**GOOGLE: Application, collection and challenges in learning**

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**(ST/CS/ND/20/417)**

**A SEMINAR REPRESENTED TO THE DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF SCIENCE AND TECHNOLOGY, FEDERAL POLYTECHNIC MUBI, ADAMAWA STATE, NIGERIA**

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**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN COMPUTER SCIENCE**

**NOVEMBER, 2022**

**Abstract**

*Google has been assisting educators and institutions across the globe in harnessing the power of technology to create engaging, collaborative teaching and learning environments. Based on best practices collected over years of successfully deploying Google for Education’s solution in schools from basic to higher education, there are five easy steps that are underlined with a guide to activating technology in schools while considering bringing learning online: 1. Define your goals, 2. Invest in Internet access, 3. Build your team, 4. Offer web tools, and 5. Manage change. In this paper, attempt is made to explore some of the Google applications commonly used in education which include Google applications and the search engine; Google plus G+, Google site, Google photo, Google translate, Google Maps and YouTube are. Other issues discussed includes the area of handling teachers and learners’ tasks such as lesson planning and delivery, student’s experiential learning and research to solve homework, using Google classroom to connect with other professionals and learners across the globe to share opinions on a particular problem of the challenges to effective utilization of the commonly used GAFE in education are also identified and recommendations to overcome them are offered.*

**Keywords**: Google Apps, Instructional Technology, Teaching and Learning.

# Introduction

Back then, teaching and learning were mainly based on face-to-face interactions, whereby knowledge was disseminated from an educator to learners and took place in a brick and mortar specific point of time with the delivery only confined to those who present. The educator closely monitored and physically guided the learners through personal communication, connection and socialization. Complicated and ambiguous issues could also be easier clarified and elucidated. This traditional mode is suitable for harnessing communication and social skill that are essential to make one succeed, which less likely to be offered by technology (Beaumont, 2018).

The advancement of digital technology and the accessibility nature of the internet have permeated the demand for web-based education in higher institutions. Learners are enthusiastic to embrace technology with the growing expectation that technology provides them higher quality of learning experiences and outcomes. Educators also, have a growing confidence that with the assistance of technology, they can disseminate higher quality of information and knowledge. These emerging demands have triggered higher institutions to embed web-based practices in their educational system. Hence, the notable transformation in the delivery practices is the replacement of classroom setting from traditional to web based (Keith & Joanne, 2018).

Google classroom is one of the popular web-based platforms adopted by higher institutions across the globe with the purpose of embracing technology in education. This web-based platform has been conducted in two modes either fully web-based or blended learning. In a fully web-based, the class is fully conducted on the web. While in blended learning, the class is conducted in the integration of traditional and web-based classrooms. Google classroom offers multitude of pedagogical and technological features and it is open to anyone with internet accessed upon invitation from an educator. This web-based platform provides technology-based instructions and very convenient for the usage of both educators and learners. Google classroom serves as a platform for members namely educators, learners and peers to interact and be connected without time, place or situation bound. Hence, building a distinctive web-based community within a course (Osman, 2017).

Despite offering impressive features, many factors might distort and hinder the acceptance and successfulness of Google classroom. To some learners, this web-based platform is becoming ubiquitous, but to others, it aggravates pressure and therefore resists to accept new changes in lives. Even worst, to a certain extent, inflicted a feeling that these new changes might cause them a cognitive overload, stress and burn out.

The issues have sparked the interest of many studies to explore on the benefits and challenges of Google classroom in the perspective of learners. It is also noted that studies conducted in developed countries were more likely to focus on fully web-based Google classroom (Beaumont, 2018). In contrast, studies conducted in developing countries were more likely to focus on Google classroom in blended learning.

**Literature Review**

# Web-based Teaching and Learning Platform

Information, Communication and Technology (ICT) have rapidly defused and permeated into educational system throughout the globe. In pursuit of this, abundances of web-based educational platforms have been invented for teaching and learning to meet the educational goals. Amongst the available web-based platforms are Udemy, Teacheable, Ruzuku, WizlQ, Educadium and Google classroom. As seen today, Google Classroom has become one of prevalent web-based teaching and learning platforms in higher institutions (Iftakhar, 2016).

