

# The impact of Google classroom application on the teaching efficiency of pre-teachers

By

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## Abstract

*The aim of the research is to study the impact of Google classroom application on the teaching - efficiency of educational college students, the sample of the research consist of (60) educational college students those who are at the average level of academic achievement (good - very good) and at an average level of socioeconomic they live in the western region of Saudi Arabia, free of physical disability and between the ages of 20 - 25 years. The researcher divided the sample into two groups of which (30) students as a control group and the other (30) students as an experimental group. The researcher followed the experimental approach in implementing the Google classroom on the research sample, that's the controlled group taught by the traditional way while the experimental group studied using Google classroom, throughout the first semester of the academic year 2016-2017 (October - December 2016) to share course materials. Then the researcher applied an observation card to test development on teaching efficiency and an achievement test in computer to test the research hypotheses. The results after testing the hypotheses were: There are significant statistical differences in the results between the experimental and controlled group when the Google classroom application applied, on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer .*

**Keywords:** *Google classroom application, teaching – efficiency, educational college students.*

## 1. Introduction

The Digital Technology has influenced all aspects of human life. Education is not an exception, understanding technology use at the level of pedagogical engagement will provide us valuable insights into their relationship with teaching and learning. Pedagogy is about the various forms of interaction between three agents: teacher, student/s and knowledge domain. These three agents comprise three elements in a triangle of interaction (Garrison and Anderson, 2002).

The use of ICT in general merely showed characteristics of traditional approaches to learning. The chances of using open-ended ICT applications, which are expected to contribute to the power of learning environments, were greater with teachers who created powerful learning environments for their pupils, and when there were more computers available to pupils. In addition, teachers' views with regard to the contribution of ICT to active and autonomous learning, teachers' skills in using ICT (Ed Smeets, 2005).

There is evidence from a number of publications that use Information and Communications Technology (ICT) variability amongst serving and student-teachers in different subject specialties. Teacher-mentors are an obvious source of support during school experience; the relationship between student-teachers' use of ICT and that of their serving teacher-mentors is not clear. This study was part of a series of projects investigating ICT use during initial teacher training across different subject areas (P. Cuckle and S. Clarke 2002).

The emerging technology of classroom communication systems offers a promising tool for helping instructors create a more interactive, student-centered classroom, especially when teaching large courses. (Dufresne, R.J., Gerace, W.J., Leonard, W.J. ,1996).

The Google classroom application depends on Google documents and cloud storage and Gmail mail service in order to accomplish the required functions, research and follow-up with students, on the other hand the service also provides tools for teachers continues to allow them to publish the assignments, home works, questionnaires and tests for students and get answers to them in real time.

It intends to Google services from these circumstances that reduce the use of paper products and convert part of the education process to a fully electronic through the creation of jobs through the service and sent to students and receive answers and corrected and the results recorded it all electronically.

The Google Drive service creates a folder for each new job students are asked to do, also it makes accessing the data available via the Drive to all the files such as documents, data sheets, PowerPoint, videos, and additional readings.

Classroom service still need to invite students for registration by teachers, furthermore, this platform will allow teachers to make their lessons most integrated with technology in education context in replacement of paper work providing educational materials and assessment of students .And also it's an effective way for cooperation, educational guidance and continuous follow-up of study. The classroom learning platform will also enable teachers to immediately interact with their students and guide them during the completion of the tasks assigned to them, which gives a qualitative addition to the educational process of learning.

## **2. Literature Review**

This section provides a review of the two streams that was investigated in research used as a conceptual foundation in this paper, namely virtual reality classroom applications and Teaching efficiency. The review followed by a set of hypotheses.

### ***Virtual reality classroom applications:***

Many primary and secondary teachers consider computer-based activities as integral to and appropriate for the classroom practices of their students. Internet searches, word-processing and multimedia presentations are being adopted increasingly by teachers. The teacher's ability to design the types of activities that effectively apply collaborative inquiry to electronic learning tasks for deepening student knowledge remains crucial, whatever the subject area, student age or software choices( Kimber,2005).

