHOUT MUSICAL RHYTHMS ON LEARNING FOREHAND AND BACKHAND SHOTS IN TABLE-TENNIS

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Abstract

The study aims to:

1- Identify the effect of animated images with and without musical rhythms between pre and post tests on learning forehand and backhand shooting skills in table-tennis.
2- Identify the differences among groups of the study in post-measurements to determine the best educational method in learning forehand and backhand shooting skills in table-tennis.

The researcher used the empirical method as it is proper to the nature of the study. Sample of the study was chosen purposively from second grade students at School of Physical Education, Halabja University for the academic year 2014 – 2015 (44 students) and they were divided into four equal groups: three empirical groups and one control group. The total numbers of sample are 36 students; each curriculum consisted of 10 units for each group (two units a week). The researcher used slow and loud music with applied exercises of both skills of straight forehand and backhand shots for the second and third groups.

The researcher reached a set of conclusions including:

1- Using animated images with and without musical rhythms had a positive effect on learning forehand and backhand shooting skills in table-tennis.
2- The third empirical group excelled (animated images with loud musical rhythms) over the second empirical group (animated images with slow musical rhythms) and the control group in learning forehand and backhand shooting skills in table-tennis.

KEYWORDS: Musical. Rhythms. Learning. Table-Tennis.

1. INTRODUCTION & PROBLEM OF THE STUDY

Modern media helped learners, researchers and educators in the field of physical education to change and skip old-fashioned means and methods. Dependence on modern scientific means leads to accelerate skill learning. Variability in the use of different education methods helps relieve boredom for students as achieving goals cannot be made in the use of a single or traditional method. Since each method has its positive and negative sides after application, creativity and renewability in designing an educational method achieves a great percentage of goals within the set time of lessons according to characteristic of learners, nature of goals and qualities of skills.

Movement education is one of the sport sciences that lead learners to achieve the best performance within the educational process in many sports including table-tennis. This educational process helps learners get suitable responses and situations as well as the interest in establishing movement's structure through the aid of a lot of main requirements that increase quick learning to achieve the total process and economizing efforts in order to reach the planned goal accurately such as the use of animated images. Animated images help in movement learning process through building movement perception for learners. Through presentations, there may be a positive effect on building and developing movement perception in addition to enhance performance characteristics and quick learning. (Bassam, 2002:156) refers that errors are fixed and showing correctness are always made through images.

Musical rhythm is one of the effective means in learning as it is related to movement sensitivity, so there should be more concern with musical rhythm to get flexible movement and quicker performance of moves and skills. (Ginan, 1993: 19) asserted that working with a rhythm is often made by perceiving the rhythm of movements through hearing and then movement response. The use of animated images with musical rhythms in movement learning and mastering technical aspects play an important and effective role especially in learning skills for beginners which allows them to get rid of errors that may occur during performing the move correctly.

Table-tennis is considered one of the games that are characterized by speed and variability of shots, so a learner should learn, master and apply it well especially in forehand and backhand shots. (Mohamed, 2007: 211) asserts that the importance of shooting accuracy in table-tennis increases more than in other games due to the small size of a table tennis playground, bats and the increase of ball speed that is controlled using fore and back bat faces. Therefore, researchers should search for new means which cope with learning motivation, and the researcher exerted great efforts to use animated images and insert accompanying music rhythms in order to raise learning process.

Accordingly, the idea of the current study is represented in trying to use animated images with musical rhythms and determine its effect on learning forehand and backhand shooting skills in table-tennis in an attempt to find some solutions that may contribute to accelerate and facilitate learning and raise skilled performance level in table-tennis lessons.