# Google Classroom

Google classroom was introduced in 2014, as a platform for a web-based classroom. It is one of the technological and pedagogical innovations invented by Google Applications for Education (GAFE), apart from other Google applications namely Google docs, Google Spreadsheet and Google calendars. An educator will create a class for a course and invite other members namely educators and learners to join. Being a member or citizen, one can have immediate access and able to learn in virtual setting. By only one click, one can be connected even physically he/she is scattered in disperse locations. This web-based platform is fully integrated with other Google applications and thus enables members to share and distribute information instantaneously without leaping from one site to another (Alejandra, 2016).

Google classroom benefits the users in many ways. Amongst the benefits are offering a platform for facilitating digital production, allowing the creation of a digital class, fostering communication within a community, organising folders, sharing information, posting assignments and viewing all posted works in real-time. Despite enjoy bountiful of benefits from adopting Google classroom, learners also experience various challenges in adopting the Google classroom. This has been elicited by several studies that explore on the benefits and challenges experienced by higher institutions’ learners (Beaumont, 2018).

**Google Application in Learning**

Everything is paperless, so there is not any time wasted on physically distributing the documents and learners can complete them right online, making it more convenient to meet deadlines and fit eLearning into their daily schedules (Solihati & Mulyono, 2017).

After the new website or page is indexed, it will officially be in the virtual Google Server, which now allows just about anyone over the web to access it. It’s important to note that just because your site is in the Google index that it’s going to be in the top search entry, this make take some time and viewing from other online users. "The best way to make sure your Web page is high up on Google's search results is to provide great content so that people will link back to your page".

Everything is paperless, so there is not any time wasted on physically distributing the documents and learners can complete them right online, making it more convenient to meet deadlines and fit eLearning into their daily schedules ([Christoforos](https://elearningindustry.com/elearning-authors/christopher-pappas), 2015)

The way in which Google displays the Search results on its Search engine result page when the terms to be searched in the Google Search Box have been a topic of discussion since Google began. Google's search engine is an exceptionally powerful tool. Without search engines likes Google, it would be practically impossible to find the information you need when you browse the Web (Decoito, 2018). So, this section will share, or at least try to share basic concept that have kept Google’s search engine is up and running. The first thing you need to know is, when you are searching something on Google, you are searching the Google database and not the actual web (Decoito, 2018).

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**The Google Plus**

[Google](https://plus.google.com/) plus (known as, Google+) is the official social networking platform of Google, one of the world’s largest and most [popular search engines](https://www.lifewire.com/most-popular-search-engines-3482117). Google+ officially debuted in June 2011 and is intended to pull all of Google's peripheral products (Gmail, [Maps](https://www.lifewire.com/things-you-did-not-know-you-could-do-with-google-search-4051672), Search, Calendar etc.) into one cohesive network, meant to be as open and as connected as possible, incorporating everything that searchers use at Google into a comprehensive social and content dashboard. The idea is pretty similar to other social networking services, but Google attempts to differentiate Google+ by allowing more transparency in [who you share with and how you interact](https://www.lifewire.com/google-security-privacy-and-safety-2487715). It also integrates all Google services and displays a new Google+ menu bar on other Google services when you are logged into a Google account (Decoito, 2018).

**The Google Sites**

[Google Sites](http://www.google.com/edu/training/get-trained/sites/introduction.html) is your place to create a digital classroom on the web. One of the best things about Google Sites is its ability to be the digital hub for your classroom. You can combine video, documents, forms, calendars, and other resources all in one place for student and parent access. Students can also use Sites to showcase their work and create digital portfolios that can follow them from year to year. As a starting point, teachers have to begin by creating templates that teachers can be used to build their site. Thus, she needs to think carefully about content and structure before overloading the site with other attractions (Decoito, 2018).

