

The Effect Of Special Exercises Using 3D Virtual Reality Glasses On Learning Weapon Foil Attacks For Students

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Abstract

The purpose of this paper is to preparing the 3D system for virtual reality glasses, preparing special exercises using virtual reality (3D) glasses to teach students various types of attack weapons and identify the effect of special exercises using virtual reality (3D) glasses in learning weapon foil attack variants for students. The researchers used the tightly controlled experimental method (designing two equal groups with a pre- and post-test) to suit it and the nature of the problem to be solved. The researchers identified their research population, represented by third-year students at the College of Physical Education and Sports Sciences at the University of Kufa for the academic year (2022-2023), numbering (60). The research sample was chosen randomly by conducting a lottery between two divisions (B, C), and the sample represented the experimental group in Division (C) The number of which is (30) students, as the results of (10) students were excluded due to the fact that they benefited from the reconnaissance experiment and those who failed, and the results of only (20) students from each group were approved. Thus, Section (B) became the control group and Section C became the experimental group. One of the most important results reached by the researcher is that: Preparing special exercises using 3D virtual reality glasses had a great impact on students learning various types of attack weapons, and the educational curriculum using special exercises had an effective impact on students learning various types of offensive weapons. One of the most important recommendations recommended by the researchers is that: Possibility of using special exercises within physical education curricula, as they are necessary for learning various types of offensive weapons , and possibility of using modern 3D display technology because of its effective role in learning some of the various types of offensive weapons foil for students.

Introduction:

Learning the basic skills in individual and group games and how to improve them comes through careful consideration of employing scientific development by integrating modern methods with new exercises in order to reach the learner's optimal performance. Scientific and technical development forces the person to keep pace with it and use what is best to serve the educational process and its success. And reach

the highest levels. It is absolutely necessary that all sciences serve the educational process, whether cognitive or motor learning, and it is one of the most important sciences in the sports field that helps the learner to achieve the best performance in all individual and group games. It is motor learning that is characterized by gradualism, comprehensiveness and diversity, which requires the use of many types of modern methods in the learning process, including special exercises to directly assist learners in the process of learning and developing motor skills.

Fencing is considered a science, an art, and a way to gain health and self-confidence. It also develops balanced thinking and gives him a broad horizon of perception and thinking. The student needs to learn all the details related to his skill and effectiveness and to recognize all the circumstances and situations related to that game and effectiveness. Therefore, it is no longer a secret to those working in the sports field that the teaching process must be subject to the development that is taking place in the scientific aspects or technology used as means in the learning process. The importance of the research lies in integrating modern 3D technologies with special exercises that are compatible with the students' ability and abilities, as the use of a modern means of display will be virtual reality glasses in a 3D display manner, as well as in three directions and at two speeds, normal and slow.

Research problem:

In all sports, including fencing, we find that researchers are aiming to create a new educational environment that helps the learner to speed up and improve the learning process. Therefore, we find that ambition haunts the ideas of researchers and specialists to improve the level of skill performance in individual and university games, including fencing, and to discover everything new.

Through the researchers' observation that they are specialists in motor learning, they noticed a slowness and weakness in the process of learning the attack variations in Weapon Foil as a result of the consistency of educational methods in these skills. In order to reach better levels and increase the speed of learning, the researchers decided to use special exercises using an auxiliary display device, which is glasses. Virtual reality (3D) through which exercises are presented to increase the spirit of excitement and suspense among students, which enables the student to see the artistic performance in a modern three-dimensional way and at two speeds as well as three directions, which enables the student to understand and perceive movements and skills better and faster. The importance of research lies in preparing special exercises using Auxiliary display device for 3D virtual reality glasses.

Research objective:

- Preparing the 3D system for virtual reality glasses.
- Preparing special exercises using virtual reality (3D) glasses to teach students various types of attack weapons.
- Identify the effect of special exercises using virtual reality (3D) glasses in learning weapon foil attack variants for students.

Research hypotheses:

- There is a positive effect of the exercises using virtual reality (3D) glasses in learning the various types of attack, weapon foil, for students.

Research fields:

- Human field: Students of the third stage of the College of Physical Education and Sports Sciences, University of Kufa, for the academic year (2022-2023), numbering (30).
- Time field: (22/11/2022) to (10/1/2023)
- Spatial field: Fencing hall in the College of Physical Education and Sports Sciences.

