

Virtual Reality Technology and Its effect on learning some Compound Attack skills In the sport of Fencing

***Dr/ Rasha Farag Al Arabey**

Introduction and research problem

The world has now witnessed a tremendous revolution in technology and wide scientific progress, and interest in advanced technology has increased in the development of the educational process, and modern and new programs have been produced to improve the educational process and not rely on the traditional method of teaching and employ modern aids for education, especially in the sports field.

Among these technological means is the technology of virtual reality, which is a new type of education that adds a wide range of scientific analysis to individuals, and also indicates the ability to create a three-dimensional environment in which the user is active and interacting with the artificial world and allows if the feeling of absorption and perception that he feels Individuals in the virtual environment. (2: 4)

Virtual reality is defined as a system in which graphics are used to create a reality-like world that responds to the system's inputs and can be applied in several areas, including education, and studies have proven the efficiency of this medium and can be relied upon and to adapt to this environment that has been well thought out for education and training) .(16: 3)

Alexandra Covaci et all (2012) confirms that virtual reality is a system that uses and creates various forms of technology to create a virtual world, and that it appears in a three-dimensional image where people can be shown in a place where it is difficult to be (15:1).This technology works on a mix between imagination and reality by creating imaginative industrial environments capable of representing the real reality and preparing the individual the ability to interact with it. You need a pre-training. (22: 2).

And virtual reality has been used successfully in

* Assistant Professor, Faculty of Physical Education - Sadat City University

educational applications and is known as "educational virtual reality environments". These environments allow the visual representation of three-dimensional data

The virtual learning environment provides an opportunity to stimulate a realistic environment for learners to perform certain tasks, and the virtual learning environment provides a real-time simulation in which visual displays can be used to mimic the real world (20: 117)

The virtual learning environment encourages students to inquire about realistic scientific facts and imagination and interest in the imagination to reach the scientific truth. Education is no longer presenting information to students, but rather a source of students' interest and enjoyment of changing their behavior and being immersed in the computer through the virtual reality.

Virtual Reality enables the user to interactively penetrate into a three-dimensional "3D environment similar to reality, and the scenes in that environment are images displayed by an advanced mobile, and the virtual reality system can sense the

movement of the user's head and body through wires connected to the tools. For that user by moving his head or body, the sensors send signals to the mobile phone, which in turn responds to that by adjusting the scene, which may be a winding street from which the user walks as if he is walking on a real street in which he can turn left and right and wander with his eyesight in all directions. (23)

When it was fencing is a sport that depends on speed, flexibility, accuracy and strength, so most researchers resorted to using auxiliary means in the educational process and also training to facilitate their task in reaching the learner's mind to produce some exercises to gain many information and knowledge without feeling bored and frustrated, which creates an atmosphere. My educational imagination suggests that you are a real reality in which you perform different skills as if you are in a fencing hall.

The researcher has used modern technology in education to bring the student out of the traditional reality to the virtual reality similar to the real reality of performance, which enables the student to

interact With him for the presence of sound, image and three-dimensional animations that enter it in an almost real world, affecting and being affected by it so that the educational process is completed in the optimal manner on the one hand, and on the other hand researchers in the field of fencing did not address the use of virtual learning environments as an educational method to know their effect on teaching and teaching fencing decisions It is a practical attempt to search and reach the best results for the educational process.

By looking at previous studies such as Arab studies such as the study of **Sayed Y. (2010) (12), Mohammad A. Shawqi (2015) (9), Othman W. Ibrahim (2015) (11), Ahmad W. Abd al-Fattah (2015) (4), Maarouf Z. (2016) (6), Mohammad A. Saeed (2017) (8), Al-Jubouri M. Ibrahim (2017) (3), Ibrahim F. Mohammad Zaki (2017) (5)**, and foreign studies such as the study of **Alexandra C. et all (2012) (15), Lin Z., Qing L. (2012) (21) and Abdelrasoul E. Ali (2015) (18), others & Elinda Ali (2012) (17)**, from here the research problem appeared in

an attempt to use virtual reality glasses and know the effect of virtual reality technology on learning some complex attack skills in the sport of fencing.

