

## **The impact of a training program using virtual reality glasses on teaching spear throwing skill For students of the Faculty of Physical Education**

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### **Introduction and search problem:**

The progress of nations and peoples is clearly influenced by scientific and technical progress and this progress is reflected at the sporting level, and modern technology is of great importance because of its significant impact on society in all fields and sports activities.

"Syed Ali Abdul Rahman":(2018) believes that the use of IT in the field of sports training is a modern challenge that allows sports training a new phase of modernization, but it needs a smart and highly careful effort, moving it from the stage of automatic work to the stage of professionalism to based on the best of that can implement and compete locally and internationally, regionally and internationally in accordance with scientific approaches in training, modern technology seeks to detect the best ways to enable sports organizations to perform the production process better and to identify more surviving ways in the training process, and then find solutions to the problems of time, effort, communication, speed and others in order to reach the best results locally and globally. (7 :15)

"Ahmed Ragheb":(2000) adds that progress in various sports was not a coincidence, but as a result of the use of the latest scientific and technical means and methods in planning, training and preparations, and development and the use of computers had an effective impact, as each sports activity has certain physical, skill and physical requirements that must be available in the individual athlete to the extent of his performance to the extent that he can achieve the highest possible level of sports activity(6:1)

"Abbas Ali Azab", "Mohamed Abd El- Jabbar Taher":(2015) points out that the skill of spear throwing is like the rest of the games in terms of its reliance on the main requirements of sports such as skill numbers, physical, motor, mental and psychological, and spear throwing skill is distinct from other games because it needs the player to perform fast and strong because of what gives physical and motor abilities great importance and a necessary demand in order to accomplish motor and skill duties well during skill performance. (8: 8)

"Taher Dawood Suleiman", "Ali Yusef": (2009), says that with the

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increasing interest in our times in trying to employ technological innovations in the educational process, many experts have struggled to produce new and modern programs that contribute to the advancement of the training process. Without fully relying on the trainer, who was completely dependent on him and was required to perform, explain, repeat and clarify the exercise from the beginning of training in the performance of motor skills until he reached consolidation and mastery, without using modern aids. (6: 2)

"Ahmed Abd El-Azaz Al-Mubarak": (2004) believes that one of the objectives of the training is not only to acquire knowledge and information, Rather, to reach the best way to exert more effort to get all the energies out of it, and this can only be done in the presence of modern technological innovations that affect it and affect the entire training process of the player. (4:33)

"Muhammad Mejahid Nasr El-Den": (2019) explains that modern technologies affect the learner, whether in the sports field or otherwise, and achieve maximum success in the educational process, which are virtual learning environments and virtual laboratories. Virtual reality technology is a new type of computer education that adds a wide range of scientific analysis of individuals, and it refers to the ability of the computer to create a three-dimensional environment in which the user is active and interacts with the artificial world and allows him to perceive the senses the perception that

individuals feel in the real environment. (13:46)

"Michael Rush":(2005) explains that virtual reality is the embodiment of reality, but it is not real, and it is a simulation of scenes from real or imaginary reality that allows learners to perform the tasks and perform the required work within the simulation scenes and their effects in real time. (12: 17)

"Alexandra Covaci" :(2012) states that virtual reality is a system that uses different forms of technology to create a virtual world, and appears in a (3D) image where people can be shown in a place where they are difficult to find. (19: 28)

Elinda Ali Lim Lee: (2012) states that javelin throwing is a sport rich in motor skills, and it has received great interest from many researchers and specialists to present some technological innovations that serve the game, whether in the field of teaching or training, and most researchers have begun to address Producing software that helps in training to facilitate their task in accessing the mind of the trainee to produce some exercises and give the trainee a lot of information and knowledge without feeling bored and frustrated. (21: 53)

"Barreira,et,all":(2016) adds that javelin skill has evolved dramatically as performance has evolved, becomes faster and more technical, and many modifications have been made in the law of the game. (20 :107)

"Joan Mccomas et al":(2006) was found that virtual learning environments have been used in some

mathematical skills through which the trainee is guided to build knowledge, or when the goal is to study concepts of a high visual nature, then virtual reality has already been used with a number of mathematical skills where virtual reality is used with A number of mathematical skills that help learners to master skills and provide knowledge through virtual training situations, and to develop effective participation and interaction with different training situations. (24 :52)

