INTEGRATING GOOGLE CLASSROOM INTO TEACHER EDUCATION PROGRAMME IN NIGERIA: PRE-SERVICE TEACHERS ASSESSMENT OF BENEFITS AND CHALLENGES

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Abstract

Google Classroom, a free learning management system developed by Google, offers many benefits to teachers and students at all levels of the educational system. However, research has shown that the deployment and use of this application in schools in Nigeria are still very low. The role of the teacher in the adoption and use of new technology cannot be overemphasized. This paper examines the pre-service teachers' assessment of the benefits and challenges of integrating Google Classroom into the pre-service teacher education, to ensure the successful deployment and use of Google Classroom in the Teacher Education programme in Nigeria. Two research questions were formulated, and the purposive sampling technique was used to select twenty-five 400 level students from the Departments of Guidance and Counseling and Early Childhood and Care Education, Lagos State University in affiliation with the Federal College of Education (Special), Oyo. A web-based questionnaire was used to collect data from the respondents. The collected data were analyzed using descriptive statistical tools in Microsoft Excel. Findings showed that using *Google Classroom has so many benefits among which is fostering communication between students and teachers or among students. It also encourages students to learn anywhere and anytime. Integration of Google Classroom into the pre-service teacher education programme will go a long way to ensure that would-be teachers are equipped with the necessary skills required for 21st-century education. The management of teacher education institutions in Nigeria should train and encourage lecturers on the use of Google classroom so that they can integrate it when teaching their students.*

Introduction

The term "digital education" refers to a style of education in which instructors and students use digital technologies to deliver teaching and learning at a distance (Oriji and Torunarigha, 2019). Because many of the younger generations of the twenty-first century were born as "digital natives," who understand the language of digitalization, computers, video games, and the internet from birth, this has become an increasingly prominent aspect of education in many nations. Smartphones, computing gadgets, high-speed internet, social media, e-mail, telegraph, and online-based messaging services (e.g. WhatsApp) have surrounded students their entire lives (Oriji and Torunarigha, 2019). This type of education is known as digitalized education when these tools are used for educational reasons. Digitalized education, according to Siemens (2020), is defined as "teaching students of all ages using desktop computers, mobile devices, the internet, software applications, and other sorts of digital technology." Many institutions in the developed countries have embraced digitalized education, to improve the quality of education and equip their youths with the needed

skills for the 21st century. However, research shows that institutions in developing countries face challenges such as; lack of infrastructure, lack of skills on the part of the teacher, lack of policies and lack of funds, in their bid to embrace digitalized education. However, recently, the educational sector witnessed the development of digital technologies aimed at transforming students' experiences inside and outside of the classroom. Some of these technologies are free and do not need huge investment by the user. Google Classroom is a free Learning Management System introduced by Google in 2014, as a feature in the Google Apps for Education. The application has some uniquely built-in functions for teaching and learning (Wang, Woo, Quek, Yang & Liu, 2012). According to Kyslova, Semerikov and Slovak (2014), Google Classroom is an educational interactive tool that allows a teacher creates an informatively rich educational environment and integrates Google Doc text editor, Google drive cloud storage, G-mail and other Google application for teaching and learning. Google Classroom runs on desktop computers, laptops and has mobile apps for Android and iOS devices. There are 40 million smartphones users in Nigeria and 48.4 million have access to the internet (Hoslt, 2019). Statistics show that majority of them are between the ages of 20 and 40 and are higher education students (Statista, 2019). With this, the integration of Google Classroom into the teaching and learning process in the country will be of no problem. Thus, Google classroom may be of great importance to the implementation of policies and procedures for effective teacher education.

Teacher education implies the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, and skills they require to perform their tasks effectively in the classroom, school, and wider community (Ajoku, 2014). Furthermore, teacher education is the provision of professional education and specialized training within a specified period for the preparation of individuals who intend to develop and nurture the young ones into responsible and productive citizens. It is a pre-planned, articulated set of events and activities which are intended to help a would-be teacher, or a teacher-trainer acquire appropriate knowledge, skills, the right type of attitudes, habits and competencies needed to be able to enter the teaching profession and to become a resourceful, effective and efficient teacher.