Research Objective

This research aims to know the effect of Virtual Reality Technology on learning some Compound Attack skills in the sport of Fencing, which are ((one-two) Attack, (one-two-three) Attack, the doublement Attack, Straight Degagement Attack, Coup Degagement Attack)

. Research hypotheses:

1-There are statistically significant differences between the mean of the post and pre measurements of the control group in favor of the post measurement in learning some Compound Attack skills in the sport of fencing.

2-there are statistically significant differences between the averages of the post and pre measurements of the experimental group in favor of the post measurement in learning the performance of some Compound Attack skills in the sport of fencing.

3-There are statistically significant differences between the mean of the post measurements between the experimental and control

groups in favor of the post measurement of the experimental group in learning some Compound Attack skills in fencing sport.

Research terms:

Virtual Reality Technology:

The researcher defines it procedurally as: a Technology that enables the learner to enter an electronic artificial environment and simulates the real world of things, so that the learner integrates into this virtual world through three-dimensional displays and interacts with its components as if they were real and displayed by the virtual reality glasses

Compound Attack

This is the attack that the player performs in an attempt to score a touch at the opponent's target in the same direction of the Engagement or in the opposite direction of the Engagement by performing more than one blade movement and in more than one Fencing

time (one time).(1:45),(14:158)

Research procedures

First: Research methodology

The researcher used the experimental approach to suit the nature of this research by using the experimental design of pre and post measurement for two groups, one experimental and the other control

Second: The Research Community

The Research Community included all the students of the second year, an old list of the Faculty of Physical Education, Sadat City University for the academic year 2018/2019, and their number is 42 students.

Third: The Research Sample

The research sample was chosen randomly and their number reached 38 students, after excluding 4 students for irregularity, and they were divided into two groups, one experimental and the other control.

Table (1)
Classification of the research

sample	Sample Research	Number	Percentage
Main	Control Group "Traditional Education	15	68.95%
	Experimental group "virtual reality"	15	
	Exploratory group	8	21.05%
	Total		100%

Forth: The Homogeneity of the Research Sample

Table (2)
The Arithmetic Mean, Standard Deviation, Median, and Skewness
of the Research Sample n = (38)

The variables		Unit	Mean	ST.Devation	Mediator	Skewness
Growth rates	Age	year	18.1	1.18	18.2	-0.25
	Tall	cm	157.5	3.23	156	1.35
	Weight	kg	65.56	2.51	65.3	0.31
Intelligence		degree	52.5	2.16	51.5	1.39
Physicals Tests	Precision	degree	8.49	2.34	8.5	-0.01
	Reaction speed	degree	0.45	1.04	0.41	0.12
	Flexibility	cm	24.52	5.43	23.8	0.40
	Agility	sec	14.40	2.65	14.25	0.17
	Legs capacity	m	1.25	1.08	1.15	0.28
	Arms capacity	m	3.15	1.22	3.20	-0.012
	Muscular endurance	repeat	11.45	2.26	10.50	1.26
	Compatibility	degree	13.42	2.54	13.5	-0.90
under	One -Two	degree	1.54	1.12	1.44	0.27
	One -Two-three	degree	1.42	1.51	1.35	0.14
	The doublement	degree	1.31	1.32	1.26	0.11
Skills	straight Degagement	degree	1.10	1.12	1.05	0.13
	Coup Degagement	degree	1.08	1.25	1.02	0.11

Table (2) shows the homogeneity of the members of the two groups of research in the variables of growth, intelligence, physical tests, and skills "under search", as the value of the skewness coefficient of these skills is limited to (± 3), indicating the moderation of the distribution of the sample members in these variables.