"What's Rush":(2005) indicates that virtual reality is the embodiment of reality but it is not real and it is a simulation of scenes of real or imaginary reality that allows learners to carry out the tasks and perform the required work within the scenes of simulation and its effects and in real time (12:13)

"Hsiu, Ulrich", "Shu-Sheng":(2010) states that the successful use of virtual reality in applications known as "virtual reality environments" allows for visual representation of 3D data, the virtual environment provides an opportunity to stimulate a realistic environment for trained people to perform certain tasks, and the virtual drape environment provides simulation in a real time in which visual presentations can be used to imitate the real world. (23: 121)

The importance of research in the use of new methods using training technology and simulating the skill of spear throwing, lies in the positive increase and attention of the trained and the care of individual differences, helping to speed up the learning and

development of the spear throwing skills.

Hence the idea of research, which is to use modern techniques (virtual reality) in an attempt to use it to learn the skill of spear throwing in an interesting way that attracts the attention of students and helps them to quickly learn and develop the skill of javelin throwing.

#### **Search problem:**

Today, the world is witnessing tremendous achievements in ICT that have been reflected in the educational process, with technological advances in the era of the knowledge revolution leading to the emergence of a variety of methods based on the employment of technological innovations to achieve better learning. The so-called e-learning, which is the most important achievement of education technology that has benefited from ICT data in the educational process, has emerged and this type of learning has spread widely in educational institutions and its tools have become effective in transmitting and communicating scientific information to learners.

Through the work of the researcher in teaching the course of the Athletics found that there is a problem among the students in learning the skill of spear throwing, for example it takes a student a long time to recognize the spear and how to hold the spear and feel the tool, and few tend to practice and most of them move away from the performance of the skill because of their inability to adapt to the tool and often the factor of boredom and frustration creeps in,

and the researcher may sometimes resort to using introductory games to try to teach, choosing and producing exercises that help teach parts of the skill that take longer, so it was necessary for the researcher to employ modern technology in education to bring the student out of the traditional reality of education into a virtual reality similar to the real reality of performance. Which enables the student to deal with it and interact with it due to the presence of sound, image and three-dimensional animation integrated in a semi-real world that facilitates the learning process and works to accelerate students' response to learning and development skill.

**Search terms:**

**Virtual Reality (VR)**

Virtual reality is an artificial environment created using software and displayed to the user to believe it is a real environment using a computer, using two of the five senses: sight and sound (27)

**IT:**

IT is defined as any sector that deals with programming areas in general including hardware, software, telecommunications and any means of transmitting information (29)

**Virtual Reality Headset:**

It is a device that has a screen placed on the eyes and is attached to a belt surrounding the head. These glasses enter the virtual reality data of the person wearing it to live a very close experience of reality, as these glasses are part of virtual reality systems that work integrated to affect part of the human senses in order to

create a virtual experience as close as possible to reality. (30)

**Research aims**

**The research aims to:**

Learn about the impact of a training program using virtual reality glasses on teaching the skill of spear throwing for a sample of the Faculty of Physical Education for girls in El-Gezera, Helwan University.

**The importance of research:**

- 1- This research is in response to the need for educators to use modern teaching methods to increase the efficiency of the educational and training process.
- 2- Learning from new methods and using modern technological means may lead to progress in learning in the student's research sample.
- 3- Helping students participate positively, increasing their interaction, increasing focus, attention, attention and longing for the training process.
- 4- Contribute to the delivery and education of skill in an easy, innovative and exciting way for female students to strive for the speed of their mastery.

**Research hypothesis:**

- 1- There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the experimental group that used virtual reality glasses in the training program in favor of the telemetry.
- 2- There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the control group as a result of using

the regular method in training in favor of the post-measurement.

3- There are statistically significant differences between the measurements made after applying the program to the two groups in favor of the measurement that was made on the experimental group.