The goals of teacher education as stated in the FRN (2004) are: to produce highly motivated teachers, who are efficient, creative, and can fit into the larger society; provide teachers with the intellectual and professional background adequate for their assignments, and to make them adaptable to changing situations. It then means that teacher education programmes must be fashioned to include the contents and methods of ICT applications for effective curricular delivery in this era of digitalization (Emesini, 2015). However, Asogwa (2008) advised that integrating ICT into teacher training should encompass courses on the use of computer application software for teaching topics in the various subject areas; practical use of multi-media in enhancing lesson delivery; internet surfing and information locating and retrieval. In addition, emphasis should not only be on skills acquisition but also on the pedagogy behind the effective use of the technologies.

In Nigeria, institutions of higher learning have been gradually adopting and integrating Google Classroom. Several research studies have suggested that Google Classroom could be beneficial in some Nigerian institutions. Mafa (2018), for example, discovered that Google Classroom had an impact on online teaching and learning performance in

Nigerian higher educational institutions. Teachers used Google Classroom in a variety of courses and programs to create effective learning environments (Al-Gahtani, 2016; Mohd et al., 2016). Other research has demonstrated that Google Classroom is excellent in delivering blended learning education (Abdullahi et al., 2017), encouraging students to become more active learners and improving their attention throughout class (Libata et al., 2020). Despite the potential benefits of Google Classroom if adapted into the Nigerian educational system, a review of the literature shows a lack of study examining the use of Google Classroom in the pre-service education programmethat this study examined.

Google Classroom is a free web service, developed by Google for schools that aim to simplify creating, distributing, and grading assignments in a paperless way (Udosen& Adie, 2019; Iftakhar, 2016). The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students. According to Heggart&Yoo (2018), Google Classroom combines Google Drive for assignment creation and distribution, Google Docs, Sheets and Slides for writing, G-mail for communication, and Google Calendar for scheduling. Once a class is created on Google classroom, students can be added or invited by the teacher using their G-mail address or can be invited to join through a private code. Each class creates a separate folder in the respective user's Drive, the teacher can view, and grade work submitted by students, monitor the progress of each student and provide feedback to students (Shaharanee, Jamil &Rodzi, 2016).

Google Classroom has four basic features namely: the stream, classwork, people and marks. The streaming feature allows the teacher to share information with the class; students can also share information here. It allows for communication between the teacher and the students or among students themselves. The classwork feature allows the teacher to add course material, assignments, and questions to the created class.

Statement of the Problem

Integrating ICT into the curriculum of any teacher training programme be it at the university or college of education level is very important in this information age. Unfortunately, most ICT courses are taught as introductory computer courses and this will not permit students to sufficiently acquire the required skill in ICT. There is therefore the need to include practical in the teaching of ICT in the teacher training programme, in the form of practical use of multi-media in enhancing lesson delivery; internet surfing and information locating and retrieval. However, many institutions do not have the necessary infrastructure to achieve this. Meanwhile, Google Classroom as an open-source learning management software, which helps a teacher manage the creation and collection of students' assignments online can bridge the infrastructure gap.

Purpose of the Study

The purpose of the study was to find out the pre-service teacher's assessment of:

a) benefits of integrating Google Classroom in pre-service teacher education programme in Nigeria.
b) challenges of integrating Google Classroom in pre-service teacher education programme in Nigeria.

Research Questions

The research questions formulated for the study were:

a) What are the pre-service teachers' assessments of the benefits of integrating Google Classroom into the pre-service teacher education programme in Nigeria?
b) What are the pre-service teachers' assessments of the challenges of integrating Google Classroom into the pre-service teacher education programme in Nigeria?

Review of Related Literature

Several studies have reported the potential of Google Classroom in the teaching and learning process (Iftakhar, 2016; Sibuea, 2018; Shaharanee, Jamil &Rodzi, 2016). In a study carried out at Daffodil University, Iftakhar (2016) observed that the teachers and students found the classroom very effective in supporting blended learning and collaborative work. Using Goggle Classroom; teachers could share course syllabus and learning material with their students. The study also showed that students were able to access lecture material anytime and anywhere. Pradana and Harimurti (2017) showed that Google Classroom was beneficial in improving the result of students learning process.

