

Perception of Online Instructional-Tools Utilization for Learning by Students in North-Central Colleges of Education, Nigeria

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Abstract

This study investigated the perception of online instructional-tools utilisation for learning by students in North-Central Colleges of Education, Nigeria. The study was motivated by the increasing integration of digital technologies into higher education and the need to understand students' perceptions of the usefulness and ease of use of online instructional tools for effective learning. A descriptive survey research design was adopted. The population comprised 19,196 students in Colleges of Education in North-Central Nigeria, from which a sample of 1,426 students was selected using stratified random sampling. Data were collected using a validated questionnaire with a reliability coefficient of 0.87 obtained through the Cronbach Alpha method. Descriptive statistics and t-test analysis were employed for data analysis. Findings revealed that WhatsApp (98.8%), Zoom (92.8%), Google Classroom (67.6%), and Google Meet (59.0%) were the most accessible online instructional tools among students. The results further indicated that students had positive perceptions regarding the usefulness (Grand Mean = 3.14) and ease of use (Grand Mean = 3.48) of online instructional tools for learning. Hypotheses tested showed no significant difference between male and female students in their perceived usefulness and ease of use of online instructional tools ($p > 0.05$). The study concluded that students in North-Central Colleges of Education possess favourable perceptions towards online instructional tools, suggesting strong prospects for technology-enhanced learning. It was recommended that institutions provide continuous training, improve digital infrastructure, encourage wider adoption of online instructional platforms, and sustain policies that promote effective integration of technology into teaching and learning.

Keywords: Online instructional tools, perception, perceived usefulness, perceived ease of use, Colleges of Education, North-Central Nigeria.

Introduction

The 21st century is often regarded as an era of technology. Technology, today, plays an important role in the life of citizens all over the world. It is seen as a basis of economic growth. This is because technology makes work much easier and less time consuming. The impact of technology can be felt in every possible field such as in education. The widely use of technology and its accessibility to students of all ages encouraged teachers to find innovative and creative ways to incorporate it into teaching and learning process. The relevance of technology for effective learning cannot be underestimated follow its impact on rapid educational delivery to learners. The use of technology is one phenomenon that has had a significant impact on how

education is delivered around the world (Ugwuanyi *et al.*, 2020). Learning with technology implies using the technologies as cognitive tools to create constructivist learning environments. Furthermore, research suggests that the choice of media used in the learning process can significantly alter the learning experience, with technology and other forms of media being successfully evaluated as cognitive aids (Petridis, 2023). Technology can play a powerful role to improve instructions when students can actively use them as cognitive tools rather than simply perceive and interact with them as tutors or repositories of information. It is apparent that technology does play an important role in the design of an instructional method because technology can make a ready learning resources for learner oriented and interactive environment in a less expensive way (Aidoo, 2022). The integration of Information and Communication Technology (ICT) in education has created powerful learning environments, transforming the learning and teaching processes. This integration enables students to interact with knowledge in an active, self-directed, and constructive manner (Khan *et al.*, 2022). The radical advancements in information and communication technologies, such as internet technologies and online tools, have initiated unparalleled transformations in higher education institutions worldwide (Al-Hawari *et al.*, 2021). For example, online tools are reshaping the dynamics of the teaching and learning processes on a global scale (Asuquo *et al.*, 2022).

