The Effect of Wiki & Google Classroom on the Achievement of Female Art Teachers in Drawing and Designing Training Courses in Saudi Arabia

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Received: April 17, 2022 Accepted: June 24, 2022 Online Published: June 27, 2022

doi: 10.5430/ijhe.v11n4p206 URL: https://doi.org/10.5430/ijhe.v11n4p206

Abstract

This study aimed to reveal the effect of using Wiki&Google Classroom on the achievement of female art teachers in drawing and designing training courses in Saudi Arabia. The study sample consisted of 49 female art teachers chosen through a purposive method from Saudi Arabia. They were randomly distributed into two experimental groups: the first experimental group (26 teachers) studied drawing and design training courses via Google Classroom. The second group (23 teachers) studied the same course by Wiki application. The current study was conducted in the first semester of the academic year 2020-2021 and it depended on a quasi-experimental approach. The results of the study showed statistically significant differences between the pre and post-test in favor of the post test. It also showed statistically significant differences between the group that studied using Google Classroom and the groups that studied using Wiki application in favor of Google Classroom. The study recommended activating the use of the Google Classroom and Wiki applications in teaching art courses online.

Keywords: Wiki, Google Classroom applications, academic achievement, art courses online. drawing and design training course

1. Introduction

Teaching methods are the first step to putting the training curriculum into practice, and they are also the first practical test of the appropriateness of the curriculum in terms of its objectives and content for the learner concerned. For this reason, teaching methods are significant and require great care. Due to the multitude and diversity of teaching methods, the instructor must be well acquainted with their nature, the foundations on which they are based, and their consistency with the trainees' educational goals.

The technology breakthrough brought about a profound change in the training field in terms of ease of access to knowledge, its storage, and communication among all participants in the development process. It also offered perspectives on training through electronic learning environments that depend on computers, internet or what is called "E-Learning"

This technology represents a means that provides trainees with easy access to the scientific material using different and various training software and websites, which contribute to the transfer and exchange of ideas and experiences, and allow interaction with the outside world, and increase learners' motivation to learn, especially when e-learning is interactive Al Ajami ,2015.

Among the websites that provide giant free services in the field of online education is Google, and Google Classroom service is one of the most important in that it provides many advantages in the training process, such as: interactive chat, multimedia, and the exchange of documents and data among trainees, or between trainees and the trainer, transcending the limits of time and space. One of the characteristics of Google classroom is that it resembles a blank board, as the trainer can add trainees and courses, assignments, and the ability to follow them individually. Therefore, it is like the functions of normal learning management systems (Zhang, 2016).

Nowadays, Google Classroom platform has made great strides toward the development of the educational processes in different educational and training institutions. Moreover, it is available in multiple languages, including Arabic

which is characterized by the fact that it is free, easy to use, and does not require any form or program modification, as it is ready to be operational and enables individuals to post advertisements on their personal profile at any time, provides students and staff members with (G-mail), and has an application on smart phones to facilitate access to students and staff members (Al-Amour and Olimat, 2016).

Given the importance of the Google Classroom application and the Wiki application in the educational process, this study aimed to reveal the impact of the use of the Google Classroom and Wiki applications on female trainees' achievement in the drawing and designing course, which was implemented by the researcher as an expert in teaching this course.

1.1 Problem Statement and Questions

Drawing and Designing training course is one of the materials that require special laboratories at universities as well as practical practice of all its aspects for great benefit in the field of art education. Like other educational courses, trainers must implement the Internet, computers, and smart applications in teaching the course and conduct the practical part through some educational programs and websites, where it provides female trainees as much as possible with re-work and applications to watch and perform these designs in more than one time and from more than one angle, in addition to the possibility of group work and discussions and online debates.

Due to the health crises such as the Corona pandemic, special measures have been imposed on all sectors, including the educational training sector, which has been greatly affected. Consequently, distance learning has become indispensable. This prompted training educational institutions to use educational platforms for the sake of teaching and training sustainability. One of the educational sites or electronic platforms that can be used is Google classroom, which offers many advantages to the educational process without being time and place bounded, as it provides a clear interaction between the teaching staff and learners, it includes a chat room, multimedia, and the exchange of documents and data.

Hence, this study aimed to reveal the impact of using the applications Wiki, Google Classroom on the Art female teachers' achievement in the drawing and design training course and the acquisition of concepts, by answering the following study questions:

1- Were there statistically significant differences at the significance level (α≤.).0.05) in the achievement of the trainees in the training course of drawing and design in the pre and post implementation for the study group that was studied through Google classroom application?

2- Were there statistically significant differences at the significance level (α≤.).0.05) in the achievement of the trainees in the training course of drawing and design in the pre and post implementation for the study group that was taught by using the Wiki application?

3-Were there any statistically significant differences at the significance level (α≤.).0.05) in the achievement of trainees in the training course of drawing and design attributed to the teaching methods based on Google Classroom and Wiki Applications?

1.2 Objectives of the Study

This study aims to achieve the following objectives

- Identifying whether there were statistically significant differences in the achievement of the trainees in the drawing and designing training course who trained through using the Google Classroom application in the pre and post implementation.

- Identifying whether there were statistically significant differences in the achievement of the trainees in the drawing and designing training course who studied using the Wiki application in the pre and post implementation.

-Identifying whether there were statistically significant differences in the achievement of the trainees in the drawing and designing training course that are attributed to the method of teaching using the Google classroom and Wiki applications in the current study.