Research methodology and field procedures:

Research Methodology:

Scientific research resorts to choosing the best and most appropriate approach that suits the nature of the problem to be solved. Therefore, the researchers used the tightly controlled experimental method (designing two equal groups with a pre- and post-test) to suit it and the nature of the problem to be solved.

Community and sample research:

The researchers identified their research population, represented by third-year students at the College of Physical Education and Sports Sciences at the University of Kufa for the academic year (2022-2023), numbering (60). The research sample was chosen randomly by conducting a lottery between two divisions (B, C), and the sample represented the experimental group in Division (C) The number of which is (30) students, as the results of (10) students were excluded due to the fact that they benefited from the reconnaissance experiment and those who failed, and the results of only (20) students from each group were approved. Thus, Section (B) became the control group and Section C became the experimental group.

Field research procedures

Determine the skills of the research topic.

Weapon Foil attack skills were chosen, which are part of the curriculum prescribed at the College of Physical Education and Sports Sciences at the University of Kufa, which is taught in the second academic course. Accordingly, attack skills and variations (completing, repetition, and recovery) were chosen. These skills were determined through a questionnaire form distributed to specialists and experts. There are (11) experts.

Determine skills tests.

In order to determine the skill tests for the skills under study, tests were determined to evaluate the technical performance of the researched skills, and then the researchers worked on photographing the performance of the sample members for the pre- and post-skill tests for the skills under study. After that, the photography of the skill performance of the members of the two research sample was transferred to the

tests on a CD-ROM and displayed. On experts and specialists. In the field of fencing, there is no process of evaluating skill performance.

Description of the tests used in the study

Test the skill of repeating the attack

- Objective of the test: to evaluate the level of performance of the attack repetition skill.
- Tools used: 2 hookah weapons, measuring tape, and camera controls
- Description of the test: From the ready position (on-card) and when the start signal is given, the student repeats the attack by changing the blade of his weapon from the upper or lower lines and performing the stabbing process.
- Registration: The evaluation score is calculated by the evaluators, so that each attempt is evaluated out of (10) marks, and the three attempts are summed and divided by three.

Test the attack recovery skill

- For the purpose of the test: to evaluate the level of performance of the attack recovery skill.
- Tools used: 2 hookah weapons, measuring tape, and camera controls
- Description of the test: From the ready position (on-card) and when the start signal is given, the student performs a recovery attack after the failure of the first attack by pulling the back leg forward and returning to the on-card position, and in the case of an attack or pulling the front leg back. As in the picture below:
- Registration: The evaluation score is calculated by the evaluators, so that each attempt is evaluated out of (10) marks, and the three attempts are summed and divided by three.

Test the skill of completing the attack.

- For the purpose of the test: to evaluate the level of performance of the attack completion skill.
- Tools used: 2 hookah weapons, measuring tape, and camera cameras
- Description of the test: From the ready position (on-card) and when the start signal is given, the student performs a continuation of the attack by extending the armed arm further and bending the torso forward to reach the teacher's target to achieve his touch in the event that the teacher moves back or leans his torso backward.
- Registration: The evaluation score is calculated by the evaluators, so that each attempt is evaluated out of (10) marks, and the three attempts are summed and divided by three.

Exploratory experiment:

The researchers conducted a reconnaissance experiment on Monday, 1/22/2022, in the fencing hall at the College of Physical Education and Sports Sciences, University of Kufa, with a specialized photography staff under the supervision of the researchers and a teacher. The aim was to:

- Knowing the dimensions of cameras during 3D photography.
- Knowing the obstacles that may occur during the preparation and filming of special exercises.

Main experiment procedures

Pre-tests.

The researchers created an educational unit (introductory) in which the aforementioned skills were presented to the sample. After that, the researcher conducted the pre-tests by photographing the sample's performance of the skills and the two research groups. The two research groups (pre-tests) were photographed on Monday, February 19, 2022, in a college hall. Physical Education and Sports Sciences / University of Kufa, for skills (repeating the attack, restoring the attack, completing the attack), and copying the footage onto CDs and presenting it to experts and specialists in the field of fencing to complete the process of evaluating skill performance. The researcher took into account the following points when applying the pre-tests:

- Conducting tests under the same conditions and at the same time of day for all sample members.
- Conducting tests in the same place for all sample members.

Main experiment procedures:

- The educational units were implemented from (2/26/2022) until (4/16/2022).
- The implementation of the educational units took months (2 months).
- The implementation of the educational units took weeks (8 weeks).
- The total number of educational units reached (8 units).
- The number of educational units per week was (one unit) every Sunday
- The duration of the educational unit was (90) minutes.