Fifth: Equivalence of the research sample

The researcher found parity between the two research groups of the second year students at the Faculty of Physical Education, Sadat City University, of which (30) female students are in the following variables: -

Table (3)

The Significance of the differences between The experimental and control groups in the pre-measurement of Growth Variables - Intelligence - Physical Tests - skills "under search" n 1 = n 2 = 15

The Variables	UNIT	Experimental group		Control group		T" value"	
		M	ST.	M	ST.		
Growth rates	Age	year	19.22	1.73	19.35	1.54	0.36
	Tall	cm	159.20	3.10	158.1	2.23	1.11
	Weight	kg	67.44	2.12	68.12	1.75	1.35
Intelligence		degree	65.25	1.31	57.06	2.72	1.33
Physicals Tests	Precision	degree	8.62	1.32	8.43	2.43	0.37
	Reaction speed	degree	0.42	1.33	0.45	1.45	0.12
	Flexibility	cm	24.2	2.42	23.75	2.15	0.61
	Agility	sec	14.62	3.21	14.54	3.51	0.05
	Legs capacity	m	1.41	1.08	1.38	2.11	0.08
	Arms capacity	m	3.39	1.18	3.42	1.66	0.11
	Muscular endurance	repeat	13.21	2.20	12.82	1.98	0.66
Compatibility	degree	13.85	1.64	14.2	1.41	1.12	
Skills under search	One -Two	degree	1.44	2.56	1.37	2.15	0.09
	One -Two-three	degree	1.35	2.10	1.48	2.21	0.21
	The doublement	degree	1.34	1.99	1.45	1.84	0.23
	Straight Degagement	degree	1.01	1.22	1.10	1.16	0.47
	Coup Degagement	degree	0.95	1.17	1.03	1.31	0.39

The tabular "T" value is at 0.05 = 1.761

Table (3) showed that there are no statistically significant differences between the two groups of research in the Variables of Growth - Intelligence - Physical Tests - Skills "under search", which

indicates their equivalence in these variables.

Data collection methods and tools

In collecting information and data related to this research, the researcher relied

on means and tools, taking into account the following conditions:

That they meet the scientific criteria (honesty and consistency).

To be easy to implement and to have measuring devices. To be effective in diagnosing the specific aspects of the research.

A- Devices to indicate Growth rates, represented in the following:-

Age: by reference to the date of birth (to the nearest year).

) Length: by using the recorder (to the nearest centimeter).

Weight: with the medical scale (to the nearest kilogram).

B- IQ test- :

The researcher chose the illustrated intelligence test for Dr. Ahmed Zaki Saleh 1978.

C- Reference survey, Expert opinion survey and personal interview

1- Reference survey to determine the physical elements of a fencing.

Through a comprehensive survey of scientific references and related studies that dealt with some of the physical characteristics of fencing, the researcher identified the physical elements of fencing and their relative importance

based on their frequency in the scientific references.

The researcher also surveyed Experts and specialists in the field of fencing on identifying the physical elements of the basic skills under search. Attachment (4).

2-A survey of Experts' opinions to determine the most important physical tests that measure those physical elements of Fencing, attached (2)

The Tests.

1-Physical tests:

The researcher used the tests to measure some elements of physical fitness in order to find homogeneity and parity among the members of the research sample. These tests were represented. In attachment (5)

Scientific Factors of the tests used in the research

1-Validate Physical Tests

The validation of the distinction was made between two groups, one of them is an exploratory one, which consists of 8 female students from the second year girls from the same sample community, and another sample of 8 students from the third year girls, representing the distinguished students, on Tuesday 18/2/2019. Table (5) shows the validity of the distinction. In Physical Tests.

Table (4)
Differentiation Validation for Physical Tests n 1 = n 2 = 8

The variables	Unit	Featured group		Unfeatured group		T" value"
		M	ST.	M	ST.	
Precision	degree	9.81	1.66	7.56	1.48	6.82*
Reaction speed	degree	0.22	0.48	0.45	0.35	9.78*
Flexibility	cm	29.55	2.32	26.12	2.64	4.17*
Agility	sec	19.44	1.19	16.59	1.34	13.31*
Legs capacity	m	1.18	0.23	1.45	0.42	17.66*
Arms capacity	m	3.99	1.77	2.47	1.65	3.89*
Muscular endurance	repeat	16.14	1.32	13.54	1.38	10.70*
Compatibility	degree	18	1.32	15	1.24	13.72*

Tabular "T" value at significance level (0.05) = 1.753.

Table (4) shows that there are statistically significant differences between the two Featured and Unfeatured groups in favor of the Featured group, which indicates the validity of the tests in what they were designed for.

