

The Impact Of Using (Google Classroom) Application in the Achievement of Plasma Physics And the Development of Interactive Communication for the Students Of the Department Of Physics At the College of Sciences at the University of Misan

Dr. Rasha Abdel Hussein Sahib Abdel Hassan¹

Abstract

The aim of the current research is to identify the effect of The use of the (Google Classroom) application in the collection of plasma physics and the development of interactive communication among students of the Department of Physics at the College of Science at the University of Maysan. The research sample consisted of (63) male and female students, distributed into two groups, the experimental group, which amounted to (31) male and female students who studied using the Google application, the control group, which amounted to (32) male and female students, who studied in the usual way, and the two research tools were applied. There were statistically significant differences between the sample members in the achievement test and the interactive communication scale in favor of the experimental group, which indicates the effect of using the Google Classroom application. In the collection of plasma physics and the development of interactive communication among students of the Department of Physics in the College of Science, University of Maysan.

Keywords: *Google Classroom, Plasma Physics.*

Introduction

Higher education institutions seek to develop their educational strategies and plans, to improve the educational process in line with the changes of the era and the knowledge and digital developments. There is no doubt that digital learning has led to a radical transformation in the education system, in order to provide an interactive environment rich in resources, tools and applications. Technology-dependent (Students, 2016, 31), and among the sources of digital learning are applications (Google Apps for Education), which is one of the most important free digital applications provided by (Google) to educational institutions, and these applications include (Gmail, Google Calendar, Google Drive, Google Docs, Google Sites, Classroom) in addition to access to dozens of collaborative tools owned by Google (such as (, YouTube Google Slides, Google Forms, Google Groups) and other services, all of these applications can be accessed through the Internet Directly, it can also be stored through the cloud storage service provided by (Google), which is (Wilson, 2016, 13) (Google Drive), and one of the most important applications (Google Apps for Education) that Employed as digital classes, which the researcher relied on in applying her current research is the application (Google Classroom), which is an e-learning system that works according to the principle of blended education based on the principle of merging between learning in a class with the

¹ Assistant Professor, College of Basic Education, University of Misan, rasha.a.sahib@uomisan.edu.iq

teacher and learning via the Internet, which helps the teacher By facilitating the learning process that he performs in the classroom better, through the use of the services available in (Google Classroom) such as (assignments, tests, grades, communication, archiving lessons, learning through mobile, keeping time, and the academic calendar . (Al-Baghdadi, 2011, 39) .

Research problem:

In light of the above and the importance of digital classes in education and the novelty of educational (Google) applications, and through the work of the researcher as a teacher of plasma physics for more than five years, she noticed a remarkable low level of students in this subject, both with regard to aspects Knowledge or skills, which prompted the researcher to benefit from technological innovations in activating the teaching of this subject, so the current research was directed to detect the impact of using the Google Classroom application in the collection of plasma physics and the development of interactive communication among students of the Department of Physics in the College of Science at the University of Maysan, and a problem was identified. The current research answers the main question: - What is the effect of using the application (Google Classroom) on the achievement of plasma physics and the development of interactive communication among students of the Department of Physics at the College of Science at the University of Maysan? Plasma Physics achievement among students of the Department of Physics at the College of Science, University of Maysan? with Maysan?

Research objectives:

The current research aims to identify:

1. The effect of using the Google Classroom application on the achievement of plasma physics among students of the Physics Department at the College of Science at the University of Maysan.
2. The effect of using the Google Classroom application on developing interactive communication among students of the Physics Department at the Faculty of Sciences at the University of Maysan

The Importance of Research:

1. The research provides a theoretical framework for the concept of applying (Google Classroom) and interactive communication.
2. It provides the developing plasma physics teaching by implement the modern technology like (Google Classroom)
3. Modern strategies that help develop interactive communication among students of the Department of Physics at the College of Science, University of Maysan
4. This research may constitute a new addition to scientific research, with regard to the effect of using the application (Google Classroom) on the collection of plasma physics and the development of interactive communication among students of the Department of Physics In the College of Science at the University of Maysan

The limits of the research:

1. Students of the fourth stage in the Department of Physics in the College of Science at the University of Maysan
2. Plasma physics subject to be taught to students of the fourth stage in the Department of Physics in the College of Science in Maysan university.
3. The second semester of the academic year (2021-2022)

The Two Research Hypotheses:

To verify the aims of the research, the following two zero hypotheses were formulated:

1. There is no statistically significant difference at the level of significance (0.05) between the mean scores of the students of the experimental group who study according to the application of (Google Classroom) and the average scores of students of the control group who study according to the usual method in the achievement test in Plasma Physics.
2. There is no statistically significant difference at the level of significance (0.05) between the average scores of students of the experimental group who study according to the application of (Google Classroom and the average scores of the students of the control group who study according to the usual method in the interactive communication scale.