**Previous studies:**

1- A study carried out by "Ahmed Said Mohammed Ibrahim":(2017)(2) entitled "The use of virtual reality technology and its impact on the skill and cognitive achievement of some skills in karate in beginners "and the goal of research to identify the impact of the use of reality technology Virtual for beginners in karate by identifying the impact of the virtual reality program applied to the experimental group in the variables under study and identifying the difference between the traditional teaching methods used and the use of a modern method "virtual reality technology" and the sample of research was selected in the random intentional way of beginners in karate in the railway sports club for the season(2016/2017) and the number of research sample (45) beginners, and they were divided into two groups, one experimental and (15) beginners in the other control group and (15) beginners used as reconnaissance sample, in order to calculate the scientific transactions of the tests used in the research, the researcher reached the superiority of the experimental group that used the proposed tutorial (virtual reality) over the control group that used the traditional method (verbal explanation and practical model performance) at the skill and

cognitive level This shows the effectiveness of the use of virtual reality technology and its positive impact on skills learning in karate.

2. A study carried out by "Ahmed Shawky Mohammed":(2015)(3) entitled "Virtual reality technology and its impact on the level of performance of some basic motor skills and cognitive achievement in football for middle school students" and the researcher used the experimental curriculum for two groups, one experimental and the other a control group, and represented the research sample in(60) students from the third grade preparatory, and the most important results indicated the superiority of the experimental group that used the proposed tutorial (virtual reality) on the control group that used the traditional method in the skill and cognitive level, which indicates the effectiveness of the use of virtual reality technology and its positive impact on the learning of football skills.

3. A study carried out by "Walaa Abd El-Fattah Ahmed":(2015)(17) entitled "The impact of an educational program using virtual reality technology on the outputs of volleyball learning for students of the Faculty of Sports Education University Mansoura" and the researcher used the experimental method to two groups, one experimental and the other a control group, and the research sample was represented in (40) students from the first division, and the most important results indicated the superiority of the experimental group from the control

group using the proposed virtual reality tutorial in the outputs of skill, knowledge and emotional learning in volleyball.

4. A study carried out by "Wael Ibrahim Osman"(2015):(16) entitled "Education using virtual reality and its impact on the outcomes of learning in the study of sports education for the hearing impaired" and the sample of research was represented in (30) pupils from the hearing impaired, the researcher used the three-group experimental curriculum (two experimental groups, one working in virtual reality and the other in e-learning, in addition to the control group working in the traditional way) the most important results indicated that the proposed virtual reality program has a positive impact in the education of motor skills.

5- A study carried out by "Magdi Saeed Akl", "Abdul Rahman Mohammed Abu Odeh" and "Ali Jalal Obeid":(2007)(14) entitled "The effectiveness of employing virtual reality technology in social subjects in the development of the love of learning among students of the eighth grade basic in Gaza" and the study aimed to reveal the effectiveness of employing (VR) technology in social subjects to develop the love of learning in the eighth grade students basic in Gaza, and the semi-experimental curriculum was used, and reached the research sample (32) a student of the eighth grade at the Olive School in Gaza, and the measure of love of learning was applied to the research sample, where the results showed the existence of statistically

significant differences at the level of indication (0.01) between the average grades of female students in the tribal and post application of the measure of love of learning in favor of post application, one of the most important recommendations of the study is the need to use virtual reality technology to develop the love of learning in the eighth grade students basic, and direct the attention of researchers and specialists in the field of curriculum and teaching methods to employ virtual reality technology in teaching.

#### **Search procedures:**

#### **Research approach:**

In order to achieve the objectives and duties of the research, the researcher used the experimental approach of two controlled and experimental groups in the manner of tribal and post measurement due to its occasion of the nature and sample of the research.

#### **Research community:**

The research community included female students of the Faculty of Physical Education for girls in El-Gezera, Helwan University

#### **Sample:**

The research sample was selected in the intentional manner from the (50) students of the 2nd Division of female students from the Faculty of Physical Education for girls in El-Gezera, Helwan University  
It was divided as follows:

- (10) Player's reconnaissance sample.
- (20) Players of his control group.
- (20) Players trial group.

The following table shows the distribution of the research sample and the research community.