1-Stability of Physical Tests

The researcher found consistency of the tests by

applying the test on Tuesday 18/2/2019 and re-applied it to the survey study sample chosen from the second group of 8 students on Tuesday 25/2/2019, with a time interval of one week from the first application and a schedule (9) Explains the stability of the physical tests

Table (5)
Correlation Coefficient between the first and second applications in Physical Tests

The variables	Unit	The First Application		The Second Application		"R" value
		M	ST.	M	ST.	
Precision	degree	8.5	1.66	8.9	1.54	0.905*
Reaction speed	degree	0.52	0.32	0.47	0.22	0.825*
Flexibility	cm	29.2	2.21	29.7	2.2	0.812*
Agility	sec	18.15	1.54	18.30	1.72	0.922*
Legs capacity	m	1.31	0.18	1.25	0.22	0.885*
arms capacity	m	2.82	0.35	2.99	0.36	0.865*
Muscular endurance	repeat	14.74	0.75	15.02	1.21	0.802*
Compatibility	degree	17.5	1.55	18.20	1.35	0.864*

* Tabular "R" value at significance level (0.05) = 0.265

Table (5) shows that there is a statistically significant correlation between the first and second applications in the tests under search, which indicates the stability of the tests.

Scientific coefficients for form to assess the skill level of some skills of the compound attack "under search"

- Validation of the form to assess the skill level of some skills of the Compound attack "under search"

The skill performance was applied to the Exploratory sample of 8 female students from the second year girls, and another sample of 8 students from the third year for girls on Wednesday 19/2/2019.

Table (6)
Validated the form of evaluating the skill level of some skills of the the Compound Attack "under search"

The variables	Unit	The First Application		The Second Application		T" value"
		M	ST.	M	ST.	
One -Two	degree	3.88	1.85	1.65	2.23	3.44*
One -Two-three	degree	4.55	2.12	1.84	2.15	4.01*
The doublement	degree	3.89	1.96	1.32	2.64	3.50*
straight Degagement	degree	3.55	1.52	1.15	1.23	9.41*
Coup Degagement	degree	3.49	1.43	1.02	1.52	8.51*

Tabular "T" value at significance level (0.05) = 1.753

Table (6) shows that there is a statistically significant correlation between the first and second applications in the tests under search, which indicates the stability of the tests

. Stability of the Form to assess the level of skill performance of some Compound Attack "under search."

The researcher found the consistency of the Form by applying the test on Wednesday 19/2/2019 and re-applying it to the Survey sample selected from the second division on Wednesday 26/2/2019, numbering 8 students, with an interval of (7) days from the first application and the second (8) It shows the validity of the form.

Table (7)
Correlation Coefficient between the first and second applications
in assessing a standard Skillful performance of some Compound
Attack skills "under search".

The variables	Unit	The first Application		The second Application		R" value"
		M	ST.	M	ST.	
One -Two	degree	2.02	2.40	2.22	1.57	0.654*
One -Two-three	degree	1.98	1.54	2.23	1.68	0.702*
The doublement	degree	2.15	1.38	2.20	1.81	0.725*
Straight Degagement	degree	1.15	1.52	1.20	1.75	0.692*
Coup Degagement	degree	1.08	1.68	1.10	1.35	0.658*

* Tabular "R" value at significance level (0.05) = 0.265

Table (7) showed that the calculated "R" value is greater than the tabular "R" value, which indicates the existence of a correlation between the first and the second application and thus the stability of a form assessing the skill level of some compound attack skills.

Preparing The Content

The researcher provided the scientific content of the program by reviewing the latest scientific references to choose the knowledge aspects and special concepts that are appropriate in their formulation of the capabilities and needs of learners for this stage of age, as it included the skillful part on the various technical aspects in addition to the legal aspects (1), (9).

An educational model for the (One- Two) Attack for Control Group as example.

Administrative Works :preparing tools taken 5 minutes.

Warming up and physical preparation:do some Exerisce taken 10 minutes.

Explanation of skill and practical application:taken 70 minutes.

Explain the skill of the (one -two) attack and the method of its performance Model performance by parameter and correct performance method

Giving the educational steps that can be used in the skill gradation from easy to difficult,Giving exercises by which the skill can be trained and mastered,Learn common mistakes and how to correct them To conclude, calm down exercises taken 5 minutes. see attachment(9)

Audio-visual media preparation and processing.

