Study the Impact of Electronic Tests Using Moodle Program on Student Achievement

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Abstract. The study aims to urge educators to utilize electronic tests rather than customary tests. And the present study examines the relation between Computerized using the Moodle program and Traditional Tests. And it sought to increase the collection and development of the positive abilities of students and to demonstrate their educational skills through the performance of electronic tests and their effects in raising the student's level of study and compare them to the traditional test method by applying these tests to the group of students of the ″Department of Computer Systems at the Institute Technical Babylon University of the Al-Furat Al-Awsat Technical University ″ by (60) students for the academic year 2018-2019 . Statistical analysis showed that the E-test group outperformed the paper-based test group. and a major effect on the students' achievements.

Keywords: - Electronic tests, Moodle, Examination system, E-learning

1 Introduction

The modern Electronic Testing has a more forty-year history. but still, universities and most professors are not interested in this field for several reasons. Electronic tests differ from traditional tests (paper) in many characteristics, the most important of which is that electronic tests used in a multimedia presentation of text, voice, image and True, false and multiple choices, which increases the student's motivation and participation more and the launch of intellectual creativity.

Universities in Iraq have chosen the path of creating their own learning But most universities combine a form of learning, opt for free LMS software instead, Moodle, Google Classroom. As the best "investment" to the future seems to be a Moodle has to continue development). Moodle is increasingly appearing also in universities. Where it Electronic test activity is an interesting research subject affecting To learn the students' levels of understanding and awareness of educational materials. The study describes one of these Electronic Testing and Moodle presents the outcomes of a survey about electronically testing.

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1.1 The Case of This Study

Case study as a research strategy often emerges as an obvious option for researchers based on their workplace. Therefore, it was necessary to prove the suitability of the electronic tests and their preference for the traditional tests in terms of success rates and the exam time.

1.2 Problem Statement

The problem of searching the answer is limited to the following question:

The extent of the impact of the use of electronic tests on raising the levels of student grades and the effectiveness of using the Moodle program proposed for use in this study and the branch of this question to:

The effectiveness of the proposed program in increasing and influencing the student's grades, comparing the proposed program with the traditional tests, learning the positive trends of the electronic tests in the direction of the education programs, and comparing the time between the traditional test and the electronic test.

1.3 Research Limits

The study was limited to:

1. Course content for computer maintenance (students are provided with subjects to be studied)
2. Students enrolled in the Department of Computer Systems Technology Class I.
3. Proposed Moodle Program.

1.4 Why This Study

Previous studies have been conducted on school students or faculty members and few on university students. This study dealt with the subject of electronic tests for students of technical institutes

2 Theoretical Framework and Previous Studies

There are several studies in the field of electronic tests, including those who question the level of the understudies and its effect on the aftereffects of the tests, understudies

not obviously favor PC testing and assessment to educator's evaluation (JULIA TOMANOVÁ,MARTIN CÁPAY), Many scholars believe that e-learning facilitates the processes and services provided to all parties in the teaching process (Bates and Paul 2003, Park Nason 2004). Perhaps one of the most important characteristics of current studies in the field of assessment has been to focus on the process of interaction between assessment and learning, focusing on multiple building options of tests that are strong in the learning experiences of students.(Black and William, 1998). The results of some studies, such as the Allam 2007 and Alkabisi 2007, indicate that the tests are an important means of measuring and evaluating the abilities of students at different levels of study, meeting the targets of education and measuring the learning of students. The elements of success and the identification of students' strengths and weaknesses can be identified in order to improve and develop the level, as well as the effectiveness of the strategies of mutual teaching and effectiveness. Despite the importance of electronic testing and its usefulness, many teachers prefer to use traditional tests .(Davidson, 2003).

2.1 The Moodle

The Moodle is used as a learning resource, as teaching-learning-assessment means alongside traditional teaching, learning, and assessment. The Moodle has been implemented within the Babylon Technical Institute, Al-Furat Al-Awsat Technical University in last years and even though its use has not become compulsory so far, where it contributes to making the learning in electronic tests process between student and the teaching it is better.

