The Effect of an Electronic Learning Environment According to the Electronic Cooperative Learning Strategy on Cognitive Achievement by Studying Teaching Methods for Students

Alia Hussein Obaid[1], Nabaa Abdul Amir Abdul Hadi[2]

[1]Assistant Prof. Dr., [2]Assistant Lecturer., University of Kufa/Faculty of Education for Girls / Department of Physical Education and Sports Sciences / IRAQ

Abstract

This study aimed to know the effect of an electronic learning environment according to the collaborative e-learning strategy on cognitive achievement by studying teaching methods for female students. The experimental approach was used in the study, by two experimental groups, a control, and each group (20) students. To achieve the objectives of the study, the cognitive achievement test was built to study teaching methods and design an electronic learning environment to study the teaching method material, and the results indicated that there are statistically significant differences between the averages of the two groups in the measure of cognitive achievement in the post-application and for the benefit of the experimental group. The results were discussed in light of the theoretical framework, as well as Some recommendations and future studies have been drawn up.

Keywords: *E-learning environment, cognitive achievement, teaching methods.*

Introduction

The transformation of the educational system from traditional methods of education to new methods based on e-learning programs must be preceded by a real change in the concept of the traditional education trilogy (teacher, student and educational institution) and its transformation into a more modern and modern educational process that includes the modern teacher and the positive student. The modern university, advanced educational technology, advanced educational curricula and non-formal education. The characteristics that characterize e-learning programs are that they provide content for courses in a multimedia environment, written or spoken texts, sound effects, line drawings in all their styles, animations, still images, snapshots. Video.(1)

Several studies and researches have recommended paying attention to active learning and its multiple strategies because of their impact on the level of cognitive achievement and their impact also on the acquisition of scientific concepts and the development of cooperative trends. (2)

Therefore, the importance of research lies in designing an electronic learning environment according to the electronic cooperative learning strategy in cognitive achievement by studying teaching methods for female students.(3)

Research Problem

In view of the circumstances that prevented the continuation of the practical application of female students in universities and the reliance on the theoretical side of the laws and concepts of skills, which prompted the researchers to pay attention to the topic of integrating technology in education and its results are known in the achievement of female students through the application of the cooperative learning strategy electronic in the cognitive achievement of the students by studying methods of teaching Computer-based physical education in the light of her knowledge of the characteristics of this strategy to facilitate the delivery of information to students in a fun, easy and attractive way, and to help them to be able to build their knowledge on their own and display information for them and thus benefit

from their capabilities and capabilities in the learning process better than the routine methods followed, that the problem of research lies On the reasons that the two researchers called for designing an electronic learning environment according to the electronic cooperative learning strategy in cognitive achievement by studying teaching methods for female students. (4)

Research Objectives

1. Designing an electronic learning environment according to the electronic cooperative learning strategy in cognitive achievement by studying teaching methods for female students.

2. Building a cognitive achievement test in the lesson of teaching methods for female students.

Search procedures

The two researchers used the experimental method on the second-stage students of the Department of Physical Education and Sports Sciences in the (College of Education for Girls, University of Kufa), who numbered (51) students, and the third-year students of the College of Physical Education, University of Karbala and the University of Kufa, of which (61) were students. The total number of the research community is (112) female students, and they were divided into three samples (the reconnaissance sample, the building or preparation sample, and the application sample for the main experiment) and they were deliberately chosen, as they were divided according to scientific foundations in line with the research problem so that the sample is consistent with the phenomenon The studied, the sample included (11) students for exploration, (50) students for construction, and (51) students for application. (5)

practical part:

Defining search variables:

"One of the most important characteristics of the experimental work is that the researcher processes certain factors under carefully controlled conditions to verify how a specific case occurs and determine the causes of its occurrence. The following variables have been identified:

1. The independent variable:

A- The electronic educational environment according to some active learning strategies.

Dependent variables:

A- Knowledge achievement.

B- Learning motivation.

Procedures for the e-learning environment:

It consists of a group of several stages as follows:

The first stage: gathering the raw material and writing the script:

The designer and the researchers made use of a set of video clips, pictures, drawings, and forms of the curriculum vocabulary available on the Internet, in addition to the scientific information about the educational material in the vocabulary of the subject in addition to the subject school (*) that is used in the preparation of the electronic educational environment and identifying the most important programs It will be used in the preparation of the e-learning environment.

Likewise, the script was written for not dispersing ideas in preparing the e-learning environment with the best efficiency and as shown in the following steps. (6)

The second stage: design and montage:

After determining the programs that were used in the preparation of the electronic educational environment, the designer made the necessary montage and designs on the images, audio and video that were previously collected in addition to designing mental maps in line with what is required to prepare the electronic educational environment as follows:

1. Adobe audition (audio program):

It is one of the modern applied programs specialized in editing and processing acoustics, such as introducing some sound effects, reducing noise, and introducing other effects such as adding echo to the recorded voiceover to be more exciting to the recipient. The curriculum is according to what is required by the experiment and

recording it in the form of audio clips in preparation for the next step, which is to modify and design the images.

