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USAGE AND ACCEPTANCE OF GOOGLE CLASSROOM AMONG VTE STUDENTS IN NIGERIAN UNIVERSITIES BASED ON TECHNOLOGY ACCEPTANCE MODEL

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Abstract: This study investigated the usage and acceptance of google classroom among VTE students in Nigerian universities based on technology acceptance model. It aimed to investigate the perceived usefulness of Google Classroom among university VTE students in Nigeria, the perceived ease of use of Google Classroom among university VTE students in Nigeria, assess the actual system use of Google Classroom among university VTE students in Nigeria. A total of 144 VTE students participated in this study. The study adopted a descriptive survey method where questionnaires were used. The descriptive approach was also utilized to describe the respondents' technology acceptance when using Google Classroom through the administration of the survey questionnaire. The study also determined which TAM factor affected the consistency of the use of Google Classroom the most. Among the factors, actual system use appeared to have significantly affected the respondents' consistency of using Google Classroom. Respondents agreed that Google Classroom is very useful, easy to use and would recommend its use to others. It was concluded that the use of Google Classroom, though a new experience, made them realize how their life as students can be more comfortable with the use of this technology.

Keywords: Google Classroom, perceived ease of use, perceived usefulness, technology acceptance, Google Classrooms, VTE,

1.0 Introduction

The rapid advancement in educational technologies has significantly transformed the landscape of learning and teaching in higher education. In Nigeria, as in many parts of the world, there has been a growing interest in integrating digital platforms into educational practices. Almusharraf and Khahro, (2020) describe integration of technology in education as simply the use of technology to enhance the student learning experience through utilizing different types of technology in the classroom, including a virtual classroom such as Google Classroom and creates learners who are actively engaged with learning objectives.

Google Classroom, a free web service developed by Google for schools, has emerged as a prominent tool in this digital revolution. It aims to streamline the process of sharing files between teachers and students, facilitating a more organized and accessible virtual learning environment. Google Classroom helps educators create engaging learning experiences they can personalize, manage, and measure (Gupta & Pathania, 2021).

Continuous changes in communication technology has ushered in different Learning Management Systems (LMS) (Google Classroom is included) and made Google Classroom to become very critical in teaching, learning and research in TVET. In spite of the various advantages Google Classroom has over the traditional approach to teaching, learning and research, the

diffusion of Google Classroom is rather slow due to some inherent challenges associated with it. The most common challenges are usage and acceptance (Polit, 2015; Omar, Rashid & Puad, 2018; Eze, Olumoko, & Obi 2020; Pulit & Duktur, 2022).

This study focuses on the usage and acceptance of Google Classroom among Vocational and Technical Education (VTE) students in Nigerian universities. The need for such a study is underscored by the increasing emphasis on vocational and technical education in Nigeria's educational policy, aimed at fostering skills development and employability among the youth.

In order to produce skilled, flexible, and easily trained manpower, trainees or students must be able to adapt to technological changes (Griffin, Care, & McGaw, 2012). Not only students but also educators and teachers should be encouraged to vary their educational approaches and to avoid limiting their practice to only traditional methods of instruction.

The Technology Acceptance Model (TAM), developed by Davis in 1989, provides a theoretical framework for understanding the factors influencing the acceptance and use of new technologies. TAM posits that two primary factors, perceived usefulness and perceived ease of use, determine an individual's intention to use and actual use of a technology. In the context of this study, the model will be employed to assess how VTE students and lecturers in Nigerian universities perceive the usefulness and ease of use of Google Classroom, and how these perceptions influence their acceptance and usage of the platform. Given the unique challenges and opportunities within the Nigerian educational context, such as varying levels of access to technology and digital literacy, the application of TAM in this study will provide valuable insights into the factors that drive or hinder the adoption of Google Classroom in these institutions.

Recent studies have indicated a surge in the adoption of e-learning platforms in higher education globally, partly accelerated by the COVID-19 pandemic, which necessitated a shift from traditional classroom settings to online modes of learning. In Nigeria, however, the transition has been met with mixed reactions and varying degrees of success. Factors such as infrastructural challenges, resistance to change, and lack of training have been identified as significant barriers to the effective integration of digital platforms in educational settings. This study aims to delve deeper into these issues, particularly in the context of VTE programs, which are critical to Nigeria's socio-economic development. By focusing on both students and lecturers, the research provides a comprehensive overview of the attitudes and experiences of the primary stakeholders in the educational process.