Sibuea (2018) opined that Google classroom supports learning in and outside the classroom, exchange of information and facilitates interaction between the teacher and students or among the students. The study also showed that students were motivated using the application. Crane (2016) revealed that Google classroom was able to increase students' participation, collaboration and improve learning outcomes. Shaharanee, Jamil and Rodzi (2016) showed that Google classroom was very effective in teaching data mining. A study by Ramadhani, Umam, Abduuaham and Syazali (2019) showed that Google classroom was able to motivate students to take part in the teaching/learning process. Scholars have also reported the benefits of Google classroom within the context of the Nigerian educational system. Abdullahi, Tarda and Umar (2017) held forth that Google classroom helps instructors and learners undertake effective task delivery such as lesson planning and implementation, student experiential learning and research to solve homework. In an experimental study involving third-year computer education students in universities in southeast Nigeria, Basil, Umakalu and Nwangwu (2022) observed that the use of Google classroom in teaching database management systems improved the academic performance of the students.

Azhar and Iqbal (2018) report that many teachers in developing countries are not aware of Google Classroom and are not well informed about the affordance and the benefits it can offer to their teaching process. The term awareness according to Saidu and Al Mamum (2022), can be interpreted differently, depending on the context of use. It may mean the teacher's knowledge about Google classroom and the benefits it offers to the educational sector. They opined that teachers' level of awareness and skills affects their intention to adopt and use new technology. Similarly, Chigona and Chigona (2010) observed that teachers who lack the ability and skills to use technology would likely resist its use.

Researchers have also examined the deployment and use of Google classroom in teaching and learning by addressing the challenges faced by teachers, students, and the institutions at large. Garcia-Segura and Pena (2017) reported that the majority of teachers in developing countries lack the requisite skills, and thereby struggled to integrate technology into their teaching methods. They added that this knowledge deficit becomes a key barrier to integrating technology into their teaching. Abdullahi, Tarda and Umar (2017) identified poor power supply, lack of skills and security as some of the challenges facing the use of Google classroom. Yarhere, Obuzor and Fomsi (2020) identified internet availability and non-availability of electric power as some of the barriers affecting the use of Google classroom by medical students and resident doctors at the University of Port-Harcourt. The study also observed that respondents said reported low use of Google classroom by the respondents and that they preferred accessing the application on their mobile devices to their laptops.

Research Methodology

This study employed a survey research design. The population of the study is thirty-three (33) 400 level students in the Departments of Guidance and Counseling and Early Childhood and Care Education, of the sandwich programme of the Lagos State University in affiliation with Federal College of Education (Special), Oyo. The purposive sampling technique was used to select 25 students as the sample for the study.

Method of Data Collection

In order to answer the research questions formulated, a web-based questionnaire was used to collect data for the study. The questionnaire had fourteen questions organized into sections A, B and C. Section had two questions on the respondents' biodata. Section B comprised of questions on respondents' use and proficiency of some applications while section C had questions on the benefits and challenges of integrating Google Classroom in teacher education programme in Nigeria. The questionnaire was created by the researcher using Google Forms. The link to the questionnaire https://docs.google.com/forms/d/199bFiBJmo0HCJ_3HtBBv0TuPZzDzEdIjG03EjWhytE8/edit?usp=sharing_erl&userstoinvite=adelekeelizabeth2019%40gmail.com&ts=5db72b77&urp=gmail_linkwas posted on the class's WhatsApp group for students to access. Data collection took place between 14th and 28th October 2021. A total number of 29 students filled the questionnaire and 25 complete and consistent responses were picked from the 29 responses. Out of the 25 respondents, the Guidance and Counseling Department had 10 responses while the remaining 15 were from the Early Childhood and Care Education Department.

Procedure of Data Collection

Before the adoption of Google Classroom, a lecture on how to create a class on Google Classroom, accept an invitation was held to introduce the students to some of the basic concepts of Google Classroom and the lecture material was uploaded on the class WhatsApp group for students to access. Students were added to the group using their e-mail addresses. A total number of 33 students accepted the invitation and joined the class using the links sent to them. The lecturer uploads a lecturer material every week

after the face-to-face lecture is done. Assignments were also uploaded weekly for students to access and submit. Discussions were also initiated for the students to make their contributions using the stream feature. Additional resources are uploaded, and announcements are also made using the stream features. The lecturer graded the assignments and uploaded students' scores for the students to access.

Method of Data Analysis

Data collected via the questionnaire created with Google form were stored in Google form automatically. The cleaned data were exported to Microsoft Excel for analysis.

Results

The results of the analyzed data are presented here.

Table 1:*Sex Distribution*

SN	Sex	Percentage
1	Male	35%
2	Female	65%

Table 1 shows that 65% of the respondents were female while 35% of them were male. This shows that there were more females than males in the study.