An online learning tool is a software that provides students with an opportunity to engage virtually in classroom activities. To radically revolutionise teaching and learning, educational institutions are using the transformative benefits of these Online tools to deliver instruction, such tools include; Google Classroom, Microsoft Teams, Zoom. Cisco Webex Meetings, Adobe Connect and Blackboard. For instance, Microsoft Teams is said to foster synchronous and asynchronous communication which are critical for distance or remote learning (Poston *et al.*, 2020). In an online learning environment, interaction is virtual and not face to face (Landrum *et al.*, 2020; Smith *et al.*, 2019). These interactions take place with various types of resources, devices, students and lecturers. With regard to Microsoft Teams, its interactive learning environment is associated with enabling possibilities for group work, discussion developing soft skills and dealing with assignments. Microsoft Teams is arguably an interactive tool because of its features, for instance audio, video, chat and content sharing, which allow students to do their homework assignments, quizzes, group projects, and record lectures with ease (Nemec *et al.*, 2020). Recent research suggests that student-content interaction significantly influences learner satisfaction with virtual learning environments (Taghizadeh & Hajhosseini, 2020). Studies also indicate that Adobe Connect enhances interactive learning, facilitates effective discussions, and fosters student-instructor interaction, fostering a peer learning culture (Jodi *et al.*, 2020). Adobe Connect's features such as chat rooms, collaborative discussions, content sharing, and video conferencing are highly valued in educational settings (Buchal & Songsore, 2019; Henderson *et al.*, 2020; McVey *et al.*, 2019). Furthermore, the integration of Webex Meeting can also facilitate learning and effective communication, offering a platform for creating and managing assignments and providing remote feedback (Allison & Hudson, 2020). This suggests that while tools like Adobe Connect, Blackboard, and Webex Meeting are essential, they are most effective when integrated into a comprehensive educational strategy that includes scaffolding and support for collaboration and communication skills. Zoom is a technology-driven media that has become increasingly popular in the context of online learning. It offers a range of features that facilitate communication, collaboration, and interaction, making it a valuable tool for educators and learners alike. One of the key advantages of Zoom is its ease of use. The platform is user-friendly, with a simple interface that allows participants to join meetings with just a click of a

button. This accessibility has made it particularly useful in educational settings, where both students and teachers may not have extensive technical expertise. Another important feature of Zoom is its ability to support various types of interactions. In addition to video and audio conferencing, zoom offers chat functionality, screen sharing, and breakout rooms, allowing for more dynamic and engaging virtual classrooms. These features can help replicate some of the benefits of face-to-face interaction, such as group discussions and collaborative activities.

For instance, Nofita *et al.* (2021) investigated high school students' perception and motivation in e-learning through Zoom, the study found that the students had mixed perceptions in using this application for learning. Some of the students understood the explanation when the teacher explained using gesture while it was a negative perception for some students when they had a bad internet connection which made the explanation unclear. Alfadda and Mahdi (2021) found that there was positive relationship between the actual use of Zoom and the students' attitudes towards its usage. The authors also found that there was a positive relationship between computer self-efficacy and the use of Zoom for learning. Rahayu (2020) affirmed that more than 60% of the students had positive attitude towards the use of Zoom application for learning. However, more than 60% students also agreed that the material and the access to the lesson was better in the offline learning. Other Online tools such as Cisco Webex Meetings, Adobe Connect and Blackboard offers similar benefits in education and they will be examined in this study.

Basilotta-Gómez-Pablos *et al.*, (2022) noted that the adoption of any learning tool in higher education is dependent on perception, intention, awareness, willingness and ability to use it. Perception, attitude and intention in the use of Online tools for learning are therefore three important constructs in this study. The word perception is derived from the Latin word *percipio* which means receiving, collecting, and action of taking possession, apprehension with the mind or senses (Lam *et al.*, 2020). It is the process of attaining awareness or understanding of sensory information. Perception can also be defined as the process by which organisms interpret and organise sensation to produce a meaningful experience of the world. Sensation usually refers to the immediate, relatively unprocessed result of stimulation of sensory receptors in the eyes, ears, nose, tongue or skin (Schmälzle, 2022). The perception of lecturers on the integration of Online instructional- Tools into the teaching and learning process will pave the way for easy adoption.

Perceived ease of use is the degree to which an individual believes that using a particular system can improve their performance. Perceived usefulness is the ability of an individual to assess and derive satisfaction from a specific thing or phenomenon. Meanwhile, user's perception of the usefulness or benefits of technology derives from several factors, like the use of technology can increase productivity, performance, and efficiency (Lutfi *et al.*, 2022). Perceived ease of use is an individual's perception that using the new technology will be free of effort. Applying this context to online shopping, ease of use refers to consumers' perceptions that shopping on the internet will require minimum effort. It means consumers' perceptions regarding the outcome of the online shopping experience and perceived ease of use apply to their perceptions of the process leading to the final online shopping outcome (Cho, & Sagynov, 2015).