The multimedia program consisted in preparing and equipping each of (different skills in virtual reality / educational videos)

The researcher used the program (**I play SBS player**) which divides the screen into two similar parts and when placing the mobile in the virtual reality glasses, then you watch the video in a 3D image. Addressing the error when using the program, and the video is downloaded to the students of the experimental group at the time of the lecture

An educational model for the (One- Two) Attack for Experimental Group as example.

Administrative Works :preparing tools taken 5 minutes.

Warming up and physical preparation:do some Exerisce taken 10 minutes.

Explanation of skill and practical application:taken 70 minutes.

Explain the skill of the (one – two) attack and the method of its performance

Watch the video with the virtual reality glasses by(**I play SBS player**) program, Giving the educational steps that can

be used in the skill gradation from easy to difficult,Giving exercises by which the skill can be trained and mastered

Re-Watch the video with the virtual reality glasses by(**I play SBS player**) program, Learn common mistakes and how to correct them.

To conclude, calm down exercises taken 5 minutes see attachment(10)

Program Test

The researcher conducted an exploratory experiment on Sunday 2/3/2019 on the exploratory research sample in order to identify the difficulties that the researcher may face while using the educational program prepared with the virtual reality technology and its suitability for the learners' abilities and its speed in implementing various commands until the program is ready for use And application.

The researcher conducted the basic experiment on the experimental research sample from 4/3/2019 to 20/5/2019 for a period of (12) weeks, at the rate of one educational unit per week, at a time of (90) minutes per educational unit, and used the traditional method "verbal explanation The performance of the model "for the control group. Attachment (9) shows a

model for an educational unit for the control group, while the experimental group used the educational program for virtual reality technology. Attachment (10) shows a model for an educational unit for the experimental group in virtual reality."

Post Measurement

After implementing the basic research experiment, the researcher conducted a post-measurement on the experimental and control research groups in learning the skills of the combined attack (under investigation) on Wednesday, 21/5/2019

Statistical treatment:

The researcher records the obtained data and then statistically processed it by: - the arithmetic mean - the standard deviation - the skewness factor - the median - the correlation coefficient - the "T" test - the percentages of improvement rates.

Presenting and discussing the results

First: Presenting and discussing the results of measurements (pre and post) of the control group "traditional education" in the performance level of some composite attack skills "under search."

Table (8)

The significance of the differences between the mean of the pre and post measurements. The control group "traditional education" in the level of performance of some Compound Attack skills " under search." N = 15

The variables	UNIT	Post measurment		Pre measurment		T" value"	Improvement percentage %
		M	ST.	M	ST.		
One -Two	degree	3.85	1.72	1.37	2.15	4.02*	%181.02
One -Two-three	degree	4.56	1.12	1.48	2.21	4.29*	208.11%
The doublement	degree	3.75	1.55	1.45	1.84	4.27*	158.62%
straight Degagement	degree	3.45	1.12	1.10	2.16	5.95*	213.63%
Coup Degagement	degree	3.42	1.52	1.03	2.31	4.86*	232.04%

*The tabular "t" is at 0.05 = 1.761.

Table (8) showed that the calculated "T" value is greater than the tabular "T" value, which indicates the existence of statistically significant differences between the pre and post measurement of the

control group "traditional education" in the performance level of some Composite Attack skills "under search" and in favor of Post measurement, the improvement rate between the two measures

was between (158.62 and 232.04%)

The researcher Indicates that result to the use of the used traditional method, which depends on the explanation and the performance of the model and giving some training on the presented skill, in which the graduation from easy to difficult and simple exercises to the hard is taken into account, which is interspersed with correcting and amending some errors and giving a delayed feedback which positively affects the level of learning Perform some composite attack skills "under search".

The researcher points out that the traditional method used, which is considered one of the easiest methods and methods used in education.

This is agree with the study of **Sayed Y. Abdul** (2010)

(12), **Mohammad A. Shawqi** (2015) (9), **Othman W. Ibrahim** (2015) (11), and **Ahmad W. Abd al-Fattah** (2015) (4), **Maarouf Z.** (2016) (6), **Mohammad A. Saeed** (2017) (8), **Al-Jubouri M. Ibrahim** (2017) (3), **Ibrahim F. Mohammad** (2017) (5), and thus the first hypothesis that "There are statistically significant differences between the mean of the post and pre measurements of the control group in favor of the post measurement in learning some Compound Attack skills in the sport of fencing".