1.3 Significance of the Study

The importance of the study lies in the following:

1.3.1 Theoretical Importance

The importance of the study stems from keeping pace with scientific and technological development, introducing computerized materials to educational institutions and public and private universities, and implementing technology

in educational training for all courses, including drawing and design training course.

- Both Wiki and Google Classroom applications are modern and free applications, and they are somewhat similar to social media sites, and this helps in improving the trainees' achievement.

- Facilitating the trainees' assimilation, especially of the theoretical and practical aspects, automatically.

1.3.2 Practical Importance

- The results of this study might be one of the solutions to the crisis that struck the globe since the first months of the year 2020, and after the unprecedented spread of the Corona virus (COVID-19) causing great death toll , which disrupted all facilities in the countries of the world, especially educational institutions that started searching for effective solutions and alternatives as e-learning and distance learning through virtual classes (Google Classroom, and (Wiki), which are the most adopted tools in educational institutions (Jakkaew & Hemrungrote, 2017).

- This study comes as a response to the recommendations of a number of Arab and foreign studies to conduct more empirical research on the effectiveness of teaching using the Google classroom and Wiki applications in various courses and at various educational stages (Loutfi, 2019), (Dash, 2019) Kumar.

- It is hoped that this study will contribute to drawing course coordinators' attention and Art trainers and teachers into the use of the two applications in the educational process.

- To the researcher's knowledge, this study is one of the first studies that used the Google Classroom and Wiki applications to teach the drawing and design course. Therefore, this study can be a qualitative addition to the use of two new teaching methods.

2. Conceptual and Procedural Definitions of the Study Terms

The current study deals with the following concepts and terms:

- **Google Classroom application**: It is one of the free Google educational applications that allows the teacher to construct an integrated classroom, through which the study material, assignments, and tasks are published, students are followed up, discussion, reinforcement and feedback are provided (Google Raj 2019).

- Wikipedia defines Google Classroom as one of the learning management systems in schools and universities, the aim of which is to facilitate the process of creating, classifying and distributing assignments in a paperless manner.

- This classroom includes 26 female Art teachers where the content of drawing, design and assignments are published.

- It is procedurally defined by this study: as one of the educational training applications, which is an educational platform that allows constructing an electronic classroom for Saudi female teachers. It allows them to see their work at any time and offers discussion and feedback from the trainer or another trainee.

- (Chen, 2008, 52) defines it as a simplified system to create web pages in (html) accompanied by a system to record the classification of each revision or change it undergoes so that it is easy at any time to return the page to its previous original version.

- Procedurally, the researcher defines it as a web page where trainees participate to perform tasks, while a trainer can track changes and issue a report on the progress of trainees in learning and fulfilling assignments.

- Academic achievement: the set of cognitive and skill experiences that trainees acquire as a result of studying the drawing and design course. In this study, it will be measured through a test prepared for the purposes of this study.

- **Design:** It is the complete process of planning a shape and creating it in a way that is satisfactory from a functional and aesthetic point of view at the same time. (Ismail. 2001).

3. Study Variables

The study addressed the following variables:

First: The independent variable and it has two levels:

- Teaching method using the Google classroom application.
- Teaching method using the Wiki application.

Second: the dependent variable (academic achievement).

4. Study Limitations

This current study was determined considering the following limitations:

1- Human limits: The study members are limited to a group of (49) female Art teachers from Saudi Arabia.

2- Time limits: The study tools were applied in the first semester of the academic year 2020/2021 AD.

3- Place limits: Female Art teachers from Saudi Arabia.

4- Objective limits: This study is related to the drawing and design training course, its teaching methods through Google classroom and Wiki applications, and its impact on trainees' achievement.

5- Determination of the study: The results of this study were determined by the response of the study members to the study tools, in addition to the validity and reliability of the tools used in the study.

5. Theoretical Framework and Previous Studies

5.1 Theoretical Framework

The current chapter deals with a review of the impact of using the Google Classroom and Wiki applications on female Art teachers' achievement in the drawing and design training course in terms of their effectiveness in the educational process. It also deals with previous studies related to the subject of the study.

The educational process has a great place in the countries of the world, through which it is possible to judge the progress and advancement of a country and its people as it directly affects generations, so that their development is based on advanced and modern scientific foundations (Al-Dahshan 2009).

Due to long discussion about teaching methods, it must be said that the teaching method is directly related to the nature of the educational material, the nature of the objectives, and learners' characteristics, in addition to the personality of the staff member, which indicates the absence of specific pre-existing methods for the teaching. As a result, a staff member can choose the method that suits the educational situation, using the techniques of technology (Al-Hija, 2011).

Modern educational approaches focus on reconsidering educational programs and academic courses at all stages of education and preparing them so that they provide the individual with many opportunities to practice different thinking skills, which help him to keep pace with modern developments, choose the right alternative and make appropriate decision for each everyday situation (Shukla & Dungsungnoen, 2016).

E-learning is considered one of the most important means in education for several reasons, including: its help in solving the problem of the great knowledge explosion that occurred with the advent of the communications revolution, and the great demand for education, and its use in an interactive multimedia technical environment to achieve the educational goals, and to offer the educational content to learners with sound, image, and movement, without regard to time and place barriers (Al-Halfawi, 2006).

The educational technology contributes to the teaching process by switching the function and mission of a staff member from indoctrination to other tasks and functions; where he/she plays the role of the educational designer, who uses all the data of technology for educational purposes. The success of the teacher is measured by his ability to design educational situations based on the field of educational technology which provide female art teachers with experiences to encounter the challenges of life. (Al Awad, 2014).