**Table (1)**  
**Description of the study community and the research sample**

Statement		Number	Percentage
The totality of society		25	100.00%
Sample study	Reconnaissance sample	10	20%
	Control group	20	40%
	Core group	20	40%
	Total sample	50	100%

**-Homogeny the research sample:**

**Table (2)**  
**The statistical description of the individuals of the research sample in the variables under investigation N= 50**

Variables		Unit of measurement	Average Arithmetic	Broker	Deviation Normative	coefficient Convolution
Growth variables	Age	year	17.667	17.000	0.483	-0.763
	Length	cm	168.524	169.000	7.561	0.122
	Weight	kg	66.333	67.000	2.763	-0.132
Skill variables	Accuracy test	degree	9.175	9	0.594	0.057
	Speed test strength	second	11.55	12	0.503	0.208
	Modified motor performance	degree	36.37	35	6.50	0.634

It is evident from Table (2) that the torsion coefficient of the research sample was limited between (+3, -3) which indicates the moderation of the research sample, and the researcher chose a set of skill and growth variables.

Contribution to the research in light of the approval of the experts. The researcher also found parity between the two research groups (experimental, controlling) in the variables under consideration.

**Table (3)**  
**Equal research sample The arithmetic mean and standard deviation and (T) values between the two groups (control and trail) in growth rates average and skill variables (in research) N1=N2=40**

auditions	Unit of	Experimental Group	Control Group	The	Value
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	measurement	Arithmetic average.	Standard deviation	Arithmetic average.	Standard deviation	difference between the two averages	
Age	Year	17.00	0.394	16.95	0.458	-0.5	0.801
Length	Cm	169.1	0.718	68.85	0.686	-0.15	-0.461
Weight	Kg	65	0.725	23.85	0.933	0.15	0.776
Accuracy test	Degree	9.35	0.587	9	0.561	0.35	1.463
Speed test strength	Second	11.65	0.489	11.45	0.510	0.2	0.964
Modified motor performance	Degree	9.95	0.686	9.75	0.716	0.2	0.90

\* indication  $> 0.05$

Scheduling value at moral level (0.05) and freedom score  $38 = 2.024$

Table (3) shows that the value of the calculated is lower than the scheduling value at a moral level of (0.05), indicating that there are no statistically significant differences indicating the parity of the experimental and controlled groups in the variables (under consideration).

**Table (4)**

**Homogeneity of the research sample in the balance test (Y)**

auditions		Unit of measurement	Statistical treatments			
			Arithmetic average.	Standard deviation	Broker	Sprain factor
Right leg	forward	Cm	69.15	4.52	70	-0.563
	back		74.82	6.35	75	-0.083
	Reverse		75.2	5.97	75	0.100
Left Leg	forward	Cm	68.9	4.71	69	-0.064
	Back		74.47	7.74	75	-0.203
	Reverse		83.82	7.34	73.5	0.132

$N1=N2=40$

It is evident from Table (4) that the torsion coefficients ranged between (-0.064 -0.132), meaning it was confined to ( $\pm 1$ ), which indicates that the research sample is homogeneous in the balance test (Y) of the research sample and its results can be moderately representative of the community.

**-Data collection methods:**

The researcher collected the information and the pleasure data of the research with the following means and tools:

The restameter / medical balance / Stop Watch /measuring tape/ computer.

**Reference survey:**

The researcher conducted a reference survey by looking at many scientific references, research and previous studies that dealt with the



tests of the skilled tests of FEH in order to identify the skill tests.

**Forms:**

- Personal data form. attached (6)
- The form for registering the results of the tests. attached (7)

**Skilled tests:** attached (5)

The researcher selected a set of skill tests compatible with the javelin throwing skill, based on the researcher's experience in the field and according to the sequence used to teach the javelin throwing skill (Force that is distinguished by speed test -modified motor performance test -precision test).

**The researcher conducted an exploratory study with the aim of:**

- 1- Identify (the extent of the appropriateness and suitability of the program put in place- discover the difficulties that may face the final

application process - exclude some exercises due to the difficulty of their performance - determine the number of exercises and the appropriate intensity of pregnancy).

- 2- Ensure the scientific transactions (validity, reliability) of the tools for measuring research variables.

**Scientific transactions of research tools:**

**-Believe the tests.**

The sincerity of the tests was calculated by applying them to (the reconnaissance sample) of the students practices for the sport of spear throwing and its strength (10) students from the same research community and outside the basic research sample, on Thursday, 19/9/2019.