Second: Presenting and discussing the results of the (post and pre) measurements of the experimental group "virtual reality" in the performance level of some Compound Attack skills "under search."

Table (9)

The significance of the differences between the mean of the pre and post measurement of the experimental group "virtual reality" in the level of performance of some Composite Attack skills "under search". N = 15

The variables	Unit	Post measurement		Pre measurement		T" value"	Improvement percentage %
		M	ST.	M	ST.		
One -Two	degree	4.77	1.64	2.56	1.44	4.90*	%231.25
One -Two-three	degree	5.48	1.48	2.10	1.35	7.19*	305.93%
The doublement	degree	4.80	1.32	1.34	1.99	6.48*	231.25%
Straight Degagement	degree	4.35	1.64	1.01	1.22	11.99*	330.69%
Coup Degagement	degree	4.13	1.72	0.95	1.17	11.37*	334.73%

*The tabular "t" is at $0.05 = 1.761$.

Table (9) showed that the calculated “T” value is greater than the tabular “T” value, indicating the existence of statistically significant differences between the pre and post measurement of the experimental group “virtual reality” in the performance level of some Composite Attack skills “under search” and in favor of post measurement, the improvement rate between the two measurements was between (231.25 and 334.73%.)

The researcher attributes this result to the fact that the use of virtual reality technology had a positive effect on the performance level of some composite attack skills of the experimental group students.

The researcher Indicates the positive impact of the experimental group on the level of skill performance to the new virtual learning environment that was provided to the students to create an imaginary three-dimensional atmosphere for the different skill performance models to be learned from different angles in which the learner student focuses on the different parts of the body separately during their movement on one side and on the other hand. In the

form of the skill as a whole and knowledge of some cognitive aspects on which it is based in learning, and the three-dimensional visual stimulus from different angles affects the learner more. When the learner student performs the skill, he retrieves the three-dimensional mental image and performs an internal feedback which helps in correcting his mistakes himself, if any Thus, the learner achieves a high performance rate.

Mohammad A. Ragheb (2000) states that he can manage the virtual environment through influences Accompanying her create an interactive educational atmosphere that attracts the student and immerses him in this atmosphere to deal with things Existing in it in a natural way, which facilitates this process, providing the learner with audio instructions that facilitate his involvement in this environment, and if the preparation was prepared in an appropriate manner and the available capabilities were exploited in a sound way and built in the required manner, then he had concepts and procedures that would help him learn and develop various skills. (7: 3)

This is agree with the study of **Sayed Y. Abdul** (2010) (12), **Mohammad A. Shawqi** (2015) (9), **Othman W. Ibrahim** (2015) (11), and **Ahmad W. Abd al-Fattah** (2015) (4), **Maarouf Z.** (2016) (6), **Mohammad A. Saeed** (2017) (8), **Al-Jubouri M. Ibrahim** (2017) (3), **Ibrahim F. Mohammad** (2017) (5), that the virtual reality has a positive impact on learning and increasing the student's ability to remember the achievement of the educational material and the development of different skills and abilities compared to the traditional method.

Consequently, the second hypothesis is validated, which

says that "there are statistically significant differences between the averages of the post and pre measurements of the experimental group in favor of the post-measurement in learning the performance of some Compound Attack skills in the sport of fencing". **Third:** Presenting and discussing the results of the post measurements of the control group "traditional education" and the experimental group "virtual reality" in the performance level of some Compound Attack skills "under search"

Table (10)

The significance of the differences between the post dimensional averages of the control group "traditional education" and the experimental group "virtual reality" in the level of performance of some Compound Attack skills "under search" N = 15

The variables	Unit	POST MEASUREMENT		PRE MEASUREMENT		T" value"	Improvement percentage %
		Experimental g.		Control g.			
		M	ST.	M	ST.		
One -Two	degree	4.77	1.64	3.85	1.72	2.44*	%23.90
One -Two-three	degree	5.48	1.48	4.56	1.12	2.62*	20.18 %
The doublement	degree	4.80	1.32	3.75	1.55	3.80*	28.00%
Straight Degagement	degree	4.35	1.64	3.45	1.12	3.42*	26.09 %
Coup Degagement	degree	4.13	1.72	3.42	1.52	2.31*	23.68 %

*The tabular "t" is at $0.05 = 1.761$.