The outcome of this study is anticipated to contribute significantly to the body of knowledge on e-learning in developing countries, particularly in the context of vocational and technical education. It will offer empirical evidence on the usage and acceptance of Google Classroom, guided by the well-established Technology Acceptance Model. The findings are expected to inform policymakers, educational administrators, and curriculum developers in Nigerian universities about the facilitators and barriers to the effective implementation of digital learning tools. Moreover, the study's insights could be instrumental in designing strategies and interventions to enhance the acceptance and effectiveness of e-learning platforms, thereby improving the quality of vocational and technical education in Nigeria.

1.1 Statement of the Problem

Technological progress is bringing many changes in education in the 21st century. The most significant change now is an increase in the ratio of knowledge that can be shared and the sources of this knowledge that can be accessed either free of charge or otherwise.

Continuous changes in communication technology has ushered in different Learning Management Systems (LMS) (Google Classroom is included) and made Google Classroom to become very critical in teaching, learning and research in TVET. In spite of the various advantages Google Classroom has over the traditional approach to teaching, learning and research, the diffusion of Google Classroom is rather slow due to some inherent challenges associated with it. The most common challenges are usage and acceptance (Polit, 2015; Omar, Rashid & Puad, 2018; Eze, Olumoko, & Obi 2020; Pulit & Duktur, 2022).

The use of LMS in education, TVET inclusive, can only be possible if there are available and sufficient human resources in the right number, quantity and mix, and they have to be trained and retrained to keep them abreast with current trends and technologies in TVET. It is for this reason that Ahmad et al. (2023) recommended that TVET students and teachers alike should be trained on the use of LMS resources such as Google Classroom to enable them keep abreast of the new innovation in the field of TVET.

It is against this background the researchers found it pertinent to conduct study on the use and acceptance of Google Classroom among TVET students in Nigerian universities based on technology acceptance model.

1.2 Objectives of the Study

This study aimed at investigating the usage and acceptance of Google Classroom among TVET students in Nigerian universities based on technology acceptance model. Specifically the researchers will seek to:

i. Find out the perceived usefulness of Google Classroom among TVET students in Nigerian universities
ii. Find out the perceived ease of use of Google Classroom among TVET students in Nigerian universities
iii. Assess the actual system use of Google Classroom among TVET students in Nigerian universities

To achieve this purpose of the study, the researchers sought to answer the following question:

i. What is the perceived usefulness of Google Classroom among TVET students in Nigerian universities?
ii. What is the perceived ease of use of Google Classroom among TVET students in Nigerian universities?
iii. What is the actual system use of Google Classroom among TVET students in Nigerian universities?

2.0 LITERATURE RIVIEW

Technical and Vocational Education Training (TVET) in Higher Education

To produce skilled, flexible, and easily trained manpower, trainees or students must be able to adapt to technological change (Griffin, Care, & McGaw, 2012). Not only students but also trainers and teachers should be encouraged to vary their educational approaches and avoid limiting their practice to only traditional methods of instruction. Technology can improve motivation (Jones, McDermott, Tyrer & Zanker, 2018), but even more importantly, it can affect the delivery of learning; delivery methods must be effective if they are to improve the problem-solving process (Sandi-Urena, Cooper & Stevens, 2012; Pebriyawan, Darmawiguna, & Sindu, 2017).

TVET is one of the education fields in higher education that is being given priority nowadays. TVET is a field that focuses on psychomotor skills, albeit the cognitive domain and affective domain are not discarded and still play a very important element in their training. Is TVET (or engineering-based) students have the same learning attitude or require the same pedagogical approach in comparison to normal (non-engineering-based) students? TVET students usually have a good ability in 'learning by doing' (Mahazir, Norazah, Rosseni, Arif & Ridzwan, 2015). Learning by doing term shows that TVET students have a greater potential in skill. Besides that, technological advancement in Teaching and Learning (T&L) process could be used as a catalyst for an innovative workforce. Moreover, researchers like Kusumantara, Santyadiputra & Sugihartini, 2017 and McCutcheon, Lohan, Traynor & Martin (2015) reveals conventional teaching method will limit students learning outcome and educators will find embarrassment in providing students with better quality learning experience.

TVET students must shift from the traditional method of teacher-centered learning to one of student-centered learning in order to provide a successful experience for all learners (Duffy & Bowe, 2010). ICT is a medium that can be used to improve the process of interaction for and between students, as it has revolutionized learning environments throughout the world (Omar *et al*., 2018). Therefore, usage and acceptance of google classroom among VTE students in Nigerian universities be studied in order to ensure that the quality of teaching and learning will benefit students; at the same time, this implementation will contribute to the development of diverse, alternative methods for improving student performance in Technical and Vocational Education Training (TVET) in Malaysia.