The process of teaching and learning using computer application is a very effective process because it helps students to develop different skills related to psychology, communication, critical thinking, economic and social thinking, decision making etc.

Higher education should play a strong role in fostering social cohesion, reducing inequalities and raising the level of knowledge, skills and competences in society. Therefore, educational institutions should aim to maximize the potential of individuals in terms of their personal development and their contribution to a sustainable and democratic knowledge-based society In order to acquire the competences and skills needed within the knowledge-based society and it must become "learning organizations". The student body entering, participating in and completing higher education at all levels must reflect the diversity of the populations and be able to complete their studies without obstacles related to their social and economic background. Therefore the efforts to provide adequate services for students, create more flexible learning pathways into and within higher education, and to widen participation at all levels on the basis of equal opportunity must continue.

At the graduate level students in the social sciences and in business administration are already making use of computers in a variety of ways, ranging from the large-scale analysis of data to the simulation of an industry. The time is rapidly approaching when a high percentage of all university graduates will have

had some systematic training in the use of computers; a significant percentage of them will have had quite sophisticated training (Patrick Suppes).

With today's technologies, we can expand on the power of visuals to include experiential learning using VR applications to promote understanding and to scaffold prior knowledge. Technology tools continue to enhance the ways teachers promote understanding of new concepts. (J. Michael & Jodi Pilgres, 2016)

Google Inc. has played major roles in business as well as academic worlds. Google Apps for Education has been offered to universities around the world. Although large cloud service providers like Google do not encrypt all their stored electronic data and correlate identifiable data across accounts, Google Drive has been one of the key features of Google for teachers and students in higher educational institutions (Krisawan Prasertsith, Penjira Kanthawongs and Tan Limpachote, 2016)

The teachers' course materials can be accessed by students through the use of Google Drive at any time, any place with multiple devices like smartphones, computers, or tablets. Teachers can get a drive that stores their course materials and choose to share with specific student email addresses generating from the student email list, creating by the university or directly with the students that he had been added on his Google classroom. Teachers can choose specific student email addresses to access the course materials or all the students.

### ***Teaching – efficiency***

Teaching efficiency has become an issue of importance as the landscape of educational institutions, however new students call for new teaching methods. Modern technologies have entered the classroom, thus modifying the nature of the interactions between students and teachers.

It is essential to measure the impact of the quality teaching initiatives in order to be able to improve these initiatives. However, assessing the quality of one's teaching remains challenging. This difficulty may in part explain why the two most famous international rankings rely heavily on research as a yardstick of the universities' value and leave aside the quality of teaching. This may however change in the future, as the concerns about quality teaching and student learning are increasing (Fabrice).

For several decades now, researchers have been looking closely at how to improve teaching efficiency in various fields and learn how to teach for solving problems in their own specialized areas. Experts, regardless of their field, draw on a rich and well-structured knowledge base. Their understanding of important concepts in their fields enables them to see patterns and relationships that are not apparent to novices.

However the main target of pre-teachers – educational colleges students- preparation and training are:

- Exchange experiences between the teacher and the learner in order to improve learning outcomes and reach information form appropriate for the recipient.
- Avoid the usual routine of the traditional way of teaching.
- Dissolving the barriers between teachers and students.
- Provide students with self-confidence.
- Develop students' abilities among various educational situations.
- Developing the traditional ways of teaching and learning.
- Give students complete freedom to choose the method of teaching that's suitable of their personalities.
- Increase student achievement.
- Providing students with different skills to teach.
- To increase the spirit of positive competition among them.

## Hypotheses

To test whether the google classroom application - applied by the researcher – impact teaching efficiency the research proposed the following hypotheses:

1. There are no significant statistical differences in the results of both pre and post measurements of the controlled group when the google classroom application applied, on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.
2. There are no significant statistical differences in the results of both pre and post measurements of the experimental group when the google classroom application applied, on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.
3. There are no significant statistical differences in the results of pre measurements between both groups -controlled and experimental- when the google classroom application applied plied on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.
4. There are no significant statistical differences in the results of post measurements between both groups- controlled and experimental- when the google classroom application applied on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.