Ease refers to the absence of rigidity or discomfort, allowing tasks to be accomplished with less difficulty. This ease of use significantly reduces the time and energy required by individuals engaging with information technology. Key indicators of ease of use in this context include the technology's learnability, its ability to fulfill user needs, and the growth of users' skills with continued use (Danurdoro & Wulandari, 2016). Perceived usefulness pertains to how effectively a product helps users complete their tasks, while perceived ease of use relates to how user-friendly the product is. According to the Technology Acceptance Model (TAM), perceived ease

of use has both direct and indirect effects on users' intentions to adopt a technology. The indirect effect occurs through perceived usefulness: the easier a technology is to use, the more useful it is perceived to be, thus increasing the likelihood of its acceptance and use in instructional settings. Consequently, an application that is perceived to be easier to use is more likely to be embraced by users due to its enhanced perceived usefulness. In instructional technology, understanding users' attitudes is paramount as it directly influences ease of use and utilization of technological tools. The role of gender in the adoption and use of technology for learning has been extensively studied. Research on the mode of instruction and influence of gender on the use of technology has yielded mixed results. Some studies reported no significant differences in gender performance (Iroegbu, 2013; Rami & Kaul, 2019; Thomas, 2006; Udousoro, 2011). Conversely, Jegede (2009) and Ssempala (2009) found mixed results for gender achievement, with males performing better in some technology-related tasks than their female counterparts. This implies that studies on gender and gender-related issues in the use of online technologies are inconclusive. For instance, Wu et al. (2016) and Cuadrado et al. (2018) revealed a wide gap in male and female students' attitudes and competency in information literacy, though Cuadrado et al. (2018) found little difference, possibly due to females' frequent use of virtual learning environments. Other researchers noted that the original gender gap in computer and Internet use appears to have narrowed to the point of nonexistence.

Statement of the Problem

The potential for integrating online tools in education is often viewed optimistically, but the reality reveals a certain level of disillusionment regarding its permeation in Colleges of Education in Nigeria. Several research studies suggest that various factors influence the integration of online tools in different educational and curricular settings (Almekhlafi & Almekdadi, 2010; Payne et al., 2017; Wu et al., 2016). Many of these studies indicate factors such as lack of appropriate infrastructure, untrained academic staff to teach with online tools, negative attitudes of pre-service teachers, poor perception, low perceived ease of use of online tools, and lack of confidence in their effective use hinder the use of online tools for learning among pre-service teachers in Nigeria. Previous studies have not adequately addressed the negative attitudes, poor perceptions, and lack of skills among pre-service teachers intending to integrate online tools into their future instructional practices (Raja et al., 2018). Therefore, gaining an understanding of pre-service teachers' perceptions toward the use of online tools may provide useful insights into the future of technology integration and usage for learning in Nigerian colleges of Education. Thus, this study investigates the Perception of online Instructional tools utilisation for learning by students in North Central College of Education Nigeria.

Purpose of the Study

The main purpose of this study was to investigate perception of online instructional-tools utilisation for learning by students in north-central colleges of education, Nigeria, Specifically, this study:

1. identified the types of Online tools used for learning among College of Education students in North Central Nigeria;
2. investigated College of Education students' perceived usefulness of Online tools for learning in North Central Nigeria;

3. determine College of Education students' perceived ease of use of Online tools for learning in North Central Nigeria.

Research Questions

1. What types of Online tools are used for learning among College of Education students in North Central, Nigeria?
2. What is the perception of College of Education students towards the usefulness of Online tools for learning in North Central, Nigeria?
3. What is the perception of College of Education students towards the ease of use of Online tools for learning in North Central, Nigeria?

Research Hypotheses

Ho1: There is no significant difference between male and female College of Education students' perceived usefulness Online tools for learning in North Central Nigeria;

Ho2: There is no significant difference between male and female College of Education students' perceived ease of use of Online tools for learning in North Central Nigeria;

Methodology

This study adopted descriptive research of the survey type. The study is descriptive in the sense that the research describes events as they appear without any manipulation. The population of the study consist of all Colleges of Education students in North Central Nigeria. Stratified random sampling technique was used to select College of Education students along gender from the selected colleges of education so as to obtain data for the analysis. This was done across departments in each of the selected school of education in the colleges. The total population of students in colleges of education in North Central was 19,196. Using the Advisors Model (2006) for determining sample size at 95% confidence levels and 2.5% confidence intervals for the random sample, the samples that can be acquired from a population of 19,196 at 95% confidence levels and 5% margin of error, 1426 students were randomly selected and used for the study.