Concept of Google Classroom

Google describes Google Classroom as mission control for a classroom. It is simply a platform that ties together Google's Workspace tools (formerly known as G Suite) for teachers and students. It also acts as a digital organizer where teachers can keep class materials and share them with students paperless. Some other features can be incorporated into the Google Classroom platform to augment its functionality. This flexibility and seamless integration with Google's popular tools have made Google Classroom one of the most widely used LMS tools today (Kate, 2021).

Technically, Google Classroom is not a stand-alone learning management system (LMS) but when other features are added as Google continues to add features, it can function and look more like an LMS.

Google Classroom is included as a free service for anyone with a personal Google account. It's also free for organizations using Google Workspace for Education or Google Workspace for nonprofits. In most cases, teachers and students can access Google Classroom using a Google account provided by their school or created by themselves. While teachers and students in schools are the primary users of Google Classroom, there are also features that administrators, families, clubs, after-school programs, and homeschoolers can use.

Teachers' Use of Google Classroom

Because it's a fairly flexible platform, educators use its features in a lot of different ways. With Google Classroom, teachers can:

- **Streamline how they manage classes.** The platform integrates with Google's other tools like Docs, Drive, Forms, Meet, and Calendar, so there are many built-in "shortcuts" for classroom-management tasks. For example, if you post an assignment with a due date, it's automatically added to your student's class calendar for them to see.
- **Digitally organize, distribute, and collect assignments, course materials (think: videos, websites, PDFs, and more), and student work.** Teachers also can post an assignment to multiple classes or modify and reuse assignments from year to year. If your students have regular access to devices, Google Classroom can help you avoid some trips to the photocopier and cut down on some of the paper shuffling that comes with teaching and learning.
- **Communicate with students about their classwork.** You can use the platform to post announcements and reminders about assignments, and it's easy to see who has or hasn't completed their work. You can also check in with individual students privately, answer their questions, and offer support.
- **Give students timely feedback on their assignments and assessments.** Within Google Classroom, it's possible to use Google Forms to create and share quizzes that are automatically graded as students turn them in. You'll not only spend less time grading, but also your students will get instant feedback on their work. Teachers can view individual and class data within Forms or an automatically generated Google Sheet.

Google Classroom can help teachers streamline summative and formative assessments. For example, you can use the platform to quickly create, distribute, and collect digital exit tickets or auto-graded assessments. Teachers also can pose discussion questions for quick insights into what students are thinking.

With these same tools, teachers also can create summative assessments, like unit tests. These tests can include traditional question types like multiple choice, short or paragraph answers, checkboxes, and more. There also are options for students to upload files (like movies or photos) when responding to a question or prompt, allowing students to share their knowledge in a variety of ways.

Technology Acceptance Model (TAM)

There are many theoretical perspectives that have been developed to understand how end users make decisions to use technology applications. Theories provide tools to understand success or failure in the implementation processes of new IT applications. The most dominant theories in technology usage research are the Innovation Diffusion Theory (IDT) (Rogers, 1995), Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 1975), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.,* 2012), the FITT framework and the Technology Acceptance Model (TAM). Technology Acceptance Model (TAM) (Davis, 1989) is possibly the most frequently used among all other theories (Ahmad *et al.*, 2023).

TAM theory is based on principles adopted from Fishbein and Ajzen's (1975) attitude paradigm from psychology, which specifies how to measure the behavior components of attitudes, distinguishes between beliefs and attitudes, and specifies how external stimuli are causally linked to beliefs, attitudes, and behavior. The theoretical model on which TAM is based is the Theory

of Reasoned Action (TRA). TRA is a general model which is concerned with individuals. According to TRA, an individual is determined by the individual norms concerning the behavior in question. In addition an individual existing behavior (Ajzen & Fishbein, 1980). The Technology Acceptance Model (TAM) determines the user acceptance of any technology's perceived usefulness (PU) and perceived ease of use (EU) factors. PU defines as the degree to which an individual believes that using a particular system will enhance task performance. EU defines as the degree to which an individual believes that using a particular system is free of physical and mental effort (Davis, 1989). The TAM suggests that the intention to accept technology is determined directly by attitude, perceived usefulness, and perceived ease of use. According to TAM individuals' intention to use technology determines the actual use of the application and attitudes toward technology affect the intention (Davis *et al.*, 1989; Davis & Venkatesh *et al.*, 2012).