## 3. Methods

This section provides a brief description of the various construct that form the research:

### *Sample:*

The sample consist of (60) students those who are at the average level of academic achievement (good - very good) and at an average level of socioeconomic they live in the western region of Saudi Arabia – Afif city, free of physical disability and between the ages of 20 - 25 years. The researcher divided the sample into two groups of which (30) students as a control group and the other (30) students as an experimental group.

**Table 1: The research model procedures**

<b>The research model procedures</b>				
Group	Pre-teaching efficiency measurements	Educational applications program	Post-teaching efficiency measurements	Achievement in computer test.
Control	√	√	√	√
Experimental	√	x	√	√

### *Approaches:*

The researcher followed the experimental approach in implementing the Google classroom on the research sample, then the researcher taught the control group by the traditional way while the experimental group studied using Google classroom- applied by the researcher- throughout the first semester of the academic year 2016-2017 (October - December 2016) for the (educational technology course) to share course materials such as lecture files, assignment details, pictures, and videos with specific student email

addresses generated from Shagra University. Then the researcher applied an observation card to test development on teaching efficiency and an achievement test in computer to test the research hypotheses.

The results after testing the hypotheses were:

1. There are no significant statistical differences in the results of both pre and post measurements of the controlled group when the Google classroom application applied, on teaching efficiency of educational college students in each of its levels (planning and evaluation) and in academic achievement in computer test but there are differences found on execute for teaching efficiency at the same level.
2. There are significant statistical differences in the results of both pre and post measurements of the experimental group when the Google classroom application applied on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.
3. There are no significant statistical differences in the results of pre measurements between both groups -controlled and experimental- when Google classroom application applied on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.
4. There are significant statistical differences in the results of past measurements between both groups- controlled and experimental- when Google classroom application gram applied on teaching efficiency of educational college students in each of its levels (planning, execute and evaluation) and in academic achievement in computer test.

**Table 2. Differences in the results of post measurements between both groups- controlled and experimental- on teaching efficiency at the levels of planning**

Group	n	Mean	STD	t-test	df	Sig at 0.05
Controlled	30	32.16	40.62	-23.17	29	0.00
Experimental	30	39.00	2.73			

As seen from the table above, there are significant differences between each of the experimental and the controlled groups in the post measurement of the efficiency of lesson planning . And to determine the effect size that Caused by the used application as shown below:

**Table 2: Effect size by using the program on the efficiency of lesson planning after post measurement between the experimental group and the control**

	Correlation	d.f	Eta2
Degree	174.23	29	90.01%

As seen from the table above 90.01% of the effect on the planning level of teaching – efficiency caused by the used application.

**Table 3: Differences in the results of post measurements between both groups- controlled and experimental- on teaching efficiency at the levels of executing**

Group	n	Mean	STD	t-test	df	Sig at 0.05
Controlled	30	29.03	2.76	-2.14	29	0.037
Experimental	30	50.00	53.69			

As seen from the table above, there are significant differences between each of the experimental and the controlled groups in the post measurement of the teaching efficiency at the level of lesson execute.

And to determine the effect size that caused by the used application as shown below:

**Table 4: Effect size by using the program on the efficiency of lesson execute after post measurement between the experimental group and the control**

	Correlation	d.f	Eta2
Degree	8.39	29	70.86%

As seen from the table above 70.86% of the effect of the lesson execute level of teaching – efficiency caused by the used application.