2.2 The E-Testing

The E-Testing is a rapidly growing territory of re-evaluation including the conveyance of assessments and appraisals on PCs, either utilizing neighborhood frameworks or online frameworks. This includes the exchange of paper tests to PC or a mix of strategies to take e-testing to the PC.

2.3 The E-Learning

E-learning is an instructive technique that plans to give instructive or preparing projects to understudies or students whenever and wherever utilizing data and correspondence innovation (ICT) [3].

Parts of e-Learning can incorporate the substance of various organizations, the board of the learning background, and an online network of students, content designers, and specialists. In Iraq, E-learning has turned into an undeniably pervasive learning approach in higher instructive organizations because of the quick development of web advancements. Though Improving the exhibition of e-learning administrations to give an adaptable and viable e-learning framework is a major test for instructive associations. The e-learning framework faces numerous difficulties in learning administra-

tions, and specialized administrations (for example asset provisioning and money related expense).

2.4 Traditional Testing

The traditional test is a Traditional paper test. Teachers use a pattern of essay questions or some multiple-choice questions. Examination students must answer paper, affecting thinking processes and distinguishing students' memorization skills.

3 Materials and Methods

The purpose of the research was to find out if the -Testing by Moodle had a better than the traditional tests (paper). We analyzed and compared electronic tests by Moodle and traditional tests (paper) in raising students' level. Researchers used a set of statistical standards, and the researcher relied on the quasi-experimental approach because it is the appropriate method for the purpose of research.

3.1 Study and Sample Population

The research adopted an experimental design with partial control of two groups, one experiment, and the other control.

sample population: The study population consists of students of the Computer Systems Department at the ″Technical Institute of Babylon, Al-Furat Al-Awsat Technical University″, who study computer maintenance.

The study sample: The study was conducted on a group of students enrolled in the computer maintenance course via the second semester of the scholarly year 2018-2019. The number of students was 60 students. And the students were aged between 18 and 20 years old. The students were divided into two groups of 30 students.

Experimental Group: This group (30) students, the first test using The traditional test (Paper) method, Second test using electronic test by Moodle.

Control Group: This group is (30) students, the first test using the traditional test (Paper)method, Second test using electronic test by Moodle.

In the following table (1), the percentages of males and females in each group

Table 1. Male and female ratios

Group	Gender	No.	Ratio	sum
Experimental Group	Males	12	40%	30
	Females	18	60%	
Control Group	Males	10	33.33%	30
	Females	20	66.66%	

From the above table, the number of Females (38) and ratio (63.33%), while the number of males (22) and the ratio (36.66%) .

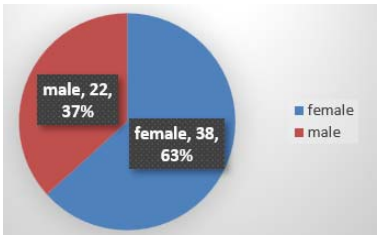

Fig. 1. The percentages of males and females

The researchers were keen to achieve equality between the two groups by obtaining the grades of students of the two groups (Experimental Group, Control Group) from the examination committee in the department, after the adoption of Statistical processes. Researchers confirmed that the two groups are equal. can be seen in Table (2)

Table 2. the mean, SD and t value (calculated and tabulated)

Group	No.	mean	V	SD	df	Calculated	tabulated	sig
Experimental	30	75.5	139.7	11.71	63	1.08	2	Not significant at 0.05
Control	30	74.4	130.3	10.98				

pre-test A pre-test was conducted for the study group. The differences between the two groups were as in Table (3). In a traditional tests.

Table 3. the mean, SD and t value in a pre-test

Group	No.	mean	V	SD	df	Calculated	tabulated	sig
Experimental	30	67.5	127.5	10.40	60	1.07	2.00	Not significant at 0.05
Control	30	68.6	129.6	10.92				

It is clear from the statistical results between the results of the two groups in the tribal test that the value of T and the relationship between the two groups is not significant at 0.05. Showing homogeneity between the two groups, thus the requirement of the composition of the two groups.