Table (10) showed that the calculated value of "T" is

greater than the tabular "T" value, which indicates the

existence of statistically significant differences between the two dimensional standards of the control group “traditional education” and the experimental group “virtual reality” in the performance level of some Composite Attack skills. In the interest of the post measurement of the experimental group, the improvement rate between the two measures reached between (20.18, 28%).

The researcher Indicates that result to the fact that the use of virtual reality technology has had a positive effect on the level of skills performance of students to a greater extent than the group that has been taught traditionally.

The researcher Indicates the superiority of the experimental group in the level of skill performance to the educational program’s excellence in virtual reality with audio-visual stimuli, technical theoretical words, and 3D player movements for various skills and from various corners of the playing field (right / left / horizontal / vertical) which are not provided by any of the other traditional methods. In turn, it leads to learner interaction

And it motivates him to do more good to perform similar to the actual reality he is watching and in which the learner is observed Access to optimum performance, and the excellence of the virtual learning environment in providing a vivid picture of pictures and shapes that suggest With the learner in the hall, which would have been a good effect in reaching higher learning rates for some Composite Attack skills

This is agree with the study of **Sayed Y. Abdul** (2010) (12), **Mohammad A. Shawqi** (2015) (9), **Othman W. Ibrahim** (2015) (11), and **Ahmad W. Abd al-Fattah** (2015) (4), **Maarouf Z.** (2016) (6), **Mohammad A. Saeed** (2017) (8), **Al-Jubouri M. Ibrahim** (2017) (3), **Ibrahim F. Mohammad** (2017) (5), **Abdelrasoul E. Ali** (2015) (19), **Othman W. Ibrahim** (2015) (11), **Joan M. et al** (2006) (19), whose results indicated that virtual reality environments led students to learn, absorb and refine different skills. Search "for the traditional way.

Rachel and Shailitvak both see that virtual reality provides students with great and unique opportunities to

experiment and uncover things and phenomena that they cannot observe, which helps in learning what is difficult to learn by traditional means, makes the learner more credible, and motivates students to learn and understand difficult concepts. (22: 293).

Thus, the third hypothesis is validated, which says that "there are statistically significant differences between the averages of the post measurements between the experimental and control groups in favor of the post measurement of the experimental group in learning some Compound Attack skills in the sport of fencing"..

Conclusions and Recommendations:

First: Conclusions:-

In light of the objectives and assumptions of the research and based on what the research results have shown, and within the limits of the characteristics of the sample, the measurements that were carried out and the statistical treatment that was used, the following conclusions were reached:

- The presence of statistically significant differences between the post measurements of the control and experimental

groups, which had a positive effect on the virtual reality technology in the level of performance of some compound attack skills .

Secondly, recommendations :

- The need to use virtual reality technology in the learning process because of its positive and effective impact on other methods.

- The need for those in charge of the learning process to take advantage of modern and advanced technology in the learning process.

- The necessity of conducting more scientific research that deals with the creation of a virtual teacher that does not exist in the virtual learning environment.

- Conducting more research in the field of virtual reality using effective applications for tablets in fencing and other fields.

References

First: Arabic references: -

1- Abdel Aziz I. (2003): Technical bases of Fencing, Cairo, The Book Center for Publishing.

2- Al-Hosary A. Kamel (2002): "Patterns and Characteristics of Virtual Reality and Student Teachers' Opinions in Some of its Programs Available on the

Internet", published research, Journal of Educational Technology, Volume (12), Issue (1), Egyptian Society for Educational Technology, Cairo.

3- Al-Jubouri M. Fadel (2017): "The effect of using virtual reality technology in improving cognitive achievement and learning some basic technical gymnastic skills for students," an unpublished master's thesis, College of Physical Education and Sports Sciences, Karbala University, Iraq.