**Table 5: Differences in the results of post measurements between both groups- controlled and experimental- on teaching efficiency at the levels of evaluation**

Group	n	Mean	STD	t-test	df	Sig at 0.05
Controlled	30	33.73	11.76	-8.399	29	0.00
Experimental	30	57.22	10.04			

As seen from the table above, there are significant differences between each of the experimental and the controlled groups in the post measurement of the teaching efficiency at the level of evaluation. And to determine the effect size that Caused by the used application as shown below:

**Table 6: Effect size by using the program on the efficiency of lesson evaluation after post measurement between the experimental group and the control**

	Correlation	d.f	Eta2
Degree	2.135	29	13.58%

As seen from the table above 13.58% of the effect on the evaluation level of teaching – efficiency caused by the used application.

**Table 7: Differences in the results of post measurements between both groups- controlled and experimental- on teaching efficiency at academic achievement in computer test**

Group	n	Mean	STD	t-test	df	Sig at 0.05
Controlled	30	24.36	2.28	-19.52	29	0.00
Experimental	30	35.16	2.03			

As seen from the table above, there are significant differences between each of the experimental and the controlled groups in the post measurement of the teaching efficiency at academic achievement in computer test . And to determine the effect size that caused by the used application as shown below:

**Table 8: Effect size by using the program on the academic achievement in computer test after post measurement between the experimental group and the control**

	Correlation	d.f	Eta2
Degree	19.52	29	92.92%

As seen from the table above 92.92% of the effect on the achievement in computer test caused by the used application.

The effect size by using Google classroom on the teaching efficiency at the different levels and academic achievement in computer test after post measurements between the experimental group and the control can be represented as bellow:

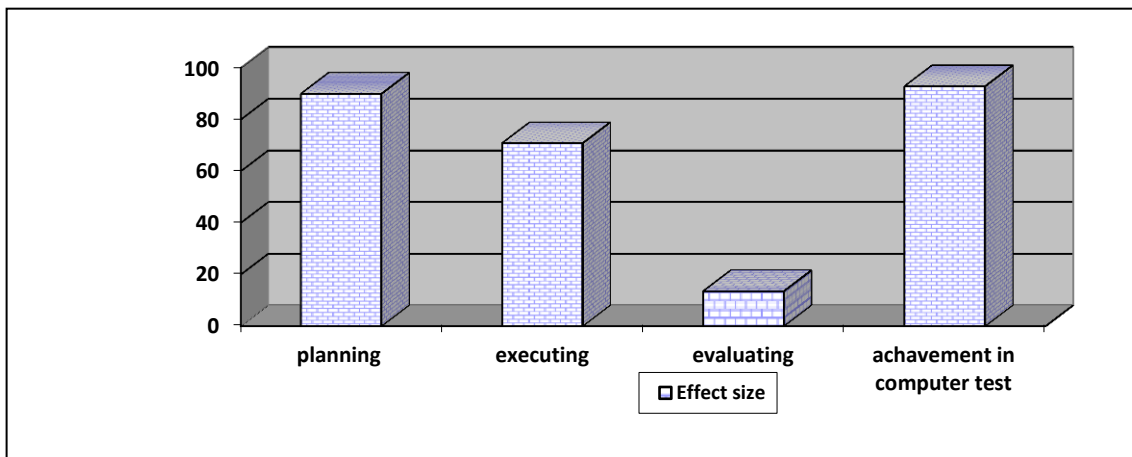


Fig.1 The effect size by using the program on the teaching efficiency and achievement in computer test.