2. Adobe Photoshop CS6 photo design program:

Image design program, or what is called Photoshop, is done by modifying and processing images in all their formats, as it was done by removing distortions in images as well as scaling images to the required and appropriate size in line with the electronic educational environment, and the program's format

MindMup:

It is a mind mapping application written mainly in JavaScript and designed to run directly on the Internet (online) without the need to download to a computer or mobile device and is characterized by ease of use and also supports the Arabic language, as it was done by drawing mental maps of the lectures in line with the curriculum and the scenario developed by the designer And researchers, and the format of the program

3. Sony Vegas11□ montage program:

This program formed the basic part of preparing the electronic program because of its importance and production of video files. This program is one of the modern programs specialized in producing educational explanation videos as well as integrating sound and image and adding explanations according to the designer's request, as the sound and image that was made in previous programs were combined In addition to the videos that were made together to give in its content a final video with an educational purpose, and after the video is extracted in the final form, it is uploaded to YouTube and the program format.

4. Youtube:

YouTube (Youtube) is known as a website that can be used for free, through which it is allowed to view videos posted by other users of this site, in addition to the ability for users to upload their videos, and YouTube is one of the most famous websites. Located on the internet.

5. Android app inventor design program:

(English: App Inventor for Android) is an application programmed by Google and is currently supervised by MIT University. The application allows the user to program applications via the web by dragging and dropping cubes to make applications that work on the Android environment as well as it is designed to run directly on the Internet and in the form of the program

The third stage: designing the e-learning environment:

If the electronic learning environment was prepared to work in the Android environment by adding interfaces and installing previously designed images, as well as adding programmed buttons and linking them to the video links that were uploaded to YouTube in a previous step, and the final form of this environment was as it was planned in preparing the scenario that was covered. It is in the first step for the e-learning environment as in the following description:

1- Main interface:

When you open the program from the mobile device, the name of the supervisor and the researcher appears in it, and from there you enter the electronic learning environment and to the main page of the program and it includes the title of (lectures). It takes you to a new page bearing the names of the titles of the lectures within the curriculum and followed in the experience of the two researchers, that the Exit button expresses the exit From the program and a button that takes us back to the main interface, and the last planted the program, it represents the property rights of the researchers.

2- Lectures interface:

When you click on the title of (lectures), a new page will appear bearing the titles of the curriculum lectures, and when you click on one of the curriculum titles, its contents will appear in the form of buttons organized in the form of sub-menus for each lecturer, and when you click on any of them, a detailed explanation will appear in the form of video and photo presentations according to the goal to which it refers Title

After reading and reading by the researchers on the most important details of the curriculum vocabulary, he reached a summary of a comprehensive introduction to each of the curriculum lectures that are under discussion with the method of their performance and the precise details about them, taking into account an explanation of the level of mental abilities of the sample members.

Finally, the title button (about the program) located in the main interface of the electronic educational environment, where when you click on it, a new sub-window appears for us in which the name of the university and the title of the research appear, and two titles also appear. The production of this electronic learning environment, as well as the information for the issuance of the electronic educational environment, the second under the name of (the designer), which is also a button, and when pressed, the designer's information appears in addition to the YouTube channel of the video site that they upload to it.

Building the cognitive achievement test in teaching methods:

The construction included defining the scientific material (academic content) for studying teaching methods, formulating behavioural objectives for the cognitive achievement test, preparing a table of specifications for the cognitive achievement test, drafting test items, preparing and compiling items for the cognitive achievement test, determining the validity of the paragraphs to test cognitive achievement, and test instructions for cognitive achievement. And the exploratory experience to test cognitive achievement, the application of the test to the construction sample, the correction of the items of the cognitive achievement test, and the statistical analysis of the cognitive achievement test items that include

First: Extracting the difficulty and ease coefficients of the items of the cognitive achievement test.

Second: Extracting the coefficient of discrimination

Scientific indications for cognitive achievement test:

First - validate the test:

Second: Stability:

The building of the cognitive achievement scale test for teaching methods for female students, consisting of (44) items, was completed.

Pre-test:

On December 10, 2020, the two researchers conducted the pre-tests for the experimental and control research groups, and the conditions for the tests were fixed in terms of place, time, and nature of the tests to achieve the same or similar conditions when conducting the post-tests and retaining to obtain accurate results. The cognitive measure of the two groups of research and collecting them according to the established conditions.

Likewise, the cognitive achievement results of the experimental and control research groups were obtained, and it was collected and then corrected and the results were extracted for all students.