**Scientific transactions of the skill tests in research:**

**Table (5)**

**The arithmetic mean, standard deviation, and value (T) in the skill tests under investigation N =10**

Auditions	Unit of measurement	Arithmetic average.	Standard deviation	Value
Modified motor performance	Degree	44.50	8.95	4.89
Precision	Degree	15	0.739	9.085
Force that is distinguished by speed	Second	11.75	0.698	10.976
Digital level	Meter	48.80	2.57	5.77

\* Scheduling value (T) at moral level 0.05 and freedom score 18= 2.10

It is clear from table (5) that the calculated value (T) is greater than the scheduled value (4.89-10.976), indicating that there are statistically

significant moral differences at a moral level of (0.05), indicating the sincerity of the tests under consideration.

**Table (6)**

**Balance test validity coefficient (Y)**

Auditions	Statistical treatments		
	Arithmetic	Standard	Value

		average.	deviation	
Right leg	forward	76.90	4.25	4.96
	back	81.80	4.07	3.55
	Reverse	78.90	3.43	2.63
Left Leg	forward	74.40	2.95	3.77
	back	76.10	3.47	2.07
	Reverse	81.10	3.90	7.85

N =10

Table (6) shows that the calculated value (T) is greater than the scheduled value (T) (2.07-7.85), indicating that there are statistically significant moral differences at a moral level of (0.05), indicating the sincerity of the tests under consideration.

**Test stability:**

The test stability laboratory was found using the method of applying the test and reapplying it to a sample of (10) students "reconnaissance sample" from the same research

community and outside the basic research sample, and the researcher considered the results of the tests for honesty for (reconnaissance sample) as the first application, the tests were retest under the same circumstances and with the same instructions after (7) days of the first application on Thursday, 26/9/2019, and the following table shows the correlations between the first and second applications

**Table (7)**  
**The arithmetic mean, standard deviation, and the value of the correlation coefficient between the first and second applications of skill tests (the coefficient of stability of the tests under research) N=10**

auditions	Unit of measurement	First app		Second App		The value of the link factor
		Arithmetic average.	Standard deviation	Arithmetic average.	Standard deviation	
Modified motor performance	degree	29.50	8.95	30.0	8.81	0.984
Precision	degree	13	0.673	13.7	0.633	0.794
Force that is distinguished by speed	second	10	0.698	10.8	0.641	0.826
Digital level	meter	42.35	2.41	42.55	2.49	0.985

\*Table (T) value at moral level 0.05 and freedom score 7= 0.633

It is evident from Table (7) that there is a strong correlation between the first and second applications, as the value of the correlation coefficient was limited between (0.794-0.985), and the

calculated value of (R) was greater than its tabular value at a level of significance (0.05), which indicates the stability of the skill tests in research.

**Table (8)**  
**Stability coefficient of balance test (Y) N=10**

auditions	Unit of measurement	First app		Second App		The value of the link factor	
		Arithmetic average.	Standard deviation	Arithmetic average.	Standard deviation		
Right leg	forward	degree	68.90	2.23	69.30	2.31	0.824
	back	degree	70.80	8.54	71	8.70	0.997
	Reverse	degree	71	6.49	72.40	7.31	0.921
Left Leg	forward	degree	86	4.18	67.90	4.58	0.996
	back	degree	71	7.55	70.90	7.57	0.997
	Reverse	degree	67.50	3.86	67.10	4.06	0.987

\*Table t value at moral level 0.05 and freedom score 7= 0.633

It is evident from Table (8) that there is a strong correlation between the first and second applications, as the value of the correlation coefficient was limited between (0.842-0.997) and the

calculated value of (R) was greater than its tabular value at a level of significance (0.05), which indicates the stability of the skill tests under research.

**Table (9)**  
**The percentage of expert agreement on program content N=7**

M	The content of the program	Repeat approval	Percentage
1	Duration of the program	2 Cities	14.28%
		Two months	85.71%
		A month and a half.	0.00%
2	Number of units per week	4 units	0.00%
		3 units	71.42%
		Units	28.57%
3	Unity Time	120 minutes	0.00%
		90 minutes	100.00%
		60 minutes	0.00%

The percentage of approval by the experts was determined on the contents of the proposed rehabilitation program, which had a percentage of the expert agreement between (0.00% - 100.00%) This is through the results of the expert survey form, and the researcher accepted at least (70%) Minimum limit to determine the content of the program, bringing the

duration of the program to two months, the number of weekly units (3 units), and unit time (90 minutes).