Teaching drawing and design course using smart applications is a paradigm shift in teaching and learning, because it has proven its ability to train art female teachers, and enable them to explore concepts related to these materials, and the applications have been a success as trainers demonstrate these concepts and information. It is a tool for interaction, Thus, these applications add vitality to the educational training process, a new technical dimension. In addition, it is a transfer from the traditional method as it helps trainers to achieve their educational goals, and equip them with the educational skills, and makes education more effective (For Mitchell, 2010).

Institutions and companies compete against each other toward generating learning management systems (LMS) applications, and among these applications are (Blackboard), (Moodle), (Wiki) applications, and among the modern instructive applications are (Google Classroom) application.

Distance learning platforms have a number of advantages, including: achieving the objectives of learning and teaching, ensuring students' continuously enhanced knowledge, providing feedback, whether from staff members, peers and sharing educational content (Gomez & Franco, 2018).

5.2 Wiki Instructional Platform

In the past years, a tremendous revolution has emerged strongly in educational computer applications, and the uses of computers and the information network in the field of learning are still increasing day by day.

Wiki application is one of the most prominent tools of the second widely- spread web generation in that it provides the opportunity for its subscribers to modify add or delete its contents according to their needs, (Al-Abdullah, 2018).

5.2.1 Features of Wiki Application (Al-Otaibi and Tayeb, 2010):

- Wiki simplifies the process of editing the contents. Each page contains a link to change its contents. If someone wants to change the contents of the page, he must click on the link and an editing form will appear. When required addition and edition are finished, he must press the button and the edited page will appear.

- Wiki uses simple commands to coordinate its contents, so there is no need to learn HTML to share or edit the contents.

- Wiki keeps a record of the history of the pages, so if a person makes an error in any editing process, he can return to the original version before edition.

- It encourages collaborative work because it allows group work and the possibility of edition for any visitor.

-Wiki simplifies the process of creating links to other pages and hyperlink content.

5.2.2 Benefits of Using the Instructional Wiki Application (Al-Obeid, 2011):

Students possess knowledge as they actively and vigorously pursue it.

- Developing a sense of responsibility among students as they assume it to take care of publication or website that has a global audience and is not confined to the teacher.

-Developing learners' critical thinking level by ensuring information accuracy on their Wiki pages.

-Developing students' reading, writing and information understanding skills in order to verify the facts accurately and correct colleagues' errors.

-Developing the ability to assess the reliability of various information sources.

5.2.3 Characteristics of the Educational Wiki Application (Wallace,2013):

- The organizational flexibility of content, so any website can organize its contents in the manner that suits it.

- Ease of creating pages.

- Ease of creating links.

- Possibility to edit the contents.

- Simple content formatting commands.

- Ability to save page history and track changes.

- Facilitating collaborative work.

5.3 Google Educational Applications

Hayek (2013) indicated that Google educational platform contributed in the field of e-learning since its appearance as most of Google applications provides educational institutions, universities, with virtual data centers accessible to all staff and students at anytime and anywhere to make it easier for educational institutions to continue e-learning.

Google undertakes to progress in education field, and to provide solutions and applications that support the educational process, especially after e-learning has entered action, and its adoption by various educational institutions for all stages. This is because the company is based mainly on scientific research, and was the product of university students' research, and the company's main goal is to provide information to all who need it.

From that perspective, Google has produced more than fifteen educational scientific applications to facilitate the company’s applications. (G Suite) is one of Google applications which is based on all operation management processes through this portal where the system administrator can create accounts, and control all work. In addition, the company has established (Google For Education). It is an application for schools and universities that allows teachers to host, distribute and share digital documents, and collaborate to solve problems through cloud computing technology, leading the educational institution to e-learning, (Google, 2017).

After the expansion of e-learning, and the competition of many educational institutions to adopt it and searched for systems and applications that would manage the learning process, many applications for e-learning management appeared while Google company created a special application for e-learning administration (Google Classroom), (Google, 2017).

5.3.1 Google Classroom Application

Despite its power and effectiveness as a mere research engine, "Google" is one of the giant services provided on the internet and it goes beyond being a mere to be a group of services and applications provided by (Google) according to its vision and logo that reflects all the available information as well as mission arrangement. Furthermore, Google products and services include: search engines, communication tools, publishing, integrated software, desktop products, smart phones, and others, (Google, 2017).

(Google Classroom) service is regarded as a great leap towards the development of the educational processes. It is an effective technological tool to replace paper to provide scientific content to students, follow up them and manage learning. What distinguishes this service also is the addition of (About) page in each course where information can be written, and the scientific content of the subject can be included to be viewed. Furthermore, the service is available in (42) different language, including Arabic language, and it works on mobile phones, tablets, and personal computers. A user can also start using the platform after browsing the service site, and registering with the personal account of the applications, (Google, 2017).

When a staff member creates an assignment for students, he can attach documents from (Google Drive) regardless of its kind as text files, spreadsheets, or presentations. Then, he chooses to copy the file for each learner.

5.3.2 (Google Classroom) as An Instructional Platform is Characterized by Several Characteristics, Including: (Al-Qadi and Muhammad, 2010).

• It is generally free and easy to use.

• It is based on the principle of "facilitating the educational process".

• The platform does not require any software modification, or anything else, it is ready to work directly on its own site.

• The platform is fully available in Arabic.