The mechanism for implementing the educational curriculum:

The electronic educational environment: The two researchers, with the help of an expert in the electronic field, created an electronic learning environment that facilitates communication with the students by presenting the lectures with more interest and interaction in the basic topics, as the lectures were made with video clips and provided with pictures and a detailed explanation with the two researchers 'voice. Each lecture takes a specific strategy to explain the lecture. According to what fits with the main topic of the lecture and the strategy that fits with it, then grouping these lectures into the main program that contains several doors or keys. This program is sent using a link to the sample for reference when needed at any time in addition to the student's ability to download the lecture in pdf format and that the entry mechanism On these lectures, they were placed in the links of these links opened by the YouTube site, so that the program can carry a capacity that allows any device to be easily downloaded, and this electronic

learning environment was applied to the meet program, and as the two researchers used four strategies of active learning strategies, which are the concept maps strategy, and the strategy Collaborative learning, brainstorming strategy, discussion strategy, and each strategy will be explained Detailed advice:

The application of educational units for the electronic cooperative learning strategy: The two researchers prepared educational units in which the cooperative learning strategy was used, through which the contents of the teaching methods were read and analyzed from the main and sub-aspects, and the sub and main concepts of each aspect were determined and the relationships between those concepts were determined, and the lectures were designed. By using a variety of audio and image programs, which are displayed on the mobile screen in the meet program, a headline was set for each lecture, and the secondary idea that includes modern teaching methods through video clips, errors, and the delivery of information and material, was asked. A question was asked at the end of each video clip, as well as The lecture is designed in a way that suits the topics that will be discussed in the lecture. The lecture is taken with a cooperative learning strategy in the form of groups. Each group contains an appropriate and equal number with the other group.

The question and the group leader consults with group members and poses the appropriate answer to the question, and the answer is written by the teacher on a board and so on to the end of the topics presented, and the lecture is designed according to the requirements of each major and sub-concept, and it must be taken into account how to move between these groups and how to move between these topics easily and smoothly. At the beginning of each lecture, attendance is taken and confirmation of commitment to the time of the lecture, then a test for the previous lecture is conducted, and the test is done by an electronic form sent through a link to the students, then after that, the lecture link is sent for the lecture to be viewed in video, pictures, and an explanation in the voice of the two researchers, and then the students are distributed in groups With interventions made by the subject school, and at the end of the lecture, the lecture is sent in pdf format to the students, thus ending each lecture, in which all students participate with the explanation, regularly, easily and with suspense without boredom or non-participation.

Dimensional tests

The two researchers conducted the post-test for the experimental and control research groups on 2/2/2021, on Tuesday, with the help of the auxiliary work team, and under the same conditions of the pre-tests that were previously proven, and the conditions for the tests were fixed in terms of place, time and nature of the test to achieve the same conditions. Or similar when performing a retention test to obtain accurate results.

Statistical means:

The researchers used the Statistical Package for Social Sciences (SPSS)

Results

Presentation and analysis of pretest results for the two research groups:

Table (1). It shows the arithmetic mean, standard deviation, and (t) value calculated for the pre-tests of the two research groups.

Variables	the group	pre-test		((t) is calculated	Indication level	Indication type
		Mean	STD.EV.			
Cognitive achievement	Empirical	15, 70	2, 61	1, 021	0, 314	Immoral
	Control	16, 50	2, 32			

By analyzing Table (1), it was found that all the differences between the pre-test for cognitive achievement and the learning motivation for both the experimental and control research groups are not significant, because the level of significance is less than (0, 05).

Presenting the results of the pre and post-tests for the experimental group:

Table (2). Shows the arithmetic mean, standard deviation, and (t) value calculated for the tribal and dimensional tests of the experimental group

Variables	the group	pre-test		post-test		((t) is calculated	Indication level	Indication type
		Mean	STD.EV.	Mean	STD.EV.			
Cognitive achievement	Empirical	70.15	29.64	85.32	30.57	14.025	0.000	moral

Displaying the results of the pre and post-tests for the control group:

As for the research results related to the level of cognitive achievement and the learning motivation achieved by the individual of the research sample and for both the pre and post-tests of the control group, and the data were processed statistically, to know the significant differences, the t-test was used for the related samples, and Table (2) shows that.

Table (3). It shows the arithmetic mean, standard deviation, and value of t□ calculated for the tribal and dimensional tests of the control group

Variables	the group	pre-test		post-test		((t) is calculated	Indication level	Indication type
		Mean	STD.EV.	Mean	STD.EV.			
Cognitive achievement	Control	50.16	12.2	35.26	13.2	18.267	0.000	moral

Through the analysis of Table (3), it was found that all the differences between the pre and post-test of the cognitive achievement results and the learning motivation of the control group are significant because the level of significance is less than □0.05□.

