

## **The effect of using interactive video on digital and technical performance level in the triple jump competition**

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**Abstract:**

This research aimed to recognize the effect of interactive video on digital and technical performance level in the triple competition of the 2<sup>nd</sup> year female students of Physical Education Faculty – Al-Sadat University. The researcher used the experimental method on a sample of (24) female students in the 2<sup>nd</sup> year, Physical Education Faculty–Al-Sadat University. This sample was divided into two groups; experimental and control groups; each of them include (12) female students. Research tools were: physical tests, filmed intelligent test, and the measurement of digital and technical performance level in triple jump competition, a computer, a VCR, and the suggested educational program. The most important results were The effectiveness of interactive

video in learning and mastering the triple jump competition of the 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University. Using the teaching method of interactive video is more effective than using the method of teaching by order in learning and mastering the triple jump competition of the 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University. The most important recommendations were Using the interactive video in learning and mastering the triple jump competition of the 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University. Encouraging the teaching staff to use new teaching techniques in teaching the field and track competitions for the female students of Physical Education Faculty.

Key words: the triple jump - interactive video.

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### **Introduction & research problem:**

The interactive video is considered one of the innovations of our contemporary age; it is used to present visual and audio information according to the learner's responses. The image and sound are displayed via a display screen which is part of an integrated unit consisting of a computer, information input and storage device. The interactive video can introduce information using video shots and still frames along with texts, drawings and voices. It also displays the video shots in parts each on separate screen. Thus the display depends on the multi-screens system in order to introduce different lessons. In addition, the computer allows the learner to interact which enables her to control according to her potentials and speed of learning. (103: 17)

**Zeinab Amin (1996)** sees that the interactive video is merging both video and computer technologies through merging the information on CDs and video tapes with the information produced by the computer in order to provide a interactive environment which

enables the learner to control video programs in coordination with computer programs. (13:386)

The interactive video achieves an individual educational environment in which the educational video and computer are used as auxiliary elements. This system presents educational lessons for the learners after they are recorded on video tapes while the VCR is connected to the computer to control its work. (5:256), (9:89)

The triple jump is considered one of the field and track competitions that is characterized with unique technical performance where the racer aims to achieve the longest horizontal distance through fixed performance stages performed with continuous correlation without interruption, which are: approaching, hopping, stepping, jumping and landing. So, they require a lot of speed, strength and balance. (15:66-67)

The researcher noticed during her work in teaching field and track competitions for the students of Physical Education Faculty – Al-Sadat University a drastic drop in the technical

and digital performance level in the triple jump competition of the 2<sup>nd</sup> year students. As many students have difficulty in mastering the performance of the technical stages of triple jump competitions (approaching, hopping, stepping, jumping and landing), consequently, their technical and digital performance level dropped because the competition includes complex movements which make it difficult for the students to understand different performance stages and most of the times they became afraid of injury due to the difficult performance in this competition. The researcher attributes the technical and digital performance level of triple jump competition of the 2<sup>nd</sup> year students to the followed teaching method (learning by order) which basically depends on the teacher to present the educational material through verbal explanation and practical model of the triple jump competition. This method does not allow the teacher the opportunity of positive participation in the educational process which contradicts with modern directions in teaching

methods field in order to develop the educational process and its outcomes.

From what is mentioned previously, this research is an attempt to apply the latest technological methods and techniques in order to improve the quality of the educational process through introducing the content of the educational program in a new learning method (interactive video) that is attractive and interesting. This method helps the learner to master the triple jump competition in a new and interactive way in order to achieve excellent performance of the competition, hence, achieving high digital level.

**Research aim:**

This research aims to recognize:

the effect of using interactive video on the technical and digital performance level in the triple jump competition of the 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

**Research thesis:**

1- There are statistically significant differences between the before & after measurements of the experimental group in the

technical and digital performance level in the triple jump competition in favor of the after measurement.

2- There are statistically significant differences between the two averages of the after measurements of the experimental and control groups in the technical and digital performance level in the triple jump competition in favor of the experimental group.

#### **Research Procedures:**

#### **Research Method:**

The researcher used the experimental method as it suits the nature of the research by using the experimental design which depends on the before & after measurements of the two experimental and control groups.