The instrument for data collection was a questionnaire adapted from the previous studies of Lund (2001), Moon, Ji-won and Kim (2001) and Olasedidun (2014). Items were selected based on their relevance to 'perceived usefulness' and 'perceived ease of use. The questionnaire consists of three sections: Section I comprised information on respondent's bio-data, which includes gender (male or female). Section II focused on the type of online tools used for learning among Colleges of Education Student in North Central. Twenty-two (22) online tools were listed for respondents to choose the one(s) they used for learning. Section III, was sub-divided into two sections (A & B). Sub-section A elicited information on the College of Education's perceived usefulness of online tools for learning while section B elicited information on College of Education's perceived ease of use of online tools for learning. The response mode for the items were Likert type rating of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instrument for this study was validated by three lecturers from the Department of Educational Technology, University of Ilorin and they considered its language clarity and content coverage. Their comments, suggestions and corrections were used to produce a final draft of the instrument. To determine the reliability of the instrument, 50 copies of the instruments were pilot-tested on College of Education students at the Federal College of Education Special, Oyo and Cronbach Alpha statistical tool was used to establish the reliability coefficient of the instrument at 0.05 level of significance and yield a value of 0,87.

Results

Demographic Information

The demographic information of the respondents and the results of the analysis are also presented in tables.

Table 1: Demographic Data of the Respondents by Colleges of Education

Gender	Frequency	Percentage
Male	524	36.70%
Female	902	63.30%
Total	1426	100.00%

Table 4 presents the demographic distribution of respondents based on gender. The table shows that out of a total of 1426 respondents, 524 (36.70%) were male, while 902 (63.30%) were female. This gender distribution indicates a higher representation of female respondents in the study compared to male respondents.

Analysis of Research Questions.

Research Question one: What types of Online tools are used for learning among College of Education students in North Central, Nigeria?

Table 6: Types of Online tools are used for learning among College of Education students in North Central, Nigeria

S/N	Online tools	I have access		I don't have access	
		Frequency	%	Frequency	%
1	Google Meet	842	59.0%	548	41.0%
2	Google Classroom	964	67.6%	462	33.4%
3	Skillshare	55	3.9%	1371	96.1%
4	Zoom	1323	92.8%	103	7.2%
5	Khan Academy	25	1.8%	1421	98.2%
6	Schoology	45	3.2%	1381	96.8%
7	Canvas	523	36.7%	903	63.3%
8	Kahoot	425	29.8%	1001	71.2%
9	Nearpod	55	3.9%	1371	96.1%
10	Microsoft Team	135	9.5%	1295	80.5%
11	Quizizz	55	3.9%	1371	96.1%
12	Socrative	45	3.2%	1381	96.8%
13	EDpuzzle	40	2.80%	1386	97.2%
14	Wikipedia	785	55.0%	641	45.0%
15	Blackboard Learn	66	4.6%	1360	95.4%
16	Camtasia	456	32.0%	970	68.0%
17	ClassDojo	234	16.4%	1192	83.6%
18	Coursera	558	39.1%	868	60.9%
19	Encyclopaedia Encarta	625	43.8%	801	56.2%
20	Slideshare	544	38.1%	882	61.9%
21	Quizlet	36	2.5%	1390	7.5%
22	WhatsApp	1409	98.8%	17	1.2%

Table 6 presents the types of online tools used for learning among College of Education students in North Central, Nigeria. The table provides data on the frequency and percentage of respondents who have access to each online tool. Google Meet and Google Classroom are among the most widely used tools, with 59.0% and 67.6% of respondents having access to them, respectively. Zoom is also popular, with 92.8% of respondents having access. However, tools like Skillshare, Khan Academy, and Socrative have much lower levels of access, ranging from 1.8% to 3.9%. Interestingly, WhatsApp stands out as the most widely used tool, with 98.8% of respondents having access to it. This data suggests that while certain online tools are widely used among College of Education students in North Central, Nigeria, others are not as commonly utilized. Further research could explore the reasons behind these usage patterns and their impact on student learning outcomes.

Research Question two: What is the perception of College of Education students towards the usefulness of Online tools for learning in North Central, Nigeria?