Presentation of the post-test results of the two research groups and their analysis:

After obtaining the research results related to the level of cognitive achievement and the learning motivation achieved by the individuality of the research sample and for each of the dimensional tests the data were processed statistically, so to know the significance of the dimensional differences, the t-test was used for the related samples, and Table (4) shows that. [7]

Table (4). It shows the mean, standard deviation, and tقمي value calculated for the dimensional tests of the two research groups

Variables	the group	post-test		((t) is calculated	Indication level	Indication type
		Mean	STD.EV.			
Cognitive achievement	Empirical	85.32	30.57	16.92	0, 000	moral
	Control	35.26	13.2			

Through the analysis of Table (4), it was found that all the differences between the post-test of the results of cognitive achievement and the learning motivation of the two groups of experimental and control research are significant because the level of significance is less than (0.05).

Discussing the results of the pre and post-tests for the experimental group:

Through their findings, the two researchers see a significant improvement in the level of cognitive achievement of the two research groups, and the researchers attribute the reason for this improvement to several factors:

- Adequate explanation by the school and presentation of a good model for both groups of research, which led to the drawing of a clear mental picture for the learner for this lesson.

- Feedback used by the teacher, which can contribute significantly to increasing the effectiveness of learning and its integration into educational attitudes and experiences, and in turn lead to correcting errors and drawing correct paths for students' performance to reach better performance.

- Focus by the teacher on the application of the electronic learning environment for both groups.

The school's shedding of light on the most important points of the subject enables the learner to form the correct and clear image in her and to refer to it whenever this is needed, the learner has acquired a knowledge outcome that raised her cognitive potential,

- The two researchers attribute these results to the electronic educational environment, as the experimental group studied within an electronic learning environment according to the electronic cooperative learning strategy, while the control group studied by regular methods, and the researcher believes that the electronic educational environment strengthened among the students the ability to imagine, as it is an enjoyable way of teaching. Especially since this strategy makes the student more interactive and increases the chances of her participation, and the teacher becomes only a facilitator and facilitator of the learning and teaching process.

- The electronic educational environment also has characteristics that distinguish it from other teaching methods, as it is interesting in teaching, and is commensurate with the requirements and nature of technology curricula, as well as the employment of active learning strategies contributed to activating the role of students in learning

- The electronic educational environment that employs active learning strategies is considered a new learning environment that the students have never known or studied through, which led to the enthusiasm and excitement of the students to study in this environment, so they showed the desire to learn while moving from one strategy to another strategy through the learning environment. e.

- The electronic educational environment that employs active learning strategies provides an opportunity to think, develop higher-order thinking skills and organize information, and this is in contrast to the traditional method, which allows the learner to acquire information by memorizing and reading only.

Effective learning and positive participation of female students, their learning through groups, and their assuming responsibility in every task present within each strategy, and solving various thought-provoking questions that led to an exchange of views and knowledge among the students.

- The electronic learning environment supported by active learning strategies provided an opportunity for students to ask questions, debate and discuss. [8]

Conclusions

1- The electronic educational environment, according to the electronic cooperative learning strategy, achieved a positive impact on the level of cognitive achievement.

2- The use of the electronic educational environment according to the electronic cooperative learning strategy in cognitive achievement by studying teaching methods for female students works to improve and raise their scientific knowledge.

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Conflict of Interest: None to declare.

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References

1- Bilgin I. "The effects of guided inquiry instruction incorporating a cooperative learning approach on University students achievement of acid and bases concepts and attitude toward guided inquiry instruction." Scientific Research and Essays.2009: 1038-1046.

2- Altun, S. "The effect of cooperative learning on students' achievement and views on the science and technology course." International Electronic Journal of Elementary Education 2015; 7.3: 451-468.

3- Sharan, Shlomo. "Cooperative learning in small groups: Recent methods and effects on achievement, attitudes, and ethnic relations." Review of educational research 1980; 50.2: 241-271.

4- Bukunola, BA, Idowu OD. "Effectiveness of cooperative learning strategies on Nigerian junior secondary students' academic achievement in basic science." Journal of Education, Society and Behavioural Science 2012: 307-325.

5- Johnson DW, Roger T. Cooperative learning methods: A meta-analysis." 2000.

6- Clayton, K, Fran B, Daniel P. "The relationship between motivation, learning strategies and choice of environment whether traditional or including an online component." British Journal of Educational Technology 2010; 41.3: 349-364.

7- Bayraktar G. "The effect of cooperative learning on students' approach to general gymnastics course and academic achievements." Educational research and reviews 2011; 6.1: 62.

8- Broadbent, J, Walter L. "Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review." The Internet and Higher Education 2015; 27: 1-13.