• The platform has an application in smart phones to facilitate access to students and staff members.

• Implementation of the platform does not require many and long steps, as it is possible to access (Google Classroom) platform after logging in with personal (Gmail), the main panel of the platform appears.

5.3.3 There Are Several Features of Google Classroom Application According to (Google, 2017):

• Free application: Google offers it to all users for free.

• Internet-based application: The application is used directly through the internet, which allows its users to access their classes, and manage the process from anywhere or anytime the user desires.

• A cloud-based application: Cloud computing allows application users to download files, access them from anywhere in the world without cost or special equipment, and benefit from all other cloud computing features.

• It does not require special equipment (central devices, special infrastructure) or specialized technicians, where educational institutions suffer from the high cost of equipping the infrastructure for learning management systems where it is necessary to provide a specialized staff, with a specialized technical management to download the application. Also, there must be a central device. On the contrary, (Google Classroom) does not need all this, and any teacher can deal with it, it only needs a personal email on (G Mail), which is free, and it is possible to have direct access to the system.

• Multilanguage support , especially Arabic: The application supports all languages , especially Arabic, without the need for subscriptions or special updates.

• It has access to personal or portable computers, smart phones and tablets (PCs, Laptops, Smart Phone, iPad).

• It is installed on all operating systems (Windows, Mac Android, iPhone/iPad, Web-based, Windows Mobile)

• It is installed on all browsers (Google Chrome, Firefox, Internet Explorer, Safari)

• The application interface is easy to use, and familiar to users of modern applications.

• It allows the user to use other (Google) applications without hindrances.

• It allows downloading all types of files.

• An easy-to-use control panel for the learner, teacher, and system administrator.

• A high-quality protection system: It allows the distribution of powers to users at levels that ensure data protection, according to these powers.

• Ease to pair and synchronize with other systems in the organization: The application allows pairing with other systems directly, such as (Active Directory, Email Server, Web, Server, Data Server, HR), and allows extracting materials, data and exporting them to files in more than one format. (Pdf, Excel), which allows it to be used directly in other systems.

• Extracting reports: The application allows the application manager or a staff member to extract reports easily, directly with different ways (text, tables, graphs), which contributes to instant decision-making.

• The learner's privacy: the staff member is allowed to deal with students individually and separately. Each student is allowed to create his own page in which he lists all the required ideas for teachers and students to be easily accessed to the work of the class. It should be noted here that there are filters that the teacher and the student can use to display the contents according to those filters, to facilitate the follow-up and correction of assignments.

• Organizing classrooms: It allows the teacher to arrange the classrooms according to a timetable, priorities, and the study load. It is possible for the learner to present the materials as to the priorities and importance set by the teacher. On the other hand, the learner is enabled to monitor his own panel as it sees fit.

so that the special presentation of the material is presented according to what is taught in the subject and the subject matter is most important. He sees fit and appropriate for the job.

• Uses the decimal system: One of the things that teachers suffer most in learning management systems is the mark systems, so the application allows teachers to deal with the signs in the decimal system easily. This system offers assessment and assignments correction.

• Transfer of classroom responsibility: The application allows the administration to transfer the powers and manage classes from one staff member to another without any complication or loss of material or information.

• Privacy in the general appearance of the teacher and the student: The application allows the staff member and the learner to design their pages with colors and add their own pictures easily.

• Cooperation and integration between teachers: The application allows cooperation between teachers through the exchange of files, or page sharing, so that it ensures integration, and reduces repetition of scientific content. It also permits novice teachers to easily obtain direct or technical support, learn how to use the system directly with Google or educational institution

• Joining classes: The application allows the teacher to add learners to classes in more than one method. Thus, the diversity in educational institutions is ensured, and allowing the institution is allowed to follow the way it wants.

• Collaborative learning: The application allows the use of a cooperative learning strategy and the participation of students in content, assignments and assessment.

• Easy management of the educational process: The application permits educational institutions to manage the educational process in all its aspects easily, smoothly and without complication.

• Inclusion of educational content, lessons, and courses in different formats (presentations, videos, printed Word files, text files, images, or PDF files).

• The possibility of linking with the Internet, or with YouTube channels directly.

• It allows teachers to make announcements, calendar, assignments' download and their direct solutions or re-uploading, and taking exams directly.

• Communication among students with the teacher. Blogs and groups can also be conducted.

5.4 Previous Studies

The researcher reviewed many studies for the purpose of this study enrichment and results explanation. The following is a review of previous studies arranged on two axes: the first is related to the application of the wiki (Wiki)The second is related to Google Classroom application.

5.4.1 the Studies that Dealt With (Wiki) Application:

In Al-Mazrou study (2019), which aimed to identify the attitudes of intermediate schoolteachers in Riyadh towards

Wiki application in education, and the impact of gender, educational qualification, years of experience and technical courses on these attitudes. To achieve this goal, the researcher used the descriptive analytical method, and was conducted in the first semester of the year 1432/1433H. The tool was a questionnaire that was applied to a sample of (40) male and female teachers from intermediate schools in Riyadh. The study reached the following results: Statistically significant differences in the degrees of teachers' attitudes towards Wiki application according to the variables (gender, qualifications, years of experience, courses). Considering the results, the study recommended enhancing teachers' attitudes towards Wiki application in teaching and spreading it among teachers.