4- Ahmed W. Abdel Fattah (2015): "The Effect of an Educational Program Using Virtual Reality Technology on Learning Outcomes in Volleyball for Female Students of the College of Education, Mansoura University", published PhD thesis, College of Physical Education, Mansoura University.

5- Ibrahim F. Zaki (2017): "The effectiveness of an educational program using virtual reality technology on the learning outcomes of swimming among students of the Faculty of Physical Education- Al-Azhar University", unpublished PhD thesis, Faculty of Physical

Education for Boys, Alexandria University.

6- Maarouf Z. (2016): "The Impact of an Educational Program Using Virtual Reality Technology on Learning the Skill of Kidnapping for Students of the Faculty of Physical Education, Tanta University," published research, Sadat City University's Journal of Physical Education and Sports, Sadat City University.

7- Mohammad A. Ragheb (2000): "The Impact of Using a Virtual Smart Learning Environment with Changing Cognitive Controls on the Development of Innovative Thinking of Educational Technology Students," Unpublished PhD Thesis, Department of Educational Technology, Institute of Educational Studies, Cairo University.

8- Mohammad A. Saeed (2017): "The use of virtual reality technology and its effect on the skill and cognitive achievement of some skills in karate among beginners", unpublished master's thesis, Faculty of Physical Education, Benha University.

9- Mohammad A. Shawky (2015): "Virtual reality technology and its effect on the

level of performance of some basic motor skills and cognitive achievement in football among middle school students", published research, Journal of Comprehensive Education Research, College of Physical Education for Girls, Zagazig University, Issue (21).

10- Mohammad M. Abdul Sami (2004): Educational Technology (Concepts and Applications), 1st Edition, Publishing House, Amman

11- Othman W. Ibrahim (2015): "Education using virtual reality and its impact on learning outcomes by studying physical education for the hearing-impaired", unpublished PhD thesis, Faculty of Physical Education for Boys, Alexandria University.

12- Sayed Y. Abdul Rashid (2010): "The Impact of an Educational Program Using Virtual Reality Technology on the Skill Performance and Teaching of Student Teachers in Some Gymnastics Skills", unpublished PhD thesis, Faculty of Physical Education, Minia University.

13- Shaqour Z. (2011): Virtual Environment and Education published working paper, Arab Academy for E-Learning and Training, International Information

Network.(www.Elearning-ara-academy.com).

14- Sukkar M. Abd al-Gawad (2003): "The Duel between Education and Training," Al-Masry for Printing.

Secondly, Foreign references:-

15- Alexandra C., Cristian-Cezar P., Alina N and Doru T. (2012):" A virtual Reality Simulator for Basketball Free-Throw Skills Development", L.M.Camarinha-Matos et al, (Eds), IFIP International Federation for Information Processing.

16- Burdea, G.C., Coiffet, P. (2003): Virtual reality technology, 2nd edn. Wiley-IEEE Press, New Brunswick, NJ

17- Elinda Ali-Lim Lee, Kok W., Chun C. (2012):"How does desktop virtual reality enhance learning outcomes? A structural equation modeling approach " Computers & Education, Vol (55) m No (4), available at www.ScienceDirect.com

18- Abdelrasoul E. Ali (2015): Effectiveness of Virtual Reality Using Wii Gaming Technology in Development of Some Fundamental Skills in Tennis.

19- Joan M. et al (2006): " Effectiveness of Virtual Reality for Teaching Pedestrian Safety

", *Cyberpsychology & Behavior*, Vol (5), No (3).

20- Hsiu , U. , Shu S. (2010) : "Investigating Learners Attitudes Toward Virtual Reality Learning Environment Based on Constructivist Approach " ,*Computer & Education* ,Vol (55) , No.(2).

21- Lin Z., Qing L. (2012): Application of simulation and virtual reality to physical education and athletic training, *transaction on edutainment*

VII, LNCS 7145, Springer-Verlag Berlin Heidelberg.

22-Rachel M., Shailitvak (2001): " 3D Virtual Reality in science Education: An implication for mathematics and science teaching ", Vol (20), No (3).

Third: Internet Sites

23-

<http://tecbytec.ahlamontada.com/t7-topic> .