#### **Research Society & Sample:**

The researcher selected the research random sample deliberately from the 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University in the second term of the

academic year 2014/2015. The research sample total was (106) students, the researcher selected (24) students for the basic sample; its percentage (22.64%), they were divided into two groups (the experimental and the control) each of (12) students. The researcher also selected (10) student for the pilot study to determine the studied tests.

#### **The two research groups' equivalence:**

The equivalence between the two research groups (experimental and control) was performed in growth rates, the studied physical variables and the technical and digital performance level of the triple jump competition in order to assure the two groups equivalence in these variables. This measurement is considered the before measurement of the two groups' members (experimental – control). Table (1) shows this.

**Table (1)**  
**The differences' significance between the experimental and control groups in growth rates, physical variables and the technical and digital performance level in the triple jump**  
**n1=n2=12**

variables	Measurement unit	Experimental group		Control group		“T” value
		M	S	M	S	
Age	Year	19.42	0.48	19.57	0.52	0.71
Height	cm.	164.27	4.15	164.49	4.37	0.12
Weight	Kg.	62.35	3.97	62.66	4.25	0.18
Intelligence	Degree	44.51	4.33	45.19	4.28	0.37
Legs' muscular strength on the vertical axis	cm.	27.83	3.55	28.00	3.62	0.11
Legs' muscular strength on the horizontal axis	Meter	1.47	0.10	1.52	0.15	0.93
Transitional speed (30m) from starting point	Sec.	4.66	0.34	4.59	0.31	0.51
Right hop from stability	Meter	0.92	0.04	0.94	0.06	0.91
Left hop from stability	Meter	1.01	0.07	1.04	0.11	0.76
Back muscles' power	Kg.	48.92	4.93	49.64	4.75	0.35
Trunk & thigh flexibility	cm.	7.44	2.75	7.62	2.39	0.17
Arms' muscular strength	Meter	4.72	0.49	4.85	0.44	0.65
Technical performance level in the triple jump	Degree	1.11	0.52	1.15	0.57	0.17
Digital level in the triple jump	Meter	5.20	0.49	5.30	0.51	0.47

“T” table value at 0.05 level = 2.074.

Table (1) shows the lack of statistically significant differences at level 0.05 between the two groups (experimental and control) in the studied growth rates and physical variables, and the technical and digital performance level of the triple jump competition which indicates the two groups equivalence in these variables.

#### **Data Gathering Tools:**

##### **First: Physical Tests:**

- 1- The test of vertical jump from stability.
- 2- The test of wide jump from stability.
- 3- The (30) m running test from starting point.
- 4- The test of right/left hopping from stability.
- 5- The test of back muscles strength.
- 6- The test of bending the truck forward from standing.
- 7- The test of pushing a (3) kg medical ball to maximum distance.

##### **Second: Evaluating the performance level of triple jump competition:**

The researcher evaluated the performance level of triple jump competition using the jury method (4 jurors and a chief) who have not less than (15) years experience in field

and track competitions. Each of them gives one degree to one student, then the chief omits the biggest and the smallest degrees and the final degree is calculated from the average of the two middle degrees. The competition evaluation was of (10) points distributed as follows (approaching “1 point and half” – hopping “2 points and half” – stepping “2 points and half” – jumping “2 points and half” – landing “1 point”).

##### **Third: measuring the digital level of triple jump competition:**

The digital level of triple jump competition was measured according to the rules and conditions of the international federation law of amateur athletics games for triple jump competition.

##### **Fourth: the filmed intelligence test prepared by Ahmed Zaki Saleh (1987) (2).**

#### **The educational program using the interactive video:**

##### **Aim of the program:**

- 1- Learning and mastering the performance stages of triple jump competition (approaching – hopping – stepping – jumping – landing) of the 2<sup>nd</sup> year students of Physical

Education Faculty – Al-Sadat University.

**The content of the educational program:**

The video shots and frames (moving and stable) were put in the program, and were put on the computer. The program's main list were made of the previous contents (colored still photos – animated photos – slow and quick motion video shots) of the technical aspects of triple jump.