Al-Ahmad study (2018), which aimed to survey the opinions of Fourth-level female students at Computer and Information Sciences faculty at Princess Nora University in Riyadh towards the use of the Wiki application in teaching, and the study tools were a scale of opinion poll regarding the use of the instructional Wiki application according to the five-point Likert scale represented by (28) items. The study sample consisted of female students of the of Computer and Information Sciences faculty at Princess Nora University in Riyadh. (40) female students were chosen by the purposive method. The researcher used the descriptive survey quantitative method to know the opinions of the students. The results of the study showed the students' positive attitudes towards awareness of the importance of using the Wiki application in teaching, and the ease of access to educational content through the application, which contributes to raising the level of academic achievement, and developing language and dialogue through the application.

Al-Abdullah study (2018), which aimed to reveal the effect of using the Wiki application in developing critical thinking among female students of the faculty of Education at King Saud University. To achieve the goal of the study, the quasi-experimental approach was used, and the study sample consisted of (38) female students from the faculty of Education who study the computer course and its uses in teaching. The sample was divided into two groups: a control group, (22) female students, which was taught using the traditional method and the other was an experimental group, which was taught using Wiki application and it consisted of (22)female students. Watson and Glaser test was used to measure the skills of critical thinking confined to the Saudi environment. The results of the study concluded that there were statistically significant differences between the mean scores of the experimental group and those of control group in the post-test critical thinking skills attributed to the use of the application.

5.4.2 Studies that Dealt With (Google Classroom)

Albawi study (2019) aimed at recognizing the effect of using the educational platform (Google Classroom) In the achievement of the students of the Department of Computer for Image Processing course. To achieve the study objectives, the following hypotheses were formulated: There was no statistically significant difference at the level of significance between the average achievement scores of students who studied using (Google Classroom) platform, and students who studied through the traditional method. There was no statistically significant difference at the level of significance between the mean scores of the attitude towards e-learning among students who studied by Google Classroom and those who studied through the traditional method. The research experiment was applied in the academic year (2017-2018) over an entire academic year, one day per week. The experimental group consisted of (47) students and was taught using the educational platform. The control group consisted of (48) students and was taught through the traditional method. After preparing the requirements for the experiment, ensuring the internal and external safety and constructing two tools: the achievement test and the attitudes scale towards e-learning and ensuring its psychometric properties at the end of the scientific material, the statistical data was performed by (SPSS), which showed the positive effect of using the educational platform (Google Classroom) in the achievement of the experimental group, and their attitudes towards e-learning compared to the traditional method, and in light of that, the researchers presented a number of recommendations, and suggestions.

5.4.3 Comments on Previous Studies

By reviewing previous studies, it can be noted that most of the studies that dealt with the educational platforms were descriptive studies such as Al-Bawi's study (2019), which aimed to investigate readiness of Google Classroom. This is unlike the current study method, which distinguishingly adopted the quasi-experimental method.

As for the sample selection, they varied, but they are confined to educational institutions, as Al Omari study (2019) whose sample consisted of the female students of the design and production of educational aids course at Mutah University, Al Bawi study (2019) which consisted of department of computer at university. As for the study results, they varied, but most of them emphasized the effectiveness of Educational platforms in e-learning, especially (Google Classroom) and (Wiki)platforms. as Al-Mazrou study (2019), Al-Ahmad (2018) and Al-Abdullah study (2018), but they all addressed the impact of these platforms and their effectiveness on e-learning in general,

including wiki application. In addition, most of the studies dealt with the effectiveness of each platform individually and the effectiveness of one platform, and this is what distinguished the current study.

What distinguishes the current study is that it combined both applications (Google Classroom) and (Wiki) and measured their impact through the quasi-experimental approach on the achievement of Female Arts teachers in Saudi Arabia given the scarcity of studies that specifically tackled this topic and linked its various aspects together. Within the limits of the researcher's knowledge, this study has benefited from previous studies in terms of research methodology, research design, sample selection, and study tools.

6. Method and Procedures

6.1 Study Methodology

This chapter presents the method and procedures used in designing the current study. It presents the study methodology, the sample, and the tools used in data collection.it also addresses the method of conducting the pilot study, the field study, and how to verify the validity and reliability of the tools used in data collection and analysis.

6.2 Study Approach

This study adopted the quasi-experimental approach to identify the effect of the independent variable - (Google Classroom) and(Wiki) applications - on the academic achievement among female art teachers in Saudi Arabia.

6.3 Study Population

The study population consisted of all female art teachers in Saudi Arabia in the first semester of the academic year 2020/2021.

6.4 Study Sample

The study sample consisted of (49) female art teachers who were selected through purposive method from the Saudi community, and they were distributed on two experimental groups using simple random method: The first experimental group - (26) female art teachers - was taught by Google Classroom application. The second group (23) female art teachers were taught using the (Wiki) platform.

Table 1. Study groups

group	Teaching method	total
1	Google classroom	26
2	Wiki	23
Total		49

6.5 Study Tools

6.5.1 The Achievement Test

The researcher constructed an achievement test for the pre and post measurement of the two experimental groups based on content analysis and the derivation of behavioral educational goals with a view to identify the significance of the differences-If any– between Google Classroom and Wiki on the achievement of female arts teachers in Saudi Arabia in graphic and design training course. Based on these objectives, a specification table was constructed, as shown in Table (2).

Table 2. Specifications table

Lesson name	Remembering 24%	Understanding and comprehension 37%	Application 13%	Analysis 14%	Synthesis 12%	Total 100%
Card Design 25%	1	1	1	2	0	5
Interior illustrations 35%	1	2	2	1	1	7
cover design 20%	0	0	2	1	1	4
The art of advertisements and models 20%	1	1	0	1	1	4
Total	3	4	5	5	3	20

In light of the specification's table, the achievement test was constructed in its initial form, and the test consisted of (20) multiple-choice items.