To achieve the research objectives, the researcher prepared special exercises for the experimental group and used virtual reality (3D) glasses to learn the skills, as follows:

The control group applied the vocabulary of the prescribed curriculum and exercises prepared by the subject teacher. After completing the preparatory section of the lesson plan, which includes the general and specific warm-up, then moving to the main section of the lesson, which includes the educational and applied aspects. As for

the experimental group: This group applied the same preparatory section and the final section. As for the educational part of the main section, the student uses virtual reality glasses (3D) to watch a model of one of the national team players performing one of the search skills (repeating the attack, restoring the attack, completing the attack), in addition to the ability to display in 3D technology, as well as the regular, slow, and repeated display from three directions in addition to For voiceover and repeating it several times so that the learner can comprehend the movement and draw the best picture of it in the brain. As for the applied part of the main section, it includes applying special exercises prepared by the researcher. Specific to each skill and according to the time allotted for each exercise.

Post-tests:

The post-test was conducted on Monday, April 23, 2022, in the hall of the College of Physical Education and Sports Sciences, University of Kufa, where the research sample was photographed post-test for the skills (repeating the attack, restoring the attack, completing the attack), and after that the photography of the skill performance of the individuals in the research sample was transferred On CDs and presented to experts and specialists in the field of fencing, to complete the process of evaluating skill performance.

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS) including:

- Arithmetic mean (Al-Tikriti, and Al-Obaidi, 1999).
- Mediator (Al-Tikriti, and Al-Obaidi, 1999)
- Standard deviation(Allawi , and Radwan ,. 2000)
- Torsion coefficient (Al-Zoubi , and Al-Talafha 2000).
- Percentage (Al-Tikriti, and Al-Obaidi, 1999)
- Relative importance
- The value of (t.test) for symmetrical and independent samples (Naji, and Kamel , 1988).
- Simple correlation coefficient (Pearson)

Results and discussion:

Presentation and analysis of the results of the arithmetic means, standard deviations, and t-test for the pre- and post-tests of skills for the experimental group:

Table (1) shows the values of the arithmetic means, the standard deviations, the calculated T-test value, and the level of significance between the pre- and post-tests for the control and experimental groups.

Groups	Measuring unit	Pre-test		Post-test		T value Calculated	Level sig	Type sig	
		Mean	Standard deviation	Mean	Standard deviation				
Experimental	Repeating the attack	Degree	1.85	0.87	7.65	0.58	27.26	0.00	Sig
	Recovery skill	Degree	1.65	0.74	7.60	0.94	24.21	0.00	Sig
	Completing the attack	Degree	1.70	0.86	7.70	0.86	19.49	0.00	Sig
Control	Repeating the attack	Degree	2.15	0.81	5.80	0.95	20.08	0.00	Sig
	Recovery skill	Degree	1.60	0.50	6.15	0.87	18.51	0.00	Sig
	Completing the attack	Degree	1.60	0.59	6.25	0.96	21.04	0.00	Sig

The calculated (t) value is significant at a significance level ≤ 0.05

Discussing the results of the arithmetic means, standard deviations, and t-test for the pre- and post-tests of skills for the experimental group.

Through the results of Table No. (1) of the pre- and post-test for the experimental group, which shows that there are significant differences between the pre- and post-tests and in favor of the post-test in the skill performance of the skills (repeating the attack, restoring the attack, completing the attack), it is clear from the above that the experimental group has followed According to the curriculum prepared by the researchers, which includes special exercises that are compatible and harmonious with the ability and capabilities of the students, which were presented in a three-dimensional manner and directions through the use of a modern display method, which led to raising the level of students' performance in the process of learning the studied skills, and this is confirmed by the results of the post-tests of the experimental group. Researchers attribute this to the ability of these exercises and their repetitions "The more repetition of a skill, the more automatic it becomes, the tension decreases, and the movement becomes more perfect and efficient."(Faraj , 2009) The researchers believe that the reason for the development taking place is due to the effect of exercises using 3D technology, which contributed to the development of the students' artistic and skillful performance. By performing them in an organized and tidy manner and with appropriate and sufficient rest periods, they were characterized by diversity and excitement, close in their requirements to the nature of the game's skillful and artistic performance. It is also necessary to keep pace with scientific development in various fields of the educational process and use what suits the

students, their technical and skill abilities, and other special exercises, educational curricula, and modern educational and technological means based on purposeful scientific foundations that will raise the educational level and achieve rapid development in the learning process.