Ewees Elgaly (1997) (21), Samir Abass and others (2002) (15) and Saied Salam and others (2003) (16) agreed that when executing the educational program content, the following sequence should be taken into consideration:

- Teaching running by wide steps.
- Teaching the correct rhythm of approaching steps.
- Determining the stepping foot.
- Teaching hopping, stepping and jumping respectively and relating between each stage.
- Making triple jump from three walk steps.
- Making triple jump from 7 to 9 moderate speed steps.

- The triple jump from full approach.

**Time distribution of the educational program:**

The research distributed time on the contents of the educational unit as follows:

- The educational program took (6) weeks.
- (12) Educational units as 2 units weekly.
- The educational unit time was (60) min. distributed on: watching a skill model via a computer (8) min., warm-up (12) min., main part (40) min.

**The Before Measurements:**

The researcher performed the before measurements in the period from 15/3/2015 to 18/3/2015 on the experimental and control groups in the technical and digital performance level of triple jump competition.

**Executing the educational program using interactive video:**

The content of the educational program was executed using interactive video on the experimental group for (6) continuous weeks as 22 units per week. The educational unit time was (60) min. in the period from 22/3/2015 to 2/5/2015, while the control group followed learning by order method.

**The after measurements:**

The after measurements were performed on the experimental and control groups in the period from 4/5/2015 to 7/5/2015 in the technical and digital performance level of the triple jump competition using

the same arrangements and conditions of the before measurements.

**Display & Discussion of Results:**

**First: Display of Results:**

**Table (6)**

**The differences' significance between the before & after measurements of the experimental group in the technical and digital performance level of triple jump competition N= 12**

Variables	Measurement unit	Before measurement		After measurement		Difference between averages	"T" value
		M	S	M	S		
Technical performance level in triple jump	Degree	1.11	0.52	8.52	0.91	7.41	* 21.68
digital level in triple jump	Meter	5.20	0.49	7.69	0.37	2.49	* 15.31

"T" table value at level 0.05 = 2.201

\* Significant at level 0.05.

Table (6) shows that there are statistically significant differences at level 0.05 between the before & after measurements of the

experimental group in the technical and digital performance level of triple jump competition in favor of the after measurement.

**Table (7)**

**The differences' significance between the before & after measurements of the control group in the technical and digital performance level of triple jump competition N= 12**

Variables	Measurement unit	Before measurement		After measurement		Difference between averages	"T" value
		M	S	M	S		
Technical performance level in triple jump	Degree	1.15	0.75	7.43	0.79	6.28	* 19.75
digital level in triple jump	Meter	5.30	0.51	0.42	0.42	1.70	* 8.62

"T" table value at level 0.05 = 2.201



Table (7) shows that there are statistically significant differences at level 0.05 between the before & after measurements of the control

group in the technical and digital performance level of triple jump competition in favor of the after measurement.

**Table (8)**

**The differences' significance between the two after measurements of the experimental & control groups in the technical and digital performance level of triple jump competition N1=N2=12**

Variables	Measurement unit	Experimental group		Control group		“T” value
		M	S	M	S	
Technical performance level in triple jump	Degree	8.52	0.91	7.43	0.79	* 2.99
digital level in triple jump	Meter	7.69	0.37	7.00	0.42	* 4.08

“T” table value at level 0.05 = 2.074

Table (8) shows that there are statistically significant differences at level 0.05 between the two after measurements of the experimental & control groups in the technical and digital performance level of triple jump competition in favor of the experimental group.

**Second: Discussion of Results:**

**A) Discussing the 1<sup>st</sup> thesis results:**

Table (6) results indicated that there are statistically significant differences at level 0.05 between the before & after

measurements of the experimental group in the technical and digital performance level of the triple jump competition in favor of the after measurement.

The researcher attributes the improvement of the technical and digital performance level of the triple jump competition of the experimental group's members to the effectiveness of using the interactive video method as it helped the students to move freely between different educational frames which are well prepared in order to choose the suitable frame. In other words, the

program took into consideration the individual differences among the students, and also their mental abilities and the potentials of each student to move between the frames. It also helped to provide the students with much of the visual and audio feedback which contributed in correcting a lot of technical mistakes in the students' performance level, consequently, improving the technical and digital performance level of the triple jump competition of the experimental group.