6.5.2 Validity and Reliability of the Study Tool

To verify the validity of the achievement test in the drawing and design training course, the test was presented in its initial form to a jury of art teachers from universities in Saudi Arabia and specialized art teachers from different schools in Saudi Arabia and their number was (12). They were asked to offer their observations about the test items in terms of their clarity, the integrity of language, its suitability to educational goals, the appropriate suggestion or modification. Their comments and modifications were taken into consideration, and an item was deleted and replaced with another one with a paraphrasing of some items for the achievement test to appear in its final form.

6.6 Achievement Test Reliability

Regarding the reliability of the achievement test in drawing and designing the training course for art female teachers in Saudi Arabia, the test was applied to a pilot sample that consisted of (25) female art teachers from and outside the study population. It was also applied after two weeks, and the Pearson correlation coefficient was calculated between the responses of the pilot sample to the first and second applications, as the value of the Pearson coefficient was (0.84),see (table 3).

Table 3. The Reliability of the Achievement Test

Pearson coefficient	Test
Pre test	
Post test	0.84

Table(3) indicated that the calculated value of the correlation coefficient was high and a statistically acceptable degree of reliability and validity for the achievement test to conduct the actual study.

6.7 Equivalence of the Two Study Groups

The achievement test was applied to the two study groups before applying the study, and a T- test was conducted on independent samples to verify that there were no statistically significant differences between the two groups before conducting the study. (Table 4) showed the results.

Table 4. The equivalence test between the two study groups in the pre-test

study groups	Standard deviation	t	d. f	Statistical significance	average difference	standard error
Google classroom	8.5385	-.24	41	.8110	-.158	.658790
Wiki	8.8696					

It is clear from table (4) that there were no statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the achievement of female Art teachers in Saudi Arabia in drawing and design training course in the pre-test. The values of the arithmetic means reached (8.53) for the first experimental group that studied using the Google classroom platform, and (8.86) for the second experimental group that studied using the Wiki platform, where the value of T was (-0.24) at the significance level (0.811).

6.8 Study Procedures

- The test was applied to both study groups before conducting the study.

- The female art teachers were trained to use each of the two applications through Whats App video clips, then each teacher was provided with a code for the educational room on each application.

-The course was designed for the two groups through a design model (ADDIE) which consists of the following stages:

1- Analysis: At this stage, the general objectives of the course, the educational content, and the characteristics of the target group were determined.

2- Design: At this stage, the specifications of the educational material were determined on paper in the form of charts and drawings. These charts included the objectives of behavioral education, the arrangement of educational content. Moreover, assignments, activities, and tests were determined in different styles, and a specific date was set for their submissions.

3- Development: At this stage, the course to be taught has been electronically transferred to each of the two applications (Wiki, Google Classroom) and uploaded to Wiki library and Google drive cloud.

4- Implementation (Usage): The course was taught in this stage as it was determined in the design stage on a pilot sample consisting of (10) Art female teachers to identify the problems and difficulties encountering the female students. The program has been modified considering these difficulties.

5- Evaluation: In order to evaluate the two platforms, they were presented to three staff members specialized in educational technology. Two of them with the rank of professor in educational technology and the third was associate professor in educational technology and the modification was made considering their observations.

The teaching process was performed according to the following:

The educational content of the course is scheduled to be published on both platforms at the same time. The part to be taught, supported by educational media such as images, videos, and scientific experiments using simulation programs, worksheets and tests. The study took five weeks to be conducted.

7. Discussion and Recommendations

7.1 Results

This chapter presents the results of the study related to the effect of teaching through Google Classroom and Wiki applications on the achievement of Art female teachers in Saudi Arabia. They are as follows:

First: the results related to the answer to the first study question: Were there statistically significant differences at the level and significance($\alpha \leq 0.05$) on the achievement of the Art female teachers in Saudi Arabia in drawing and design training course in the pre and post application on the study group that was taught by Google Classroom?

To answer this question, the arithmetic means and standard deviations of the two study groups were calculated, Table (5) shows the results.

Table 5. Arithmetic Means and Standard Deviations of the Responses of the study Sample Taught by Google Classroom of the Pre and Post Tests

Group	Number	Pretest		Post test	
		Arithmetic mean	standard deviation	Arithmetic mean	standard deviation
Google Classroom	26	8.8696	2.02447	16.8846	1.50537

Table (5) indicated that there were apparent differences between the results of the experimental group that was taught using Google Classroom method in the Pre and Posttest, where the arithmetic mean in the Pretest was (8.53), and in the post test was (16.88).

To determine if these differences were statistically significant, a T- test was conducted, table (6) shows the results.

Table 6. The results of T-test to the Responses of the First Experimental Group who was Taught by Google Classroom Application on the Pre and Post Test

Google classroom	Arithmetic mean	standard deviation	standard error	t	degrees of freedom	Statistical significance
pre - post	-8.34	1.35	.2650	-31.41	25	*0.000

***Statistically significant at the level of significance ($\alpha \leq 0.05$).**

It is clear from Table (6) that there were statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the results of the experimental group in the pre- and post-test, after they studied using the Google Classroom application in favor of the Posttest. This indicates the effectiveness of the teaching method using the Google Classroom application in improving the achievement of female Art teachers in drawing and design training course.