Table 2:*Computer Literacy Distribution*

SN	Question	Yes	No
1	Are you computer literate?	83%	17%
2	Do you have an E-mail Address?	83%	17%
3	Do you have a Facebook Account?	96%	4%

Table 2 shows that 83% of the respondents were computer literate and can use the computer. This means that the respondents will find it easy to learn how to use Google classroom. Item 2 on the table showed that 83% of the respondents had e-mail addresses before they were introduced to Google Classroom, this made it very easy for the researcher to invite them to class EST 417 created on Google Classroom and 96% of them had a Facebook account, while only 4% did not have

Table 3: *Respondents' Use of Digital Technologies*

Variables	Subgroups	Percentage
Software Proficiency	Microsoft Word	78%

	Educational Software	9%
	Corel Draw	5%
	Microsoft Excel	4%
	Microsoft PowerPoint	4%
Google Classroom	Have Used Google Classroom	39%
	Have never Used Google Classroom	62%
Devices used to access Google Classroom	Mobile Phones	87%
	iPad/Tablets	4%
	Laptops	9%

Table 3 showed that 78% of the respondents were proficient in the use of Microsoft word. This means the majority of the respondents can produce word documents, so they can produce their assignments using Microsoft word. It also revealed that 61% of the respondents had not used Google classroom before and were just introduced to it for the first time. Results from the table also indicated that 87% of the respondents accessed Google Classroom using their mobile phones, with the app installed from the Google store.

Table 4: *Pre-service teacher's assessment of benefits of Google Classroom*

SN	Items	Yes	No
1	Google Classroom allows the teacher to interact with the students without seeing them	80%	20%
2	Google Classroom allow students to discuss issues of interest with their peers	80%	20%
3	Using Google Classroom students can ask questions about what they do not understand	80%	20%
4	Google Classroom allow students to access lecture materials anytime and anywhere	80%	20%
5	Google Classroom helped students read effectively and widely	80%	20%
6	It allows the students to learn outside the classroom without the teacher being physically present	80%	20%
7	It encourages individualized learning and allows me to learn at my pace"	80%	20%
8	Integrating Google Classroom into the pre-service teacher education programme has allowed me to acquire all the skills that I will need to use Google Classroom in a regular classroom	89%	11%
9	Integrating Google Classroom into the pre-service teacher education programme has helped changed my perception of the use of Google Classroom in a regular classroom	91%	9%
10	With this training, I am better informed on the benefits of Google Classroom in the educational system	82%	18%
11	I will use Google Classroom in my Class	74%	26%
12	I will recommend Google Classroom to my Colleagues	91%	9%

Table 4 showed that the majority of the students agreed that Google classroom comes with so many benefits. The researcher's interactions with the respondents revealed that Google classroom had helped improve their ICT skills and had exposed them to so many things, they didn't know before. They were now able to type using a word

processing application such as Microsoft Word, WPS, attach a file to a mail, upload a file and increase their use of the internet. According to 80% of the respondents, Google classroom provides an innovative way of communication and interaction between the teacher and the students or among the students. They also remarked that they were able to interact with the lecturer without them seeing her and were able to discuss and ask questions about what they do not understand. It was also observed that 80% of the students affirmed that they were able to access lecture material, irrespective of their locations and time. This allowed them to study effectively and widely. Results from the table also indicated that 80% of the respondents confirmed that Google Classroom allowed them to learn outside the classroom, this encourages individualized learning, allowing students to study at their pace. It was also observed that 89% of the respondents said that integrating Google Classroom into the pre-service teacher education programme had allowed them to acquire all the skills that they would need to integrate Google Classroom in a regular classroom. Furthermore, 91% of the respondents affirmed that their experience and use of the app had changed their perceptions of the use of the app in a regular classroom while 82% of them added that they were better informed on the benefits of Google classroom in the educational system. Finally, 74% of the respondents said they would use Google classroom in their respective classrooms, while 91% of the respondents were willing to recommend Google classroom to other lecturers. This means that they enjoyed learning the course (The application of computer in education) using the app and would be willing to use it for other courses.