Research terms:

It is defined procedurally as:

1. The effect is the amount of change caused by digital classes based on the application of (Google Classroom) in developing the achievement of students of the Physics Department in Plasma physics subject and an increase in their interactive communication, measured by the degree obtained by the student through the achievement test and the interactive communication scale.
2. The application (Google Classroom) is a digital environment in which communication and For cooperation between the professor and the students in order to teach the subject of plasma physics by sharing the subjects of the subject electronically, and then completing the tasks and performing the assignments through many digital tools (texts, videos, pictures, links, files) that the application provides with flexibility and effectiveness.
3. Interactive communication is that mutual act or joint effect that occurs using the Google application (teacher and student, between student and professor, between student and student, between student and content, and between (student's Classroom) and the digital learning environment, and is measured by the degree that the student obtains in the interactive communication scale.

Research Methodology And Procedures:

Since this research aims to investigate "the effect of using the (Google Classroom) application on the achievement of plasma physics and the development of interactive communication among students of the Department of Physics at the College of Science at the University of Maysan," so the experimental design with partial control and a post-test was chosen to test achievement and The interactive communication measure for two independent, unequal groups, one representing the experimental group and the other representing the control group, as shown in Scheme (1).

Scheme (1) Experimental design of the research

The group	the independent variable	dependent variable
Experimental	Google glass room application	Achievement test
Control	Traditional method	Interactive communication scale

Research Community and Its Samples:

The research community consists of all students of the Faculty of Science at the University of Maysan for the academic year (2020-2021). It was chosen in a simple random way * Division (C) to represent the experimental group of (31) students who

study plasma physics according to the application of (Google Chassroom), while Division (A) represented the control group of (32) students who study The same material in the usual way**.

The Research Condemnations:

the requirements of this research are the preparation of two tools for measuring the dependent variables (achievement and interactive communication).

In the following, an explanation of the numbers of these two convictions follows:

1. Building the achievement test:

it is a measure of the level of achievement of fourth-stage students in the Department of Physics in the College of Science, University of Maysan, in subjects of physics. Plasma to be taught in the second course. In its initial form, the test included instructions explaining to students how to deal with the test items and how to answer its items. The researcher also took into account that these instructions are clear, direct, and in an easy language for students. The test included a set of questions that were divided into two parts, the first part is special. True or False 35) questions, and the second part is for multiple choice (35) questions. To ensure the validity of the test, it was presented to a group of arbitrators to express an opinion on the suitability of the test for its purpose, the clarity of its instructions and paragraphs, and the extent to which it is suitable for first-stage students.

* The researcher wrote the names of the three people on three sheets of paper and put them in a bag. The first paper was withdrawn to be the experimental group, while the second paper was The group of the control.

**the absence of failed students."

The test was applied reconnaissance to a group of students other than the research sample, and their number reached (28) students, in order to ensure the clarity of instructions and questions and their suitability for students, and to reveal some difficulties that may appear during the application, and some of the test items have been modified in light it. The test was re-applied to the same reconnaissance group with an interval of two weeks, and it was taken into account that the application conditions are similar to the conditions of the first application in terms of application time, and by calculating the correlation coefficient between the students' scores in the application using the Pearson equation, the test reliability coefficient was equal to (87%) It is a good percentage, which confirms the validity of the test for application. The time of answering the test items was also calculated by calculating the average time of the first student who finished answering the test and the last student who finished answering the test. The average time of answering all the test items was (90) minutes, and thus the achievement test in its final form became applicable and included (70) questions, (35) true and false questions and (35) multiple choice questions.

2. Estate the Interactive Communication Scale:

The scale aims to stand on the level of interactive communication among fourth-stage students in the Department of Physics at the College of Science at the University of Maysan. The items of the scale were formulated in the form of phrases revolving around some aspects related to interactive communication in plasma physics, which is taught electronically., communication between the student and the digital learning environment), and five alternatives were formulated for each paragraph of the scale, which are (strongly agree, agree, not sure, disagree, strongly disagree). The scale was shown to the arbitrators, and the initial image of the scale was modified in the light of their opinions by deleting or adding some paragraphs. The scale was tested on a group of students other than the research sample, whose number is (29) students, for the purpose of calculating the stability of the scale, as it was calculated using Cronbach's coefficient, and it reached

(92%), which is a good and appropriate stability coefficient. Calculating the response time for the 45 items of the scale by calculating the average time of the first student who finished answering the scale and the last student who finished answering the scale. The average response time for all the paragraphs of the scale was (60) minutes, and thus it became the scale is applicable to the research sample.