The results showed that the use of Google Classroom in teaching drawing and design training course has contributed to improve the achievement of female art teachers in the Posttest with a statistical significance compared to the Pretest. The researcher attributes this result to the effectiveness of the Google Classroom method in presenting educational content as well as activities in an interactive environment accessible to female Art teachers inside and outside the classroom where students can choose the suitable time to revise the electronic content with a high level of motivation towards using modern technology tools that have become an indispensable part of educational tools. This finding is consistent with several studies such as Albawi (2019).

Second: The results related to the answer to the second study question: Were there statistically significant differences at the level and significance (α≤0.05) in the achievement of female Art teachers in drawing and design training course in the Pre- and Post-application of the study group that was taught using Wiki platform?

To answer this question, the arithmetic means and standard deviations were calculated for the second experiment group taught using the Wiki platform, table (7) shows the results.

Table 7. Arithmetic Means and Standard Deviations of the Responses of the Members of the Second Study Group, which were Taught by Wiki Platform, on the Pre- and Post-Test.

Group	Number	Pre-test		Post- test	
		Arithmetic Means	Standard Deviation	Arithmetic Means	Standard Deviation
Wiki	23	8.8696	2.15964	14.1739	2.47996

Table (7) indicated that there were apparent differences between the results of the experimental group that was taught using Wiki. The arithmetic mean was (8.86) in the Pretest, and (14.17) in the Posttest.

To identify if these differences were statistically significant, a T- test was conducted. Table (8) shows the results.

Table 8. The Results of T-test to the Responses of the Second Experimental Group that was Taught Through Wiki Platform on the Pre- and Post-test

(Wiki)	Arithmetic mean	Standard Deviation	Standard Error	T	Degrees of Freedom	Statistical Significance
pre - post	-5.304	1.57	.320	-16.11	22	*0.000

***Statistically significant at the level of significance (α≤0.05).**

It is clear from Table (8) that there were statistically significant differences at the level of significance (α≤0.05) between the results of the second experimental group that was taught using Wiki application in favor of the Posttest. This indicated the effectiveness of the teaching method using the Wiki application to improve the female students' achievement in drawing and design training course.

The results showed that using Wiki in teaching drawing and design training course had contributed to improve the achievement of female Art teachers in the Posttest with statistical significance compared to the Pretest. The researcher attributes this result to the same previous reasons as Wiki offers attractive design and interaction methods for female Art teachers, and trainees can revise them through the electronic links anytime and anywhere. This result accords with Alzoru study (2019) and Abdullah study (2018).

Third: Results related to the answer to the second study question**:** Were there any statistically significant differences at the level of significance (α≤0.05) in the achievement of female Art teachers drawing and design training course due to the teaching method using Google Classroom and Wiki?

In order to answer this question, the arithmetic means and standard deviations of the responses of the two study groups were extracted, and Table (9) shows the results.

Table 9. Arithmetic Means, Standard Deviations, and T–test of the Responses of the Two Study Groups to the Posttest

The two groups	Arithmetic means	t	d. f	Statistical significance	average difference	standard error
Google Classroom	16.91	4.06	47	*0.000	2.45151	.6020
Wiki	14.46					

It is clear from Table(9) that there were statistically significant differences at the level of significance (α≤0.05) in the achievement of female Art teachers in drawing and design training course attributed to the method of teaching Google Classroom Wiki applications in favor of teaching using the Google Classroom application depending on the values of the arithmetic means , which was (16.91) for the group that studied using Google Classroom application, and (14.46) for the group that studied using the Wiki platform.

The results showed that teaching using the Google classroom application contributes better to improve female students' achievement compared to using Wiki application with statistical significance. The researcher ascribed this result to the students' familiarity with using Google tools and their prior knowledge of the user interface and this increases their motivation to follow the electronic content regardless of the way or the need to learn to use a new type of services even if they are similar as in wiki application. This result was consistent with the common tendency to use Google Classroom application, whether in field use or in research studies, as there is no - within the researcher's knowledge - any study that addresses the difference between the two platforms.

7.2 Recommendations

- Considering the results, the study recommends activating the use of e-learning platforms in teaching the drawing and design course, such as the Google Classroom application and Wiki application. This is due to its significant contribution to improve the level of female Art teachers and their academic achievement.

- Designing and implementing training courses for Art teachers in all Saudi schools on how to use the two interactive applications Google Classroom and Wiki in teaching Arts subjects.

References

Ajami, A. (2015). The effectiveness of using an interactive educational site in teaching social studies on developing achievement and critical thinking among tenth grade female students in the Sultanate of Oman. Unpublished Master's Thesis, Sultan Qaboos University, Sultanate of Oman.

Al-Abdullah, B. (2018). The effect of using Wikis in developing critical thinking skills among female students of the faculty of Education at King Saud University**.** *Arab Studies in Education and Psychology, Arab Educators Association, 97*, 341-382. https://doi.org/10.21608/saep.2018.32740

Al-Ahmad, L. (2018). Fourth-level students' perspectives at Computer and Information Sciences faculty at Princess Nora University in Riyadh towards Wiki and its uses in learning. *Journal of the College of Education, Banha University, 29*(114), 205-225.

Al-Awad, M. (2014). Educational technology and the role of the teacher. *Journal of the University of Science and Practical Technology*, third issue.