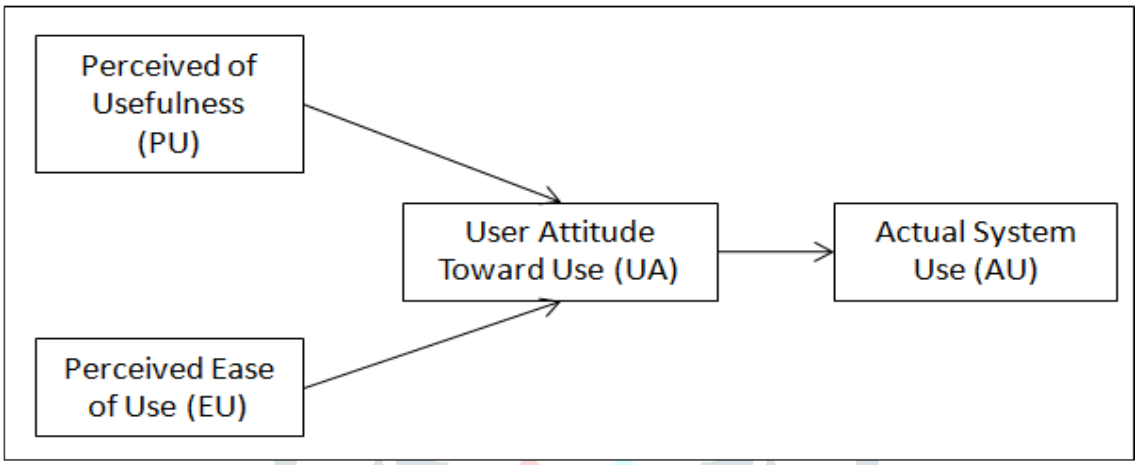

Figure 1. Technology Acceptance Model (Davis, 1989)

3.0 METHODOLOGY

This study employs descriptive survey design. The purposes of this study to examine students' usage, acceptance and specify the criteria that make Google Classroom suitable for VTE in learning environment. Meanwhile, the population of the study consists of students from the Department of Vocational and Technical Education of federal universities in North-eastern Nigeria where a simple random sampling was used to extract the sample subjects used. The North-eastern Nigeria is the one of the six geopolitical zones of Nigeria representing both a geographic and political region of the country's northeast. It comprises six states – Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe. There are two federal universities of technology with VTE department and these are Abubakar Tafawa Balewa University Bauchi and Modibbo Adama University Yola.

The instrument for data collection in this study was a questionnaire for the quantitative data collection. Data was collected with the help of research assistants through survey. Descriptive and analytical statistics was used to analyze the quantitative data collected using Statistical Package for the Social Sciences (SPSS). A survey questionnaire developed by the researchers was utilized to collect data. The instrument consisted of 20 statements in the questionnaires to meet its purpose. A five point Likert scale was used (5= strongly agree – 1= strongly disagree) and was completed by the participants. A correlation coefficient value (0.76), calculated on Alpha Cronbach, was used to test the internal reliability of the questionnaire and it showed an acceptable reliability value.

4.0 RESULTS AND DISCUSSION

The responses collected from students were analyzed using Mean and standard deviation scores for each of the following three construct which are perceived of usefulness, perceived ease of use and actual system use. Descriptive as well as the Statistical Package for the Social Sciences (SPSS) were used. The result is presented below.

Research Question 1: What is the perceived usefulness of Google Classroom among TVET students in Nigerian universities?

The data collected from the respondents on the perceived usefulness of Google Classroom among VTE students in Nigerian universities. were analyzed using mean and standard deviation and is presented in table 1.

The number of respondents were one hundred and forty four (144). The data presented in table 1 indicated that items 1-6, have the mean ratings above 3.00 as a result they were considered accepted and by implication it shows that Google Classroom is very useful in the process of teaching and learning for VTE students in North-East Nigerian Universities.

Alraimi et al. (2015), Okmawati (2020), Fauzi et al. (2021) and Shak et al. (2022) reported that Google Classroom is one of the online learning platforms favored by many students as well as their teachers because it allows the students to acquire new knowledge and skills due to its ease of use. The intention of students to continue using Google Classroom was significantly influenced by its perceived openness, usefulness and reputation. Therefore, VTE students' give positive feedback for using Google Classroom in teaching and learning process.

