

# The effect of using e-learning technology in learning the skill of clean and jerk in students of Physical Education and Sports Sciences

Ali Sadiq Shaker<sup>1</sup>, Hussein Mhaibes Tuama<sup>2\*</sup>, Mahmoud Nasser Radhi<sup>1</sup>

<sup>1</sup> College of Physical Education and Sports Sciences, University of Kufa, Iraq.

<sup>2</sup> College of Physical Education and Sport Science, University of Al-Ayen, Thi-Qar, Iraq.

\* Correspondence: Hussein Mhaibes Tuama; [houssein.mhaibes@alayen.edu.iq](mailto:houssein.mhaibes@alayen.edu.iq)

## ABSTRACT

The purpose of this paper was to identify the effect of using the e-learning technology method and the method used by the teacher in teaching clean and jerk skill to students of the College of Physical Education and Sports Sciences of the University of Kufa, as well as to identify the difference in the effect between using these two methods in teaching clean and jerk skill for students. In terms of research methodology, the researchers used the experimental method. A total of 40 students of the first stage participated in the study and were equally assigned into two equal groups (control and experimental). The control group (the method used by the teacher) included 20 students and the experimental group (e-learning technology method) included also 20 students. A statistically significant difference was found in both groups (control and experimental) in student's performance level with clean and jerk skill in post test results ( $p < 0.05$ ), compared to pre-test. Also, there were statistically significant differences ( $p < 0.05$ ) in the second post-test between the experimental group ( $M=7.34$ ,  $SD=8.4$ ) and the control group ( $M=5.55$ ,  $SD=0.49$ ), in student's performance level with clean and jerk skill. The researchers reached several conclusions, including the development in the performance level of students with clean and jerk skill for both groups (control and experimental), as well as the differences in the effect of e-learning method and the method used by the teacher in developing the level of student's performance with clean and jerk skill, in favor of the experimental group (e-learning).

## KEYWORDS

Technology; E-learning; Clean and Jerk skill; Students.

## **1. INTRODUCTION**

The use of e-learning technology is the most exciting topic among educational professors now. The use of the Internet in the form of computers and mobile phones in the academic learning process has a clear and noticeable impact on education. To achieve a pre-planned goal, education professor must be active in his work personally and electronically, that is, within the development of his personal and public skills to remain continuous and develop his capabilities through the development of electronic means of education in their field and other specializations. Recently, many new strategies, methods and procedures have appeared in the educational process. These include multimedia, self-education, distance learning, and open education, and all of these fall under the general meaning of the concept of educational technology (Navarro et al, 2019).

Usually, the university educational teachers and their modern systems focus on the learning process by presenting a live model to teach a skill, and then start discussing educational matters that include the content of the presentation, express and present the ideas and change the concepts and methods of the learner, excepting the teacher to transform from teaching a continuous material and explanations about it, to provide the learner with information, transforming into a supervisor or guide to facilitate the learning process. Since studies and researches confirm in their results that there are no educational processes in the form of teaching methods or procedures better than others, each method must reach a benefit for the students according to the circumstances surrounding them (Ismail Adham, & Al-Zuhairi, 2022; Sánchez et al, 2019).

The use of practical presentations in the educational process helps the student to give him a high degree of freedom in dealing with the skill to be learned. There is an interaction between the student and the ability to achieve the goal that the student learns best, and the scientific material to be learned is presented in a good and more positive way.

E-learning is one of the modern educational methods used in the educational process with the help of modern technological development of audio and visual information. Thus, the process of e-learning technology has an influential, important and essential role in developing the performance of various sports skills, especially lifting weights for students in weightlifting. The purpose of this paper is to identify the effect of using the e-learning technology method and the method used by the teacher in teaching clean and jerk skill to students in the College of Physical Education and Sports Sciences, University of Kufa, as well as identifying the difference in the effect between using these two methods in teaching clean and jerk skill for students.

Most Iraqi universities, including the University of Kufa, have recently resorted to e-learning to keep pace with the informational development of technology that is taking place at the present, intending to increase the student's ability to obtain current information in many areas and within his specialization in addition to self-learning that serves him after his graduation. The researcher informatics at the University of Kufa has a website called “Model”. This website is officially provided with an e-mail for each university teacher and student of this university, each divided according to the university to which he belongs. The researchers have adequate information about this site, several workshops and courses have been prepared on how to use and deal with this website to reach and deal with this course. From this point of view, the researcher noticed the extent of the possibilities of this website and the powers to control it through electronic communication between the student and the teacher.