Steps To Apply the Experiment:

1. Selection of the two research groups (experimental and control) randomly from the fourth stage students in the Department of Physics in the College of Science at the University of Maysan.
2. The students of experimental group were introduced to the experimental procedures, and each student was asked to create a Gmail account to access the applications (Google Apps for Education).
3. A (virtual) digital class was created under the name of Plasma Physics using the (Google Classroom) application, and the students were given the (virtual) digital class number to join and enter it.
4. The students of the control group were taught in the usual way, while the students of the experimental group were taught through Employing the digital class (virtual) using the application (Google Classroom)
5. The final application of the two research tools (achievement test and interactive communication scale) was done on the two research groups. Statistical treatments: The researcher used the statistical program (SPSS) to process the data statistically. Displaying the results in order to verify the research aims by testing the validity of the two zero hypotheses as follows:

1. The first hypothesis: -

(There is no statistically significant difference at the level of significance (0.05) between the average scores of the students of the experimental group who study according to the application (Google Classroom) and the average scores of The students of the control group who study according to the usual method in the achievement test in plasma physics) The scores of the experimental and control groups were monitored in the achievement test, and the results showed Statistically, there is a difference between the average score of the experimental group (34.17) and the average score of the control group students (25.46). To test the significance of this difference, the second test (T-test) was used for two independent, unequal samples, so the second calculated value was (5,034) at the level of significance (0.05), which is greater than the tabular value of (2,000), which means that this difference is statistically significant, as shown in Table (1). in the usual way in the achievement test

The group	The number of the sample	SMA	variance	t value		Statistical significance
				Calculated	Tabular	
Experimental	31	34,17	16,67	2000	5034	function at the level 0.05
Control	32	25,46	18,92			

The second hypothesis:

- (There is no statistically significant difference at the level of significance (0.05) between the mean scores of the students of the experimental group who study according to the application of (Google Classroom) and the average scores of the students of the control group who study according to the usual method in the interactive communication scale)

The scores of the experimental and control groups were monitored in the interactive communication scale, and the statistical results showed that there was a difference between the mean scores of the students of the experimental group (85.44) and the mean scores of the students of the control group (69.87), and to test the significance of this difference, the second test (T-test) was used.) for two independent, unequal samples, so the second calculated value was (3,231) at the level of significance (0.05), which is greater than the tabular value of (2,000), which means that this difference is statistically significant as shown in Table (2), and this means The students of the experimental group who studied according to the Google Classroom application outperformed the students of the control group who studied in the usual way in the interactive communication scale.

The group	The number of the sample	SMA	variance	t value		Statistical significance
				Calculated	Tabular	
Experimental	31	85,44	23,05	3231	2000	function at the level 0.05
Control	32	69,87	24,54			

Interpretation of The Results:

1. The Google Chassroom application enabled the publication of a practical application for lectures in the form of Videos and photos help students to view them at any time.
2. The Google Classroom application helped students generate more modern, flexible and original ideas by providing a learning environment rich in activities that use all senses in collecting data and information.
3. This is done by giving assignments and tasks and what the students do in terms of solving them and re-sending them to the professor through the digital class with the possibility of direct correction and monitoring the grade in particular for each student and giving feedback by writing notes to the students directly while setting the results by the professor.
4. Therefore, this application achieved a great degree of social interaction and removed some barriers between students, as well as the lack of attention, and the class became an integrated cell of work throughout the lesson time.
5. The application (Google Chassroom) helped to increase the interaction of students with each other on the one hand, and with the scientific material on the other hand.
6. The application of (Google Chassroom) removed the lesson from the condition of the traditional boring lesson to the state of the exciting lesson.
7. The application of (Google Chassroom) allows students to cooperate With the teacher of the scientific subject to solve duties and tasks with the possibility of sending a model answer form by the professor of the subject as an example to all students at one time
8. Students' attraction to the modern teaching method (digital classes) and increased their motivation to learn more subjects of the scientific subject, which made it easier to continue in Applying the experiment and students not withdrawing from the experiment.
9. The Google Chassroom application is characterized by the ability to download it on smart phones, which allows greater and faster access for students.

10. The Google Chassroom application allows direct communication with the professor or with colleagues, as well as sharing any files
11. The Google Chassroom application allows the professor to send notifications and initiate academic discussions. Immediately, students can share resources with each other or answer questions.

Recommendations:

1. Paying attention to employing digital classrooms (Google Classroom application) in teaching various academic subjects.
2. Preparing a digital educational environment in universities to suit different digital and technical education patterns in order to activate digital learning in universities.
3. Encouraging teachers to employ Google Apps for Education applications through digital classrooms, especially with students who find it difficult to attend lectures directly.
4. Holding intensive training courses for faculty members to train them on the mechanism of employing digital classrooms in teaching.
- 5 . Spreading digital culture among teachers and students to achieve greater demand and interaction and to improve digital learning patterns.
6. Holding intensive training courses for students to train them on the mechanism of using digital classrooms in their education.
7. Benefiting from Google Apps for Education applications and their use in computerizing school subjects.

Suggestions:

As a complement to this research, the researcher suggests conducting other research to identify the impact of using the (Google Classroom) application with variables, study materials, and other educational stages.

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