Problem of the Study:

Means used in learning process and mastering table-tennis skills including forehand and backhand shooting skills are unchanging nowadays. This leads to make learners feel bored as many of these means became traditional with extremely slow effect on educational development which leads to waste a lot of time and efforts. There are a lot of difficulties from which students suffer in learning forehand and backhand shooting skills in table-tennis as lessons are based on explanation and models and modern means still unused in faculties and departments of physical education. This is inconsistent with development in this game in terms of using it to raise educational process at present in addition to the increase in student numbers which increases burden on teachers and their need to exert more effort to teach both skills. Therefore, the researcher found that it is necessary to conduct this study to identify the effect of the animated images with and without musical rhythms in learning forehand and backhand shooting skills in table-tennis as a means that can be a new addition to these helping means in teaching and developing skills for its effective influence on creating correct movement perception and reaching better level for students.

Goals of the Study:

1- Determine the effect of the animated images with and without musical rhythms in learning forehand and backhand shooting skills in table-tennis.
2- Determine differences among groups of the study in post-measurements to reach the best educational method in learning forehand and backhand shooting skills in table-tennis.

Hypotheses of the Study:

1- There are statistically significant differences between pre and post tests for groups of the study in learning forehand and backhand shooting skills in table-tennis for the sake of post-measurement.
2- There are statistically significant differences in post-test for groups of the study in learning forehand and backhand shooting skills in table-tennis for the sake of third empirical group including animated images with loud musical rhythms.

2. METHODOLOGY

The researcher used the empirical method as it is proper to the nature of the study.

Population & Sample of the Study:

The population of the study was determined purposively (44 students representing A and B sections) and they were divided into four equal groups: three empirical groups and one control group. The total numbers of the main sample are 36 students (81.81% of total sample after eliminating 8 players). Table No. 1 shows groups of the study, educational method and sample members:

Table (1): groups of the study, the used educational method and sample members

Sample No.	Educational Method	Group
9	Animated images (without musical rhythms)	First empirical group
9	Animated images + slow musical rhythms	Second empirical group
9	Animated images + loud musical rhythms	Third empirical group
9	The followed method (verbal explanation + practical model)	Control group
36	Total	

The Used Tests in the Study:

Test of Straight Forehand and Backhand Shooting Skills: (Mohamed, 2007: 323 - 328)

The purpose of this test is to measure the accuracy of straight forehand and backhand shots. The used tools: table, bats, table-tennis ball (25), 1.5 m graded ruler and a ruler to divide the table into five equal parts. Performance: the learner stands at the middle of the table in a ready position for the skill of straight forehand and backhand shots and the trainer stands at the other half of the table and serves balls to the learner who returns it to the specific area with 25 repetitions for each skill. Test Instruction: the middle of the table is divided into five equal parts as in table (1) with dimensions of 27 cm wide, 152.5 cm long and 3 ml line thick. Correct attempts are counted if the ball falls in the limited area. Scoring points: If the learner hits a forehand and backhand straight shot in area (A), he gets 5 points, in area (B) he gets 4 points, in area (C) he gets 3 points, in area (D) he gets 2 points, and in area (E) he gets 1point. Total points are counted from a total of 25 attempts.

Note: the highest mark of the test is 125 marks

From (1) test of straight forehand and backhand shots

Pre-Test:
Pre-test was conducted on the four groups of the study for the straight forehand and backhand shots on Thursday 15/01/2015.

The Main Trial (Educational Curriculum):
Each curriculum consists of 10 units for each group in a period of 5 weeks and two units for a single week for each group which equals 40 units. Period of each group is 90 minutes distributed on the departments as follows:

First: Preparatory Section (15 minutes):

Second: Main Section (70 minutes) distributed as follows: educational activity (10 minutes) including 5 minutes of animated images for straight forehand and 5 minutes for backhand shots for the three empirical groups and the control group with the traditional method (verbal explanation + practical model) without animated images and the applied activity (60 minutes) including: applied exercises of straight forehand and backhand shots with slow and loud music for the second and third groups and with only animated images (without musical rhythms) and for the fourth (control) group using the traditional method.

Third: Final Section (5 minutes)
Educational curricula started implementation on the sample of the study on Monday 18/01/2015 and for each group on Monday and Thursday. Implementation of the program ended on Thursday 19/02/2015.