Table 1: Mean responses of VTE students on the perceived usefulness of Google Classroom

S/NO.	ITEMS	$\overline{X}$	SD	REMARKS
1.	Google Classroom allows me to get the information of the learning content quickly	4.33	0.71	Agreed
2.	Google Classroom allows me to access information outside of classroom	4.00	1.20	Agreed
3.	Google Classroom is useful in the rapid retrieval of information from lecturer	3.28	0.93	Agreed
4.	Google Classroom saves the time of teaching and learning	3.91	0.82	Agreed
5.	Using Google Classroom would improve learning performance	3.12	0.93	Agreed
6.	Using Google Classroom is effective in teaching and learning	4.29	0.87	Agreed

$\overline{X}$ = mean response, SD= standard deviation, N= no. of respondent 144

Research Question 2: What is the perceived ease of use of Google Classroom among TVET students in Nigerian universities?

The data collected from the respondents on the perceived ease of use of Google Classroom among VTE students in Nigerian universities. were analyzed using mean and standard deviation and is presented in table 2.

The number of respondents were one hundred and forty four (144). The data presented in table 1 indicated that items 1-3, have the mean ratings above 3.00 as a result they were considered accepted and by implication it shows that it will be easy for students to learn how to operate Google Classroom. Items 5 and 6 have mean ratings below 3.00 as a result they were considered not acceptable and by implication it shows that based on students' perception it will be hard for them to become skillful and have more control while using Google Classroom.

Google Classroom has been an educational tool for some times, it is considered one of the best LMS that can meet the learners' needs and interests because of its ease of use compared to other platforms (Okmawati, 2020 & Warman, 2021).

Table 2: Mean responses of VTE students on the perceived ease of use of Google Classroom

S/NO.	ITEMS	$\overline{X}$	SD	REMARKS
7.	Learning to operate Google Classroom would be easy for me	4.08	0.81	Agreed
8.	I would find it easy get Google Classroom to do what I need to do	3.00	0.72	Agreed
9.	My interaction with Google Classroom would be clear and understandable	3.08	0.90	Agreed
10.	I would find Google Classroom to be flexible to interact with	3.91	0.95	Agreed
11.	It would be easy for me to become skillful while using Google Classroom	2.88	0.73	DisAgreed
12.	It would be easy for me to be more controllable while using Google Classroom	2.29	0.77	DisAgreed

$\overline{X}$ = mean response, SD= standard deviation, N= no. of respondent 144

Research Question 3: What is the actual system use of Google Classroom among TVET students in Nigerian universities?

The data collected from the respondents on the perceived ease of use of Google Classroom among VTE students in Nigerian universities. were analyzed using mean and standard deviation and is presented in table 3.

The number of respondents were one hundred and forty four (144). The data presented in table 3 indicated that items 1-6, have the mean ratings above 3.00 as a result they were considered accepted. This shows that students, when exposed to Google Classroom find it compelling to actually use the platform for teaching and learning activities. By implication it shows that VTE students actually prefer to use Google Classroom frequently and more than any other platform.

The actual system usability of Google Classroom among VTE students is proven through a very promising student's admission, this can be seen in a study conducted by Choirunnisa and Mandasari (2021) and Kassim (2024) where students as well as their teachers rated their intention to use Google Classroom as much higher than expected and even recommending the use of Google Classroom for other.

Table 3: Mean responses of VTE students on the actual use of Google Classroom

S/NO.	ITEMS	$\overline{X}$	SD	REMARKS
13.	It easy to interact with Google Classroom	3.82	1.01	Agreed
14.	The procedure through Google Classroom on learning content is effective	3.31	0.92	Agreed
15.	I found it easy to decide which the case need to be	3.08	0.97	Agreed
16.	I found the various functions in this Google Classroom were well integrate	3.00	0.92	Agreed
17.	I think that I would like to use this Google Classroom	3.44	0.83	Agreed
18.	I intend to use Google Classroom frequently	3.29	0.77	Agreed

$\overline{X}$ = mean response, SD= standard deviation, N= no. of respondent 144

5.0 CONCLUSION

Based on the findings of the study the following conclusions were drawn. Sixteen out of 18 items were agreed by students. This indicates that students accept Google Classroom as their preferred platform for teaching and learning. In fact, with increasing and emphasizing on improving the quality of teaching and learning in institutions with VTE departments, this created new needs to help and make better choices in using Google Classroom as a tool for learning.

It is hoped that if all these findings are taken into consideration in the training of VTE students, Google Classroom will be deployed for both the students and lecturers to have the knowledge and practical skills required to use the platform. This will go a long way in helping the students as well as lecturers to meet the needs of the IT revolution and evolving technological developments in the educational world. Consequently, the students will be able to face the challenges of virtual learning in the 21st century and be able to compete with their counterparts around the globe.

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