The research hypotheses were: 1. There is a positive effect of using the e-learning technology and the method used by the teacher in teaching clean and jerk skills to students of the College of Physical Education and Sports Sciences. 2. There are statistically significant differences in the effect of both e-learning technology and the method used by the teacher in teaching clean and jerk skills to students in favor of the experimental group.

## 2. METHODS

### 2.1. Design

The researchers used the experimental method and designed a study with two equivalent groups, which were appropriate for the nature of the problem to be solved (Table 1). The study was conducted from 10/1/2021 to 16/3/2021, in the weightlifting hall of the College of Physical Education and Sports Sciences of the University of Kufa.

**Table 1.** The experimental design of the research.

<b>Group</b>	<b>Pre-test</b>	<b>Variables</b>	<b>Post-test</b>
Experimental group	Performance level skill clean and jerk	E-learning technology	Performance level skill clean and jerk
Control group	Performance level skill clean and jerk	The method used by the teacher	Performance level skill clean and jerk

## 2.2. Participants

The research community consisted of 75 students of the first year of the College of Physical Education and Sports Sciences, University of Kufa. The academic year was 2020-2021. The final sample of this population consisted of 40 students who were selected by the researchers in a systematic random manner. The researchers divided them into two groups, with 20 students in the experimental group and 20 students in the control group.

## 2.3. The homogeneity and parity of the sample

The researchers conducted the process of homogeneity and parity between the two research groups in the research variable (student's performance level with clean and jerk skill) (Table 2).

**Table 2.** The homogeneity and equivalence of the research sample.

Variables	Experimental group		Control group		F value		T value		P value
	Mean	SD	Mean	SD	Calculated	Tabular	Calculated	Tabular	
Student's performance level in clean and jerk skill	4.56	0.81	5	0.97	1.42	1.82	1.27	2.04	>.05

*NOTE: The value of (F) at the degree of freedom = 19; The value of (T) at the degree of freedom = 38; The level of significance =  $\leq 0.05$ .*

As the above table indicates, the value of *F* for homogeneity and the value of *T* for equivalence were lower than its tabular value, indicating the homogeneity and equivalence of the sample.

## 2.4. Instruments and procedures

The instruments used were one Lenovo calculator, nine Princo CDs, three weight columns of 20 kg, one wooden drum of 4 \* 4 meters, one Sony video camera, and one camera Mount Stand.

The procedures followed in this study were the following:

- Sample selection conditions: weightlifting is included in the study requirements for the first stage, and the sample has not previously learned the skill in question. In addition, all members of the experimental group must have a computer or mobile phone at home to connect to the Internet and access the website (Model).
- Building an educational program for the skill of clean and jerk according to the model system, which includes a detailed explanation of the skill performance and common mistakes of clean and jerk skill.

- Training the experimental group members to use the model system, where the researcher explained the details of using this system and how to deal with it, and gave each member of the experimental group a username and password to access the site.
- Pre-testing: The pre-test was conducted on Sunday, 17/1/2021, at ten o'clock in the weightlifting hall of the College of Physical Education and Sports Sciences, University of Kufa, after two introductory lectures on this skill were given on Tuesday, 12/1/2021, and Thursday, 14/1/2021.
- The researchers used a video camera placed on a tripod at a height of 120 cm and at a distance of 3 meters from the student performing the experiment. Each member of the sample had three attempts and took the best attempt, then the researcher distributed (CD) discs to three experts and specialists to evaluate the technical performance of the skill.
- The educational program was posted on the university's website, with the researcher asking for a specific address so that the sample members can easily access it.
- Starting work on the application of both groups (e-learning and the method used by the teacher) on specific dates, as the application started on 1/2021, with the educational program being made available via the website (Model) for the experimental group during the same week in which the teaching was conducted for the control group, as lectures were taught on Sunday each week, according to the academic schedule with an academic unit per week. The educational program lasted two months, which means that the number of academic units became eight.
- Conducting the post-test: After completing the eight academic units, the post-test was conducted on the research sample on 3/9/2021. The researchers considered the creation of the same conditions for the pre-test in terms of time and place.