3.2 Test Application

The researchers told the students of the two groups that there is a test for them on the subjects given to them, The tests in the final version will take place on day Monday, 1-2-2019 at the same time.

Believe the test Questions were asked to a group of computer teachers to take opinions in the traditional and electronic tests and were approved.

4 Statistical Methods

4.1 T-Test

The T-test provides the calculation of the sample mean and standard deviation.

4.2 Pearson Correlation Coefficient

The researchers used The Pearson coefficient of linear correlation can be calculated in terms of the two variables. to calculate each of the tests.

4.3 Equation Discrimination

This method was used to find the discriminating force coefficients of the Test paragraphs.

4.4 Effectiveness of Distractors

This method was used to find the effectiveness of incorrect substitutes for the Test paragraphs

5 Results and Discussion

On the results obtained, Are electronic tests using Moodle better than paper tests? Is there an equivalence in scores between electronic tests and paper tests? To answer this question using the researcher Use the test (T-Test Calculator for two Independent Means) at 0.05. show Table (4).

Table 4. T-Test

Group	No	Max de-gree	Min. de-gree	Mean	Variance	Standard Deviation	DF	T-test	p-value	sig
Traditional Testing(Paper)	30	65	22	50.2	127.54	11.29	59	8.22	0.00001	is significant at 0.05
E-Testing(Moodle)	30	100	51	74.4	132.3	11.50				

His study includes displaying the results reached by the researchers according to their hypothesis (there was no difference at (0.05) between the average achievement of E-Test (Moodle) student and the average achievement of students in the traditional-test (Paper) in computer maintenance).To verify this hypothesis, the researchers used a t-test tow independent sample using the SPSS program, to scorcher the difference between the E-Test (Moodle) and traditional-test (Paper) groups as a show table (5).

The variance of the E-Test (Moodle) group (132.3) and its mean (74. 4) while the mean of the traditional-test group which was tested (normal) was (127.54) and the difference was (50. 2). this indicates that there are indicators of mean differences variance for E-Test (Moodle)l and traditional-test scores, in the test conducted after the statistical analysis, the calculated t value (8.22142) (P-value is <.00001. The outcome is noteworthy at $p < .05$). was greater than the degree from freedom (59).

thus, rejecting the zero hypothesis because the E-Test (Moodle) group appeared superior to the traditional-test (Paper) group. The E-Test (Moodle) of the model affected the achievement of students.

Table 5. t-test time between Traditional Testing and E-Testing(Moodle)

Group	No.	Max. time	Min. time	Mean	Standard Deviation	T-test	p-value	sig
Traditional Testing(Paper)	30	3000	900	2370.83	374.98	10.40	0.00001	is significant at 0.05
E-Test (Moodle)	30	1860	720	1435.47	318.78			

His study includes displaying the results reached by the researchers according to their hypothesis (there was no difference at (0.05) between time Traditional Testing and E-Testing(Moodle), As a result of the analysis of T-Test(10.40) and p-value (0.00001), there are statistically eloquent variation between the time needed to perform the electronic and paper tests. The time of the electronic test is less than the time of the paper test. The study agrees with Olsen (1990; Weiss, 1985; Moreno et al.,

1984; Austin, 1991) that the time required to perform the electronic test is 25-72% and is consistent with De Beer & Visser (1998) ; Ryan et al., 2000) of the characteristics of electronic test saving time.

6 Conclusions

- Those using Electronic tests (Moodle) get better grades than use Traditional paper tests.
- Understanding the electronic tests (Moodle) will allow us to determine which actions might be carried out to boost, to improve both skills and grades.

7 Recommendations

Through the results obtained from this study, which proves that the electronic test by Moodle program is better of the paper tests, the researchers recommend applying the electronic tests at Al-Furat Middle University and applying it in the scientific subjects. And encourage professors to grapple with and apply some of the key principles of this research approach.

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