**The Google Photos**

One of the most popular features of Google+ was the instant uploads from camera phones and photo editing options. Google linked with several online photo editing companies in order to enhance this feature, but eventually [Google Photos](https://photos.google.com/) was separated out from Google+ and became its own product. The post uploaded Google Photos could be use within Google+ and share based on the circles you've set. However, I can also use Google Photos to share photos with other social networks, such as Facebook and Instagram. This application has a great impact in teaching and learning process (Decoito, 2018).

**Google Translate**

Google Translate is a free multilingual machine translation service developed by [Google](https://en.wikipedia.org/wiki/Google), to translate text, speech, images, sites, or real-time video from one language into another, which is very useful in language learning. It offers a web interface, mobile applications for [Android](https://en.wikipedia.org/wiki/Android_%28operating_system%29) and [iOS](https://en.wikipedia.org/wiki/IOS), and an [API](https://en.wikipedia.org/wiki/Application_programming_interface) that helps developers build [browser extensions](https://en.wikipedia.org/wiki/Browser_extension) and software applications. Google Translate supports over 100 languages at various levelsand as of May 2013, serves over 200 million people daily (Decoito, 2018).

**Google Maps**

Google Maps, Earth and Street view can help you bring a world of information alive for your students. It can be used with all grade levels, and the possibilities are endless, depending on your imagination! (Alejandra, 2016). Google's geographical product gives easy access to the world's visual information. Once, maps were available only to royalty but now, you can explore Earth, Moon, Mars, and even dive into the depths of the oceans. The possibilities of using Google Maps, Earth and Street View are as endless as your imagination. I encourage you to explore, create, and collaborate (Alejandra, 2016).

With Google Maps, you and your students can become arm-chair explorers and cartographers with ease. Google Maps are a fun and visual way to help students understand geography concepts, map reading, location, and distance measurement. Besides using Google Maps to teach the fundamentals of mapping, like latitude and longitude, you can inspire students to investigate the world and to think spatially. You can use Google Maps with your students to: Create collaborative maps, Create a campus or school district map, Create a family heritage map, Get walking directions, Plan a trip using public transportation, Add or edit places on maps for your community, Compare neighborhoods and communities across the world, Use maps as writing inspiration etc (Iftakhar, 2016).

**The YouTube**

[YouTube](http://www.google.com/edu/training/get-trained/youtube/introduction.html) can be an excellent tool for teaching and learning. While educators can tap into existing YouTube content, this medium also does a great job of equipping teachers with the ability to create original content for their students. Teachers can begin by locating and organizing existing video content, and then gradually shift to creating their own. We have a responsibility to model appropriate use of this powerful classroom tool (Iftakhar, 2016).

**Google Drive**

The Google drive is also another powerful application to be use in education, having the power the save a huge documents and files for both sharing among the intended group registered with Gmail and saving for future usage. The Drive has a free space of up to 15Gigabyte to all registered Gmail accounts, within the Drive application. This [Google Drive Application can be used for real time collaborative learning](https://www.fractuslearning.com/2015/02/11/google-drive-apps-collaborative-learning/) (Iftakhar, 2016).

# Benefits and Challenges in Adopting Google in learning

Gilbert (2015) explored the benefits and challenges of assignments submitted through Google classroom on learners who enrolled in online American History course at High School in the US. The study indicates that one of its benefits was it allowed the learners to work at their own pace. This web-based platform also created an environment that learners can pace themselves according to their own educational needs. They were able to manage and focus completely on tasks without distractions such as social interactions with peers or spending time to attend physical classes. Apart from that, the learners also learned on how to manage their work in meeting the deadlines.

Blackmon (2017) conducted a phenomenology study to explore on benefits and challenges faced by learners in adopting a fully web-based Google classroom in a higher institution in the US. The study posted a web-based open-ended questionnaire on the Google stream with seven post graduate students responded. The results indicate that the learners were benefitted from this web-based platform as they could view and comment on peers’ works. Moreover, the interaction within a class learning community namely educators and learners would also be enhanced. This previous study further indicate that the learners experienced various challenges such as there were no in-person interactions between the class community. The learners faced difficulty in solving complicated problems apart from feeling awkward and a bit daunting to communicate on the Google stream as opposed to face book, twitter or other web-based social medias. In addition, comments posted by peers were too brief and difficult to understand.