#### 4. Previous Studies

Many studies have investigated the impact of using computer application in teaching efficiency in different regions and cultures of the world such as Djenic, S (2014) he represents a result of studying the efficiency of applying mobile learning technologies, as well as the accompanying advanced teaching methods in the area of Information Technologies, at the School of Electrical and Computer Engineering of Applied Studies in Belgrade, Serbia. It contains a brief description of the form of application and distribution of teaching materials designed for the area in question and Inan (2010) study which identify instructional strategies used by teachers to support technology integration. In addition, relations between types of computer applications and teachers' classroom practices were examined. Data were direct observation results from 143 integration lessons implemented in schools receiving federal technology grants. The results reflect the use of student-centered practices such as a teacher as a facilitator, project-based learning, and independent inquiry, Ocak (2008) he investigated the level and frequency of science teachers' use of computer applications as an instructional tool in the classroom. The manner and frequency of science teachers' use of computer, their perceptions about integration of computer applications, and other factors contributed to changes in their computer literacy are investigated in this study. 63 primary school science teachers from the Northwestern part of Turkey participated in this study. A survey was administered to teachers. Results demonstrated that improving the computer literacy of science teachers seems to increase science teachers' computer use and consequently increase their integration of computer applications as an instructional tool in the other hand Fatos study (2007) examined the perceptions of the classroom teachers on the computer use in the TRNC schools. A questionnaire was applied to 84 classroom teachers in 5 schools in Nicosia, the capital city of the TRNC. The answers to the first part of the questionnaire with five subsections were analyzed. Descriptive statistics were used for the analysis. The findings showed that teachers in the TRNC highly believed in the benefits of computers in education. They agreed with the ideas that computers increased student motivation and improved students' skills and knowledge. In addition, there are other studies such as Hakverdi-Can study(2012) and Ulukök(2016).

## 5. Discussion

\This research could help teachers and learners become familiar with various aspects of computer applications in educational settings. It is expected that each learner will have had some experience with computers and come to the course with questions, inquiries and interests in various issues related to the educational application of computers on both the theoretical and practical levels in education, especially the educational colleges students.

## 6. Conclusion

This study finding and results are supported by past literature also the research suggests additional research and models for pre-service teacher education that will help mitigate these barriers. However, additional research that leads to pre-service instructional models that can help teachers thoughtfully integrate Google classroom by helping mitigate barriers, may ultimately be unsuccessful if teachers do not hold beliefs, If teachers do not value the use of pedagogies that collaboratively engage students in scientific inquiry, nor see value in helping students understand the nature of scientific research, they may not value the use of google classroom tools to support these instructional approached, therefore, pre service teachers must be trained to use these sort of technologies to improve heir teaching efficiency and motivation .it's focused on planning, implementation, evaluation and management of a variety of instructional technologies and learning environments. And its report outcomes of innovative approaches in applying technology and computer and the research may create a paradigm for future studies of the evolution of essential computer learning and teaching efficiency.

## 7. Recommendations

In the light of the results the researcher recommends the following:

1. Attention to train the teacher (pre-service & during service) to use computer applications in various teaching and administrative work , creation of laboratories in colleges and different educational establishments to use computers in the teaching of different subjects and to train students to use it & must help Latecomers students and students with special needs using educational technology in general and computers in particular & we can develop the Skill of diagnosed students' needs using the method of the electronic evaluation and encourage students to use the method of self-evaluation & develop the skills of scientific research and the skill of using the Internet to collect information & we must study the causes of in adequately use of computers in teaching and solve it & Be attention to create and innovate in the field of education, using various educational technologies in general and computers in particular. Also, we have to be attentive to renewal in the field of scientific research which concerns the development of teaching competence in the teacher before or during the service & encourage of educational students to innovate and develop various programs that work to develop their teaching skills and help them to be efficient on the academic achievement in their respective fields.
2. Most importantly, educators in developing countries need to overcome the “not-invented-here syndrome” by re-branding, localizing, or contextualizing material they obtain from other sources (Wright, 2007a). If a course developed by another institution is not available in an open-source format, they must obtain permission to use it and then simply re-brand it by adding their institution's name, logo, and contact information. The materials are not changed significantly and considerable time is saved. Educators may decide to localize the material by removing inappropriate information, including local examples, or rearranging course components



3. Students are a resource that is often overlooked when faculty training is being implemented. In general, young people tend to pick up technology skills rapidly and can be used to assist instructors in learning computer skills and developing media-based materials (Wright, 2007b). If this is to occur, faculty may need to overcome their resistance to learning from students, which may be accomplished more easily in some cultures than in others.

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