Post-Test
Post-test was conducted on the four groups of the study for the straight forehand and backhand shots on Monday 23/02/2015 using the same method used in pre-tests.

3. RESULTS AND DISCUSSION

Results of differences in values of straight forehand and backhand shooting skills between pre and post tests for the four groups of the study:

Table 2: Results of differences in values of straight forehand and backhand shooting skills between pre and post tests for the four groups of the study:

Groups \ Statistics		Pre-test		Post-test		Counted T Value	Probability	Significance
		Mean	S.D	Mean	S.D			
1st E. G.	Forehand	51.11	5.30	77.11	7.94	9.61	0.000	Significant
	Backhand	48.22	6.64	71.44	8.20	8.02	0.000	Significant
2nd E. G.	Forehand	52.77	7.96	81.44	4.47	8.65	0.000	Significant
	Backhand	48.55	5.12	76.00	7.48	8.73	0.000	Significant
3rd E. G.	Forehand	51.66	6.12	85.77	4.32	15.72	0.000	Significant
	Backhand	48.33	7.26	79.33	8.64	9.28	0.000	Significant
C. G	Forehand	51.55	6.00	71.44	4.82	6.85	0.000	Significant
	Backhand	48.77	7.46	68.22	5.86	5.93	0.000	Significant

* Probability value is significant if ≤ (0.05)

Table (2) shows that there are significant differences among means of pre and post test marks in straight forehand and backhand shooting skills. The T counted values of the straight forehand shooting skill were 6.85, 15.72, 8.65 and 9.61 consecutively, total probability values were 0.00 which is less than (0.05) significance level. As for counted T values for the straight backhand shooting skill, they were 5.93, 9.28, 8.73 and 8.02 consecutively, total probability values were 0.00 which is less than (0.05) significance level. Accordingly, we can conclude that there are significant differences between pre and post tests for the four groups of the study in learning forehand and backhand shooting skills in table-tennis for the sake of post-test. The researcher found that the reason for that is due to the effectiveness of the four educational programs used in the research, their clear effect on learning both skills and explanation and model presentation and animated images with and without musical rhythms which led students to achieve better results in the post-test.

The researcher attributes the reason for significance of the first group which used animated images in learning forehand and backhand shooting skills is due to animated images that include explanation for stages of technical performance of both skills which led to increase students' concentration on all parts of movement skills which helps them to finish correctly. Joseph refers that: "animated images are among the effective educational means that can be employed in educational programs as they are dynamic and movable means at first place and among the best means used in transferring impressions and experience" (Joseph, 1990: 337). In addition, the researcher also found the reason for that is that animated images help draw students' attention and stimulate them to exert effort and not to feel bored as perception of good information depends on variability of methods of presenting this information to students. Moreover, visual information given to learners through animated images plays a great role in supporting learning. The feedback which is given to learners via animated images gives accurate movement correction. Learning cannot be

effective unless there is a process of prior performance correction and knowing its results. Accordingly, (Abdelaziz, 1995) asserts that: "knowing results is an external feedback or information about the response effect". (Aida: 1999: 101)

In second and third empirical groups using animated images with (slow and loud) musical rhythms, there are significant differences for the sake of post-tests. The researcher found that the reason for that improvement in forehand and backhand shots is due to contribution of the animated images with musical rhythms which led to quick perception and acquisition of learning forehand and backhand shooting skills in addition to improvement of movement performance requirements for learners which was asserted by (Magda 2012: 39), as she found that playing music provides an interesting atmosphere encouraging the target group to positively participate. In addition, (Allen, 2002: 195) found that presenting a live model contributes to a great extent to raise learners' abilities to recognize and understand movement skills. Further, (Mahdy, 2003: 17) from (Sfery & Sadek, 1978) asserts that music plays an important and effective role in the learning process. Variability in using educational means contributes to a great extent in involving more than one sense of learners at the same time as the use of visual and audio means (animated images and musical rhythms) is among the most significant educational means that served this purpose. This agrees with (Wafika, 1997: 193) as she said that "learning methods that utilize more than one sense lead to more effective learning and always more than learning through one sense".