Table 5:*Pre-service teacher's assessment of challenges of Google Classroom*

SN	Items	Yes	No
1	I had problem buying data, to get data to use to access the app is quite expensive.	90%	10%
2	I had a problem with the quality of the network. Connectivity was very poor that downloading a file became a problem.	85%	15%
3	Studying alone is boring and tiring.	50%	50%
4	I had a problem with time, I always find it hard to meet up with the deadlines for assignment submission.	65%	35%
5	The power supply was a problem to using Google Classroom	92%	8%

Most of the respondents said that they faced one challenge or the other while using Google Classroom. Table 5 showed that 90% of the respondents had problems buying data; they felt it was very expensive, while 85% of the respondents had problems with

the quality of the network they used. They stated further that the connectivity was very poor that downloading files became a problem. Furthermore, 50% of the respondents found studying using Google Classroom boring and tiring. Results from the table also showed that 65% of the respondents had problems with time management and found it difficult to meet submission deadlines. Finally, 92% of the respondents affirmed that they had problems with power supply.

Discussion of Findings

The study showed that most of the students were new to Google classroom and were just using it for the first time even though it was free and can be accessed using their mobile phones. This showed that the level of awareness of the app among the students was low. The result of the study also showed that most of the students accessed the app using their mobile phones. This corroborates the findings of Yarhere, Obuzor and Fomsi (2020), who also reported most of the respondents accessed the app using mobiles devices. This has helped address the problem of lack of adequate computers, which is one of the problems militating against the use of ICT in teacher education.

Furthermore, the study showed that most of the respondents were computer literate, proficient in the use of Microsoft Word and were willing to use Google classroom in their respective classes when teaching. This means that when pre-service teachers are taught using ICT and are proficient in its use, they would be willing to use it when teaching. Saidu and Al Mamum (2022) also observed that teachers' level of awareness and operational ability of technology significantly impacts their intention to use the technology. They stated furtherthat teachers who are skilled in a particular technology would be willing to use the technology in their teaching.

Findings from the study also revealed that using Google classroom has so many benefits and some identified in the study are that it fosters communication between students and their teacher or among the students. It also encourages students to learn anywhere and anytime. These findings are in line with that of Sibuea (2018), who found that Google classroom supports learning in and outside the classroom, exchange of information and facilitates interaction between the teacher and students or among the students.

This study showed that integrating Google classroom into the pre-service teacher education programme in Nigeria will help create awareness of the benefits of Google classroom in teaching and learning. Similarly, it will help pre-service teachers acquire the requisite skills on how to create online content and integrate Google classroom into their teachings. Training pre-service teachers on the benefits and use of Google classroom will influence their perceptions and attitudes towards the application. This would positively impact their behavioural intention to use the application in their classrooms.

Results from the study also identified some challenges facing the integration of Google classroom in the pre-service teacher education programme, and they include the cost of data, poor internet connectivity, poor power supply and poor time management on the part of the students. This supports the findings of Yarhere, Obuzor and Fomsi (2020), who also listed internet availability and non-availability of electric power as some of the barriers to the use of Google classroom.

Conclusion

The assessment by pre-service teachers in this study has shown that Google Classroom has so many benefits for both teachers and students in the classroom. It facilitates communication between the teacher and the students or among students. Using this application, the teacher can upload materials and assignments and the students can also submit their assignments. The study showed that most of the students accessed Google classroom using their mobile phones, as a result, institutions need not commit so much money to set up infrastructure, which is one of the problems affecting the use of ICT in schools. Integrating Google classroom into the process of teacher training will equip the would-be teachers with the required skills needed to integrate Google classroom into their classroom. The possible solution to improve teachers' attitudes, perceptions and acceptance of Google classroom could reside in the provision of a regular training program that demonstrates how effectively the application could be integrated into the teaching/learning process.

Poor internet connectivity was identified as one of the challenges facing the use of Google classroom in Nigeria. This problem will likely be addressed with the introduction of the 4G internet recently introduced by some mobile operators in Nigeria. This will help improve how students access Google classroom and download materials. Furthermore, the findings of this study offer valuable suggestions to educators, teachers, and researchers on how integrating Google classroom into the teacher training programme could influence the teacher's use of the apps and how some of the challenges affecting the use of Google classroom can be addressed.

Recommendations

Based on the findings of the study, the following recommendations were made:

i. Training on how to use Google classroom to create lecture material, upload the material, create, and upload assignments and grade the assignment should be introduced as part of the course contents of Educational Technology.
ii. Student-teachers should be encouraged to use Google classroom during their micro-teaching and teaching practice exercises.
iii. Computer department/information management centers should organize in-house training, workshops, and seminars to train lecturers on how to integrate Google Classroom in their lectures.
iv. The management of the various colleges of education should equip their centers for educational technology with computers and internet connectivity for students' use. The centers may be powered with solar.

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