#### **Basic Sstudy:**

##### **1- Tribal measurement:**

The researcher performed the tribal measurement of the research to measure the variables under consideration on Sunday, September 29,2019.

## 2- The period of application of the program:

The researcher applied the program to the basic research sample from Tuesday, 1/10/2019 to Sunday, 1/12/2019, and for a period of (60) days by (3) Units per week with a total (24) units, and the time of each unit (90) minutes with a total time (2160) minutes of which 2% is used for the freshness of the assumed reality with a total time of (540) minutes.

## 3- Measurements after the experiment:

The measurement was carried out on the post measurements of the research variables under study on the research group according to what was done in tribal measurements on Thursday, 5/12/2019.

### Statistical treatments:

The researcher used the statistical program (SPSS) to treat the data statistically and used the following calculation:

- Mean Arithmetic.
- Standard Deviation.
- Median.
- Sprain factor.
- Coefficient (Person) Simple correlation.

### View results:

#### View and discuss the results of the first imposition:

It states: "There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the experimental group that used virtual reality glasses in the training program in favor of the telemetry."

**Table (10)**

**Significance of the differences between the mean of the pre and post measurements of the experimental group In learning the skills of the sample in research N=20**

Physical tests	unit scaling	Pre Measurement		Post measurement		Value "T"
		sma/	sd±	sma/	sd±	
Modified motor performance	degree	35	4.62	44	4.40	10.311
Precision	degree	11.65	0.489	31.45	1.234	65.723
Force that is distinguished by speed	second	8.755	1.107	8.027	1.322	3.299
Digital level	meter	40.74	2.75	48.9	2.36	12.116

\* Table "T" value at freedom score (19) indicative level (0.05) = (2.093)

Table (10) shows statistically significant differences between the average tribal and post measurements of the experimental group and in favor of telemetry, where it is clear that the calculated value (T) is greater than the

scheduling (T) in the results of basic skills tests.

#### Discuss the results of the first imposition:

It is clear from the presentation of the results of the table(10)validation

of the first imposition which states that "there are statistically significant differences between the tribal and post measurements in the experimental group that used virtual reality glasses within the training program in favor of post measurement", where the differences came in favor of measurement. The calculated value of "T" was greater than the scheduling value of "t", which indicates differences in favor of post measurement, the use of (VR) glasses within the training program has positively affected the level of students and improved their level for the better as a result of the program and the use of (VR) glasses.

Thus, the first hypothesis is validated, which states: "There are

statistically significant differences between the pre-measurements and the measurements made after the program was tried on the experimental group that used virtual reality glasses in the training program in favor of the telemetry."

**View and discuss the results of the second imposition:**

**View the results of the second imposition:**

It states: "There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the control group as a result of using the regular method in training in favor of the post-measurement."

**Table (11)**

**The significance of the differences between the mean of the tribal and post measures of the control group in the skills of the sample under research. N=10**

Physical tests	unit scaling	Tribal measurement		Post measurement		Value "T"
		sma/	sd±	sma/	sd±	
Modified motor performance	Degree	9	0.561	22.2	1.361	13.574*
Precision	Degree	11.45	0.510	18.1	1.333	19.758*
Force that is distinguished by speed	Second	9.623	2.175	8.036	1.362	2.673
Digital level	Meter	42.33	2.49	43.23	1.92	4.209

\* Table "T" value at freedom score (19) indicative level (0.05) = (2.093)

Table (11) shows statistically significant differences between the average tribal and post measurements and in favor of post measurement, where it is clear that the calculated value (T) is greater than the scheduling (t) in the results of the tests in question, which is the hand of the existence of statistical differences is a

moral function between the two measurements that are domed to the dimension in favor of the post measurement of the controlled research sample, which indicates progress in the level of students as a result of the use of the training program in the traditional way, as indicated by Table (11).