The researcher thinks that animated images accompanied with musical rhythms made learners more concentrated on learning and its speed with the factor of marketing and variability to take learners away from boredom that is negativity reflected on their skilled performance and mental response. This was asserted by (Magda, 2012: 150) as she said that: "music accompanying some parts of an educational unit plays a great role in drawing students' attention and increase their motivation and suspense". It was said by Yaareb from (Dillon, 1952) in his study about the role of music in swimming that groups which learn with music as a background performed better than groups which did not use music and the empirical group was faster than the control group in swimming speed test (Yaareb, 2002: 187).

In the control group using verbal explanation and models, there were significant differences for the sake of post-test which refer that this method has a positive effect in learning forehand and backhand shooting skills as it is consistent with the level of the sample of the study. The teacher presented and explained skills and their performance in front of the students and then students' performance of skills and providing them with feedbacks through correcting errors if happened in addition to suitable number of frequencies. All of this information helped students learn the level of skilled performance and with correct forms. (Manar, 2010: 104) rom (Maysa, 2006) refers that the used method (verbal explanation and practical model) is important as they contributed positively to learning. The researcher found that this method helped learners greatly to understand the educational material as it gave them sufficient opportunities to understand technical aspects of performing the required skill because verbal explanation reaches directly the minds of learners directly if used properly, clearly accurately and briefly reaching to the brain that enables learners to recognize what is needed from them. Thus, the use of verbal explanation and model performance is very necessary to describe how to perform the skill. This agrees with (Aida, 1999: 12) that found the importance of verbal explanation as an audio means through the uttered word during movement and correcting errors by teachers and then learners orally compare what should be done with what has been already done and mentally recognized in order to continue movement consistency and accelerate the educational process.

Results of (F) analysis among the four groups of the study in post-test for straight forehand and backhand shooting skills and analyzing them

Table 3: results of analysis among the four groups of the study in post-test for straight forehand and backhand shooting skills and analyzing them:

Statistics / Skills	Variance Source	Total Squares	Freedom Degrees	Average Squares	(F) Counted Value	Probability	Significance
Straight Forehand Shot	Inter-groups	1013.00	3	337.66	10.79	0.000	Significant
	Intra-group	1000.88	32	31.27			
	Total	2013.88	35				
Straight Backhand Shot	Inter-groups	1859.77	3	216.32	3.72	0.021	Significant
	Intra-group	648.97	32	58.11			
	Total	2508.47	35				

* Probability value is significant if ≤ (0.05)

Table (3) shows that there are significant differences among the four groups in post-test of straight forehand and backhand shooting skills. The F counted values of the straight forehand shooting skill were 10.79 and 3.72, the probability values were 0.000 and 0.021 which is less than (0.05) significance level. Since variance analysis test does not refer that differences were for the sake of any of the four study groups, the researcher resorted to the use of testing the least significant difference (L.S.D) among means of degrees of the four groups.

Results of comparing differences of arithmetic means with the least significant differences (L.S.D) in post-test among the four groups of the study for the straight forehand and backhand shooting skills:

Table (4): Comparing differences of arithmetic means with the least significant differences (L.S.D) in post-test among the four groups of the study for the straight forehand and backhand shooting skills

Skills	Groups	Mean	Difference between means	Probability	Significance
Straight Forehand Shots	2-1	81.44 – 77.11	4.33 –	0.110	Insignificant
	3-1	85.77 – 77.11	8.66 –	0.002	Significant for the sake of 3rd group
	4-1	71.44 – 77.11	5.66	0.039	Significant for the sake of 1st group
	3-2	85.77 – 81.44	4.33 –	0.110	Insignificant
	4-2	71.44 – 81.44	10.00	0.001	Significant for the sake of 2nd group
	4-3	71.44 – 85.77	14.33	0.000	Significant for the sake of 3rd group
Straight Backhand Shots	2-1	76.00 – 71.44	4.56 –	0.214	Insignificant
	3-1	79.33 – 71.44	7.88 –	0.036	Significant for the sake of 3rd group
	4-1	68.22 – 71.44	3.22	0.377	Insignificant
	3-2	79.33 – 76.00	3.33 –	0.368	Insignificant
	4-2	68.22 – 76.00	7.77	0.038	Significant for the sake of 2nd group
	4-3	68.22 – 79.33	11.11	0.004	Significant for the sake of 3rd group