Al-Bawi, M. (2019). The effect of using the educational platform (Google classroom) in the achievement of the students of the department of computers in image processing course and their attitudes towards e-learning. *The International Journal For Research in the Educational Sciences*. *Ibn Al-Haytham, University of Baghdad, Iraq, 21*(2), 23-27.

Al-Mazrou', H. (2019). Attitudes of a selected sample of intermediate schoolteachers in Riyadh towards the application of wikis in education. *Journal of Educational and Psychological Sciences, 3*(18).

Al-Obaid,A. (2011). Application of a collaborative learning model using the educational Wiki. *Knowledge Journal, 43*(198), 34-42.

Al-Otaibi, H. & Tayeb, A. (2010). The effect of using social software based on participatory network learning on the professional growth of female educational supervisors. Research presented to the Fifth International Conference: The future of Arab education reform for the knowledge society: experiences, standards and visions. Cairo. The Arab Center for Education and Development, Arab Open University.

Al-Qadi, Z. & Abu Zalat,M. (2010). *Digital Image Processing*. Amman: Dar Safaa for Printing, Publishing and Distribution.

Amour,S. & Olimat,M. (2016). The effectiveness of the Google classroom program on acquiring biological scientific concepts in the blood unit of tenth grade students in the Naqab District in Palestine 48. *Journal of the Islamic University of Educational and Psychological Studies, 24*(4), 144-146. https://doi.org/10.12816/0035582

Bell, K. (2015). *Google Classroom, Shake Up Learning*. LLC, Retrieved from www.ShakeUplearning.com. in Feb2nd, 2022.

Chen,Y. (2008). The effect of applying Wikis in English as a foreign language (EFL) class in Taiwan unpublished doctoral dissertation. University of central Florida.

Dahshan, J. & Younes, M. (2009). Mobile education: a new format for distance learning. research presented to the first scientific symposium of the Faculty of Education entitled Virtual Higher Education Systems, Kafr El-Sheikh University, Egypt.

Dash, S. (2019). Google classroom as a learning management system to teach biochemistry in a medical school. *Biochemistry and molecular biology education, 47*(4), 404-407. https://doi.org/10.1002/bmb.21246

Enriquez, M. (2014). Students' Perception on the Effectiveness of the Use of Edmodo as a Supplementary Tool for Learning. Paper Presented at the DLSU Research Congress 2014: Philippines. De La Salle University, Manila, Philippines. March 6-8, 2014. [Online URL:http://www.dlsu.edu.ph/conferences/dlsu-re.search../_pdf/LLI-II-010.PDF,in Jan23rd,2022.

Gomez,M. & Franco,H. (2018). The use of education platform as teaching resource in mathematics. *Journal of technology and science education, 8*(1), 63-71. https://doi.org/10.3926/jotse.337

Google,C. (2017). Google Classroom Features. Retrieved from: http://www.blog.google/topics/education/10ways_were_making_classroom_and_forms_easier_teachers_school_year, on March13,,2021.

Google,D. (2017). Google Education. Retrieved from Google for Education: https://edu.google.com/

Google. (2019). About google classroom. Retrieved from: https://support.google.com/.

Halfawi, W. (2006). *Developments of educational technology in the information age*. Amman: Dar Al-Safa. Jordan.

Hayek, H. (2013). Cloud computing invades higher education institutions**.** *Naseej Electronic Blog*. Retrieved on March 25, 2022 from :http://blog.naseej.com/

Jakkaew, P., & Hemrungrote, S. (2017). The use of UTAUT2 model for understanding student perceptions using Google classroom: A case study of introduction to information technology course. 2017 International Conference on Digital Arts, Media and Technology (ICDAMT), 205–209. https://doi.org/10.1109/ICDAMT.2017.7904962

Kumar, J. & Bervell, B. (2019). Google Classroom for mobile learning in higher education: *Modeling the initial perceptions of students. Education and Information Technologies, 24*(2), 1793-1817. https://doi.org/10.1007/s10639-018-09858-z

Lotfy, I. (2019). Instructional Google Classroom platform for teaching a proposed electronic course on healthy nutrition for the disabled, and its effectiveness in developing cognitive achievement and attitude among student and teachers. *Journal of Arab Studies in Education and Psychology(ASEP), 113*(113), 167-200.

Mitchell, P. & Forer, P. (2010). Blended learning: The perceptions of first-year geography students. *Journal of Geography in Higher Education, 34*(1), 77-89. https://doi.org/10.1080/03098260902982484

Sander, B., Golas, M. (2012). Histo Viewer: An interactive e-learning platform facilitating group and peer group learning. *Anatomical Sciences Education, 6*(3), 182-191. https://doi.org/10.1002/ase.1336

Sbeitan, F. (2010). *Principles and methods of teaching science*. Amman: Dar Al-Janadriyah for Publishing and Distribution, Jordan.

Shawky, I. (2001). *Art and Design*. Cairo: Dar Zahraa for publishing and distribution.

Shukla, D. & Dungsungnoen, P. (2016). Student's Perceived Level and Teachers' Teaching Strategies of Higher Order Thinking Skills; A Study on Higher Educational Institutions in Thailand. *Journal of Education and Practice*, *7*(12), 35-46.

Wallace, A. (2013). Social learning platforms and the flipped classroom. In eLearning and e-Technologies in Education (ICEEE). 2013 Second International Conference, September (pp. 198-200). IEEE. https://doi.org/10.1109/ICeLeTE.2013.6644373

Zhang, M. (2016). *Teaching with Google Classroom*. Washington: Packt Publishing Ltd.