**-Discuss the results of the second imposition:**

It is clear from the presentation of the results of table (11) validation of the second hypothesis, which states that "There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the control group as a result of using the regular method in training in favor of the post-measurement"

where the differences were in favor of the dimension measurement and the calculated value of "T" was greater than the value of "T" scheduling, which indicates progress in the level of students as a result of the use of the training program in the traditional way, as indicated by Table (11).

Thus, the second hypothesis is validated, which states:

"There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the control group as a result of using the regular method in training in favor of the post-measurement."

**-View and discuss the results of the third imposition:**

**View the results of the third imposition:**

It states "There are statistically significant differences between the measurements made after applying the program to the two groups in favor of the measurement that was made on the experimental group."

**Table (12)**

**The significance of the differences between the mean of the dimensional measurements of the experimental and control groups in the basic skills tests of the sample under in research.  $n_1 = n_2 = 10$**

Physical tests	unit scaling	Experimental Group		Control Group		The difference between the two averages	Value "T"
		sma/	sd±	sma/	sd±		
Modified motor performance	degree	44	4.30	36	4.70	8	4.86*
Precision	degree	31.45	1.234	18.1	1.333	13.35	13.609*
Force that is distinguished by speed	second	8.027	1.322	8.036	1.362	0.013	0.990*
Digital level	meter	48.09	2.36	43.23	1.92	4.86	6.18*

\* The scheduled "T" value at the degree of freedom (38) is a indicative level (0.05) = (2.024)

It is clear from table (12) that the value of "T" was limited to (0.990-13.609) and the value \* the value of the table "T" at the degree of freedom (38) level of indication (0.05) = (2.024) Indicating statistically significant

differences between the average dimensional measurements of the experimental and controlled groups in the tests.

The basic skills of the sample in question for the experimental group.

### **Discuss the results of the third imposition:**

It is clear from the presentation of the results of table(12) validation of the third hypothesis, which states that "there are statistically significant differences between the two dimension measurements of the experimental group and the dimension of the control group thief of the post measurement of the experimental group", where table (12) shows the existence of moral differences with statistical indication among the average dimensional measurements of both experimental and controlled groups in favor of the experimental group in the results of the test(in question) as the calculated value (T) is greater than the scheduling (T) values, indicating the positive impact of the use of (VR) glasses.

**Thus, the third imposition, which states:** "There are statistically significant differences between the measurements made after applying the program to the two groups in favor of the measurement that was made on the experimental group."

### **Interpretation of results:**

It is evident from the results of Table (10) that there are statistically significant differences between the mean scores of the pre and post measurements of the experimental group at the skill level in favor of the post measurement, which indicates that the virtual learning environment using virtual reality glasses has positively affected the level of skill performance of the students of the experimental group.

The researcher attributes the positive impact of the experimental

group on the level of skill performance to the use of virtual reality glasses that were available to the students, as it created an imaginary three-dimensional atmosphere for the models of the performance of the different skills to be learned and from different angles in which the focus is on the different parts of the body during their movement and the shape of the skill as a whole. The three-dimensional visual stimulus from different angles affects the learner more. When the student performs the skill, he retrieves the three-dimensional mental image and performs internal feedback, which helps him correct his mistakes by himself, if any, which achieves a high-performance rate for the learner. Also, the human interaction with the 3D virtual reality glasses makes them more interactive with the moving images he deals with,

This is what is provided by virtual reality technologies that allow a high possibility of interaction and access to the environment he wants and from any perspective he wants (front, side, back).

This is in agreement with the study of "Ahmed Ragheb Muhammad" (2000) (1) in that the virtual environment can, through the accompanying effects, create an interactive educational atmosphere that attracts the student and makes him enter this atmosphere to deal with the things in it in a natural way. The learner has voice instructions that facilitate his involvement in this environment, so if the preparation for it is done in an appropriate manner and the available capabilities are exploited

in a sound manner and built in the required manner, then he has concepts and procedures that help him learn and develop the various skills and thus verify the validity of the first hypothesis that states "There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the experimental group that used virtual reality glasses in the training program in favor of the telemetry."

It is evident from the presentation of the results of Table (10) that there are statistically significant differences between the averages of the scores of the tribal and dimensional measurements of the control group in the skill level and in favor of the post measurement, which indicates that the use of the traditional method adopted, which depends on the explanation and the performance of the model and giving some training on the presented skill in which the gradation is taken into account From easy exercises to difficult and simple to complex, which is interspersed with correcting and amending some errors and giving late feedback, which positively affects the level of skill learning in question.