Table (4) shows that the 3rd empirical group which applied animated images with loud musical rhythms excelled over the other groups in the straight forehand and backhand shooting skills of table-tennis followed by the 2nd empirical group which applied animated images with slow musical rhythms and then the 1st empirical group which applied animated image and finally the control group. The researcher found that the reason for the excel of the 3rd empirical group is due to the use of sight and hearing together so it gave the best results which helped in memorizing and remembering in addition to consistency of performance, similarity in both forehand and backhand shooting skills with loud musical rhythms and the adjustment of musical rhythm with movement performance of this group's students as these skills need quick performance and this agrees with Karageorghis' study that showed that music is useful as a result of similarity between rhythm and movements and continuous co-occurrence of music with exercises increases levels of working results among participants in the exercise. Moreover, (Yaareb, 2002: 187) refers that music is useful for athletic performance and loud rhythmic music helps consistent movements and desire of performance. This agrees with (Marwan, 2002: 48) who said that: "hearing sense is one of the very important senses for the blind as it plays a great role in learning movement skills as ears receive sound waves to transmit them, in turn, to the brain's movement organs which in turn translate these sound waves to connect them together and show movement perception. The researcher thinks that animated images with loud musical beats played an effective role in conveying the educational material to learners' minds and contributed to clarify and understand the movement duty. This led to recognize both straight forehand and backhand shooting skills and clearly acquire them, so learning was good and quick. This also agrees with (Murtada et al, 2013: 23) as he thinks that rhythms in exercises is an important and effective factor in applying straight forehand and backhand shooting skills. Moreover, (Nagah & Mazen, 2010: 191 – 192) assert that musical rhythms help enhance learner's movement balance as skills stay inside the brain to enable learners to perform movement at anytime through organizing the relation between extension and contraction of operating muscles using music. Moreover, (Nagah & Akram, 2000: 103, Nagah, 2010: 191 – 192) found that musical rhythm is a useful method in learning motor rhythm and developing it in sport games. The researcher also attributes this excellence to present suitable methods to learners that help form a correct picture of both skills which agrees with (Ahlam, 2009: 102) who said that recognize motor sense. In addition, musical rhythms can be used as a stimulus for motor skill and performance. (Karageorghis: Online) adds that music is a helping factor on stimulating players for the match on one hand, and a mitigating factor due to anxiety felt by players on the other, so the use of music as a relaxing technique leads to sporting progress. (Karageorghis: Online).

4. CONCLUSIONS

1- The use of animated images with and without music rhythms had a positive effect on learning forehand and backhand shooting skills in table-tennis.
2- Music with animated images led to accelerate learning forehand and backhand shooting skills in table-tennis.
3- Musical rhythm with skilled performance gave better results than just field training in learning forehand and backhand shooting skills in table-tennis.
4- The third empirical group (animated images with loud musical rhythms) excelled over the second empirical group (animated images with slow musical rhythms) and the control group in learning forehand and backhand shooting skills in table-tennis.

5. RECOMMENDATIONS

1- It is necessary to learn the use of animated images during learning forehand and backhand shooting skills in table-tennis.
2- It is necessary to involve music among educational units for students in order to reach quick learning and time investment.
3- It is necessary to use animated images with loud musical rhythms with students in learning forehand and backhand shooting skills in table-tennis.

4- It is recommended to conduct similar researches using animated images with musical rhythms in learning other offensive and defensive skills in table-tennis and with various age categories. Students should know their effect on them and on other sport games.

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