Discussing the results of the arithmetic means, standard deviations, and t-test for the pre- and post-tests of skills for the control group.

According to the extracted data, as shown in Table (1), which shows the differences for the pre- and post-tests of the control group in the values of the skill performance of the skills (repeating the attack, restoring the attack, completing the attack), and in favor of the post-tests, this explains that the method followed by the teacher in the process of learning the skills It may have led to learning it in a positive way, if the subject teacher used a specific teaching method, as he is experienced and specialized in learning weapon foil skills. Therefore, the learner acquired the skill through the subject teacher, who follows the normal method, as it is preferable to entrust teaching in the educational stages to the best teachers, and he attributes Researchers learned that the learning achieved through skill performance was the result of training and the effectiveness of the skills used in educational methods, where the imperative method “is an immediate response to the decisions and instructions of the teacher,” as the learner in the traditional educational curriculum followed,

Presentation, analysis and discussion of the results of the arithmetic means, standard deviations and the t-test for the post-tests of the experimental and control groups of skills.

Table (2) shows the arithmetic means, standard deviations, and t.test value calculated in the post-test for the control and experimental groups

Variables	Experimental Post-test		Control Post-test		T value Calculated	Level sig	Type sig
	Mean	Standard deviation	Mean	Standard deviation			
Repeating the attack	7.65	0.58	5.80	0.95	7.40	0.00	Sig
Recovery skill	7.60	0.94	6.15	0.87	5.04	0.00	Sig
Completing the attack	7.70	0.86	6.25	0.96	5.00	0.00	Sig
The calculated (t) value is significant at a significance level ≤ 0.05							

Discussing the results of the arithmetic means, standard deviations, and the t-test for the post-tests of the experimental and control groups for skills.

Through the results of Table (2), which show that there is a significant difference in the results of the post-tests between the control and experimental groups and in favor of the experimental group, it was seen that the members of the experimental group used special exercises using 3D virtual reality glasses that enabled the student to see the exercises in 3D technology and directions. Through Table (2), we notice that the results of the tests showed in numbers the extent of improvement achieved by the experimental group in all variables of the research, as the differences were clear in the results of the post-test in favor of the experimental group when compared to the control group, which also achieved improvement, but to a lesser extent than the experimental group that It clearly showed the effect of the exercises using 3D technology on him. This confirms that the educational curriculum prepared by the researcher, including special exercises and a three-dimensional presentation method, has had an effective and clear impact on improving the students' skill and artistic performance. This indicates that the curriculum was built on sound, purposeful scientific foundations that took into account all considerations specific to the lesson and individual differences, whether they were bad. Physical, skillful, or other.

Emphasis must be placed on the correct implementation of the educational curriculum “When the curriculum is implemented effectively, the student’s overall performance improves greatly and students can then gain the additional benefit of developing new learning about how to learn skills (Al-Haila , 1999). This development and improvement that was achieved in performance came as a result of the exercises and their repetitions and the method of presenting them according to a three-dimensional system until the skill reached advanced stages. This did not happen by chance or randomly, but rather came as a result of implementing the educational program in a regular and effective manner, and these programs were based in their development and formulation on The correct scientific foundations in their formation and implementation to achieve learning goals. All of these factors provided by the exercises using 3D technology helped the learners greatly in advancing learning to a better degree compared to members of the control group who did not use the exercises and 3D virtual reality glasses in their educational units. Through the above, I confirm that the traditional curricula are good and built on scientific foundations prepared by qualified teachers, and our study does not aim to diminish the value of those curricula, but rather confirms the development of the curricula and the use of modern tools and techniques in applying these curricula is a natural development of the previous curricula.

Conclusions and Recommendations:

Conclusions:

Through presenting, analyzing and discussing the results, the following conclusions were reached:

- Preparing special exercises using 3D virtual reality glasses had a great impact on students learning various types of attack weapons.
- The educational curriculum using special exercises had an effective impact on students learning various types of offensive weapons.
- The educational curriculum using 3D technology in the process of presenting exercises had a significant and effective impact on the learning process.

Recommendations:

Based on the conclusions reached by the researchers, the following can be recommended:

- Possibility of using special exercises within physical education curricula, as they are necessary for learning various types of offensive weapons.
- Possibility of using modern 3D display technology because of its effective role in learning some of the various types of offensive weapons foil for students.
- Need to conduct research and studies on other activities.
- Necessity of using modern means of presentation, aids, and multiple methods and methods in educational units.

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