The researcher points out that the traditional method used, which is considered one of the easiest methods and methods used in learning at a time when modern technology is frequently used in the learning process, may not meet a more noticeable improvement because this method is one of the most methods that do not take into account individual differences between learners, so the competence of a

student in Learning faster may not be in line with another student who wants to know more models and from different angles in order to absorb the largest amount of information, which in the end is in the process of learning the required skill on the one hand, and on the other hand, it is not in this way a factor of excitement and excitement that attracts the learner. And exit all potential energies within the process of learning.

This is consistent with the study "Walaa Abdel Fattah Ahmed" (2015) (17), which indicated that the traditional method of education achieves progress in the educational process, but with a lesser percentage than the methods that use modern educational technology, and this is what the researcher found.

And thus validate the second hypothesis, which states" There are statistically significant differences between the pre-measurements and the measurements made after the program was tried on the control group as a result of using the regular method in training in favor of the post-measurement."

The results of table (11) reveal statistically significant moral differences between the controlling and experimental groups in the level of performance in favor of the post measurements of the experimental group that used virtual reality glasses. This is consistent with the study conducted by "A.L.Zahdi Shaqour" (2011) (9), As it has been proven that virtual reality technology enables learners to coexist in the virtual environment and benefit from it in



education, relying on the principle of enjoyment and observation before practice, as it works to create an interactive educational atmosphere that attracts the attention of the learner and even introduces him into this atmosphere to deal with the educational material in it in a natural way More effective, which facilitates this, providing the learner with voice instructions or in the form of animations that facilitate his integration into this environment, and if this virtual environment is well prepared in an appropriate manner and constructed as required, the learner will get an educational opportunity that will enhance, refine, learn and develop his required abilities and skills. (28).

The researcher attributes the superiority of the experimental group in the level of skillful performance to the educational program's excellence in virtual reality with audio-visual stimuli, technical theoretical words and three-dimensional moving images of skill and from various angles (right / left / horizontal / vertical) which are not provided by any of the other traditional methods, which in turn leads To the interaction of the learner and motivates him to make more effort to perform similar to the actual reality he watches in which the learner takes into account access to optimal performance, and the virtual learning environment is distinguished by presenting a vivid picture of images and shapes suggesting the presence of the learner inside the actual javelin stadium with what it contains of determinants, stadium, audience, etc.

Good effect in reaching higher learning rates for javelin throwing skill.

This result is consistent with what "Mustafa Abd El-Samee Mohammed" (2004) Where he indicated that the use of modern technological methods in teaching motor skills works to provide the opportunity for the learner to witness the optimal performance of the engines to be learned, which helps to provide learners with better feedback than using traditional methods of education. (15: 73)

Thus, the third imposition, which states that "There are statistically significant differences between the measurements made after applying the program to the two groups in favor of the measurement that was made on the experimental group."

#### **Conclusions and recommendations:**

In the light of the research objectives, duties, approach used and within the same limits research and reference framework of studies and researches and through statistical analysis it was possible to reach the following conclusions:

#### **Conclusions:**

- 1- There are statistically significant differences in favor of the post measurement of the experimental group after the application of the program to female students, indicating the effectiveness of using VR glasses.
- 2- There are statistically significant differences in favor of the post measurement of the control group after the program is applied in the traditional way to female students, indicating the effectiveness of using the program in

the traditional way but not the same progress as using (VR) glasses.

**3-** There are statistically significant differences in favor of the experimental group between the post measurement of the experimental group and the post measurement of the control group in favor of the experimental group, indicating the effectiveness of the use of the default impact system.

**-Recommendations:**

1- Work to integrate virtual reality glasses into the training programs for spear throwing skills.

2- Hold training courses for trainers in various branches of field competitions and track to show them how to use virtual reality glasses.

3- Providing virtual reality glasses as a way to dress up in different sports education colleges and clubs.

4- Providing various skills for field and track competitions in the electronic form used by virtual reality glasses to facilitate the training process for coaches and standardize the concept of skills for all players and coaches.

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