This result agrees with what Atkinson & Tomas (1999) (31) indicated that the interactive video helped in increasing the interaction between the following elements in the educational process (the teacher – the learner – the content – mediator – the user – and using questions in the correction stage of the interactive video). It also enabled the learner to compose and draw conclusions; thus the learner becomes faster in recalling information more than the traditional method. And also refines his experience.

This result agrees with the study results of: Ayman Abdel Rahman and Abdel Aziz Abdel Aziz (2004) (6), Abdel Rahman Abdel Fatah Mohamed (2008) (19), Sally Samy Ahmed (2010)(14), Hanan Hamed Ghaleb (2013)(11), Wael Salama Almasry and Hesham Ali Elakraa (2013) (30) which assured the importance of using means and techniques of modern education technology as interactive video, computer and modules in learning and mastering field competitions (shot put – disk) and the triple jump competition.

#### **B) Discussing the 2<sup>nd</sup> thesis results:**

Table (7) results shows that there are statistically significant differences at level 0.05 between the before & after measurements of the control group in the technical and digital performance level of the triple jump competition in favor of the after measurement.

The researcher attributes the improvement in the technical and digital performance level of the triple jump competition of the control group to the followed method (the traditional method) that depends on the

verbal explanation and performing the practical model of the skill. In this method, the teacher takes all the decisions, and the students' role is performing according to the model introduced by the teacher. In addition, the students in different education stages were used to get the information from the teacher without searching for it, they were also used to learn skills through the teacher who does everything and students are merely passive receivers of the information and don't exert any effort in learning them; they only imitate what the teacher do in front of them.

**c) Discussing the 3<sup>rd</sup> thesis results:**

Table (8) shows that there are statistically significant differences at level 0.05 between the two after measurements of the experimental and control groups in the technical and digital performance level of the triple jump competition in favor of the experimental group.

The researcher attributes the superiority of the experimental group's members on the control group in the technical and digital performance level of the triple jump competition to using the educational program of interactive video and its huge potentials; on top of them the program's ability to raise the

learner's motivation and to attract her attention as interactive video program can make use of many technical characteristics and traits that suit the learner's knowledge along with the integrated visual picture on the computer screen, which in turn introduce a basic rule of learning. The second potential of the interactive video program is its ability to make the learner interact with the educational material as it plays the role of guiding and directing the students toward the effective learning. We find that planning the interactive video program includes means of direction to attract the students' attention. Thus, it puts the students in a state of continuous interaction with the program during the display of the educational material. The third potential of the interactive video program is presenting the continuous feedback and providing the students with the means of attracting their attention and ways of guidance until the learner masters the skill performance.

This result agrees with the study results of Ibrahim Alfar (2003) and Zhang and others (2006) that the interactive video is more effective than the traditional method, and that the computer and the VCR can be important educational means in teaching methods for their huge potentials that can be used in accelerating the

students' learning. (1:200), (36 :16)

### **Conclusions:**

1- The effectiveness of interactive video in learning and mastering the triple jump competition of 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

2- The effectiveness of the traditional method (learning by order) in learning and mastering the triple jump competition of 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

3- The teaching method using interactive video is more effective than learning by order in learning and mastering the triple jump competition of 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

4- The superiority of teaching method using interactive video over learning by order in improvement rates of after measurement vs. before measurement in learning and mastering the triple jump competition of 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

### **Recommendations:**

1- To use interactive video in learning and mastering the triple jump competition of 2<sup>nd</sup> year students of Physical Education Faculty – Al-Sadat University.

2- To provide the requirements of teaching using

interactive video such as (a computer – video camera – VCR – Display screen) in the departments of field and track in the faculties of Physical Education.

3- To encourage teaching staff on using new teaching methods in learning field and track competitions of Physical Education faculties.

4- To make more scientific studies to recognize the effect of using interactive video in different learning aspects (cognitive – technical – digital) in field and track competitions.

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