## **2.5. Statistical analysis**

The Statistical Package for the Social Sciences (SPSS) was used for data analysis. To identify the effect of the educational program using e-learning technology and the method used by the teacher among the research sample, and also to identify the differences between the two groups (control and experimental), the researchers used t-test analysis.

## **3. RESULTS AND DISCUSSION**

The effect of the educational program using e-learning technology and the method used by the teacher in learning the clean and jerk skill among the members of the research sample in its two groups (experimental and control) is showed in Table 3.

When highlighting what is mentioned in Table 3, we notice that each of the two groups (control and experimental) showed statistically significant differences in the results of the pre-test. In order to identify the impact of the educational program using e-learning technology and the method used by the teacher, the researchers used the T t-test for the corresponding samples. Based on the results, the calculated *T* value was 6 and 8.22, respectively, and was significantly higher than the tabular value (2.15). This indicates that there are statistically significant differences between the test results (pre and post), so there is a precise and actual effect of the educational program using e-learning technology (Model) in learning the skill. According to our results and based on previous literature (Sharaf, 2000), the continuity of the teaching process according to modern scientific foundations produced a clear progress in the level of the performance of the skill of clean and jerk

**Table 3.** Pre and post-test results of the control and experimental groups of the research variable (student's performance level in clean and jerk skill).

Variables	Pre-test		Post-test		Calculated T value	Tabular T value	P value
	Mean	SD	Mean	SD			
Control	5	0.96	6	0.64	6	2.15	<0.05
Experimental	4.56	0.81	6.7	0.54	8.22		<0.05

NOTE: The value of *T* at the degree of freedom = 19; The level of significance =  $\leq 0.05$ .

The differences in the effect of the educational program using the e-learning method and the method used by the teacher in learning the clean and jerk skill among the members of the research sample are shown in Table 4 and Table 5.

**Table 4.** The differences between the two groups (control and experimental) in the first post-test.

Variables	Control group		Experimental group		T value	P value
	Mean	SD	Mean	SD		
Student's performance level in clean and jerk skill	6.16	0.66	6.8	5.04	1.26	1.92 >0.05

**Table 5.** The differences between the two groups (control and experimental) in the second post-test.

Variables	Control group		Experimental group		T value		P value
	Mean	SD	Mean	SD	Calculated	Tabular	
Student's performance level in clean and jerk skill	5.55	0.49	7.34	8.4	3.35	1.92	<0.05

From the results of Table 4, there are no statistically significant differences in the performance level of students between the two groups at the first post-test. The use of e-learning leads to reaching the level of performance of the learner to the same level that the learner reaches by attending the lecture. By observing the results of Table 5, it is clear that the experimental group (e-learning technology) outperformed the control group (the method used by the teacher) in the skill of clean and jerk in the second post-test, which was done after giving the members of each of the two groups a period of two weeks. This is due to the goal of developing the level of performance of the learners, and indicates the superiority of the experimental group in terms of the advantages that learners can get from using e-learning (Qutait, 2009).

The researchers attribute this to the fact that the continuous practice of motor performance in the conditions of using the e-learning method has provided several things and positive factors, which increased the effectiveness of the practice of motor performance of the learned skill. In distance learning or e-learning, the learner can access the visual, video and image form of performance at any time if needed, which deepens the processing of information and the difficulties faced by the learner. In contrast, in learning method through lecture, the learner relies on memory to obtain the information required to improve the performance (Abdel-Halim, 1991).

#### 4. CONCLUSIONS

- There is a development in the performance level of students in clean and jerk skill and for both groups (control and experimental).
- E-learning proved its effectiveness in learning the skill of clean and jerk for the experimental group members.

- There are differences in the effect of e-learning method and the method used by the teacher in developing the level of student's performance with clean and jerk skill, in favor of the experimental group (e-learning technology method).

## 5. RECOMMENDATIONS

- Preparing an elaborate electronic program to teach sports events and skills for various sports activities.
- Applying the e-learning method in teaching activities and skills because it has a different meaning due to the independence in learning.
- Conducting similar studies on skills and other sports activities suitable for e-learning.

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