Beaumont (2018), also explored the benefits and challenges of fully web-based Google classroom in the perspective of higher institution’s learners in the UK. The results reveal that Google classroom was a worthy educational platform that offered various benefits. It provides an avenue for discussion, engagement and connection.

According to the learners, the concept of sharing materials on the Google classroom would nurture a sense of collaboration among the class community. This web-based platform could also be easily accessed and navigated. It did not charge any fee and offer collaborative work opportunities with other Google features namely documents, slides and calendar. Other intriguing features were, it allowed for real-time questions and answers as well as able to schedule posts ahead of time (Osman, 2017).

Despite benefits, the study also reveals that learners experienced several challenges. This web-based platform did have its imperfections, in which it did not allow text editing and image to be embedded on videos. All posted comments and messages were automatically arranged and as such they could not be hidden or re-scheduled once they had been posted. Finally, the learners experienced difficulties in familiarizing with Google classroom and did not even aware of features offered by the web-based platform that would benefit them (Sharanee et al., 2018).

Iftakar (2016), carried out a qualitative study to explore on benefits and challenges of adopting Google classroom in blended learning. The respondents comprised of 35 learners from a higher institution in Bangladesh. The results indicate that the learners were benefited from Google classroom due to its effectiveness, user friendly and unlimited storage. The utmost challenge faced by the learners who were from less wealthy family that they were unable to purchase the mobile data and therefore had to rely on less reliable open accessed internet. Another challenge was that they were left to explore on their own without any guidance. However, with regular usage, they could improve their understanding and familiarization and thus motivate them to engage with the technology. The last challenge faced by the learners was that their enquiries were not replied immediately by an educator. Even worse, there were instances that the educator totally ignored the enquiries.

Computing facilities are outdated and none of them were reported to be the year 2000 compliant. There is a shortage of skilled personnel to operate programs that were custom designed with in-built security measures, causing them to be utilized at levels far below peak capacity. These facilities are also used for routine computing which overloads the system. Since there is no electrical power back-up supply, computing facilities, limited as they are, are periodically inoperable due to regular prolonged power failures (Osman, 2017).

The following challenges are:

1. Google can make students and researchers get away with someone else’s work that could easily be obtained online.
2. Too much freedom of access to the net; since Google incorporates a few real-time collaboration tools like Docs, Sites, and Chat, a common fear is that students will abuse these tools for useless or even immoral activities.

However, the following constraints are likely to contribute serious problem to teachers and students can get desperately confident about their research capabilities. They sometimes completely miss out on the idea of researching with books and talking to librarians about reference books. There is also the danger that students do not understand that not all published information is equally valuable.

**Conclusion**

Google is a marvelous tool for education and there is no questioning the way it has spread educational opportunities across the globe. Google is already a powerful design and development tool in eLearning thanks to [Google Applications](http://elearningindustry.com/tags/google-in-elearning) for Education. It is obvious that the aspect of Google application for education cuts across all teaching and learning issues. It also features prominently in all most all sections of learning with its assorted applications (Search engine, Gmail, Drive, YouTube etc.) and idea of Bringing learning online specified in five step approaches provided to deploying a digital education solution. So effective management and utilization of GAFE in schools with the above-mentioned applications would definitely promote education system in Nigeria and the world at large.

**Recommendations**

Teachers should encourage their students to use search engines such as Google because as the world advance so fast, Nigerian students cannot afford to be left behind in the use of modern technologies. However, teachers should engage with the notion of search engines and point out the way the mechanism or format works.

In order to encourage of use book, journal and other print materials, teachers may also ask students to add two references that they have not found through Google.

The need for rigor in academic research has to be emphasized along with the highlighting of the ethical ways in which Google should be used.

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