Table 7: Perception of College of Education Students towards the Usefulness of Online tools For Learning in North Central, Nigeria

S/N	Online instructional tools:	mean ($\bar{x}$)	Std. dev
1	are useful for learning	3.31	0.71
2	enhances and stimulates my desire to learn	3.00	0.58
3	such as Google doc are reliable backup for my learning.	3.03	0.59
4	enhance my exposure to relevant media and learning materials	3.41	0.93
5	Such as the WhatsApp increases my interaction with course instructor and fellow students	3.18	0.56
6	Such as Blog enhances my participation in general discussion about course topics	3.30	0.70
7	like SlideShare enhances my understanding of the subject matter	2.64	0.43
8	Saves time when used for learning	3.20	0.65
9	Google Classroom give more control over learning	3.10	0.61
10	Help stay focused on the task at hand when using Whatsapp for learning	3.23	0.64
	Grand mean	3.14	

Table 7 provides insights into the perception of College of Education students towards the usefulness of various online tools for learning in North Central, Nigeria. The mean scores and standard deviations are used to determine students' perceptions. Overall, the grand mean of 3.14 indicates a generally positive perception towards the usefulness of online tools for learning. Specifically, students find that online instructional tools are useful for learning, with a mean score of 3.31. Tools like Google Docs are seen as reliable backups for learning (mean = 3.03), while tools such as WhatsApp are perceived to increase interaction with course instructors and fellow students (mean = 3.18). Interestingly, tools like SlideShare, which enhance understanding of subject matter, have a slightly lower mean score of 2.64, indicating a less enthusiastic perception compared to other tools. However, tools like blogs, which enhance participation in general discussions about course topics, have a higher mean score of 3.30, suggesting a more positive perception. Furthermore, the use of tools like Google Classroom is seen to provide more control over learning (mean = 3.10), while tools like WhatsApp help students stay focused on the task at hand (mean = 3.23). Overall, these findings suggest that College of Education students in North Central, Nigeria, perceive online tools positively, acknowledging their utility in enhancing learning experiences and facilitating engagement with course content and peers.

Research Question three: What is the perception of College of Education students towards the ease of use of Online tools for learning in North Central, Nigeria?

Table 8: Perception of College of Education Students towards the Ease of Use of Online Tools for Learning in North Central, Nigeria

S/N	Perceived ease of Use	mean ($\bar{x}$)	Std. dev
1	Online instructional tools are easy to use for learning	3.21	.535
2	Online instructional tools are simple to use for learning	3.20	.590
3	Online instructional tools are user friendly	3.27	.595
4	I learned to use online instructional tools quickly for learning	3.23	.666
5	I quickly remember how to use online instructional tools for learning	3.22	.615
6	Online instructional tools make my work faster	3.13	.48
7	I became more skilful with using online instructional tools for learning	3.14	.49
8	My interaction with other student using online instructional tools is understandable	3.11	.77
9	I can use online instructional tools for learning without any written or external instructions	3.20	.715
10	I recover from mistakes quickly when I use online instructional tools for learning	3.22	.615
Grand Mean		3.48	

Table 8 examine the perception of College of Education students regarding the ease of use of online tools for learning in North Central, Nigeria. The mean scores and standard deviations

provide valuable insights into students' perceptions. The grand mean of 3.48 indicates an overall positive perception towards the ease of use of online tools for learning. Students find online instructional tools to be easy to use for learning, with a mean score of 3.21. They also perceive these tools as simple to use (mean = 3.20) and user-friendly (mean = 3.27). Additionally, students report that they quickly learn to use online instructional tools for learning (mean = 3.23) and remember how to use them (mean = 3.22), indicating a high level of usability. Moreover, online instructional tools are perceived to make work faster (mean = 3.13) and improve skillfulness in their use (mean = 3.14). Students also find their interactions with other students using these tools to be understandable (mean = 3.11), highlighting the effectiveness of these tools in facilitating collaboration and communication. Furthermore, students feel confident in using online instructional tools without any written or external instructions (mean = 3.20) and are able to recover from mistakes quickly when using these tools (mean = 3.22). Overall, these findings suggest that College of Education students in North Central, Nigeria, perceive online tools to be userfriendly, easy to learn, and effective in enhancing their learning experiences.

Research Question Four: What is the College of Education Students 'intention towards the use Online tools for learning in North Central, Nigeria?

Table 9: College of Education Students 'intention towards the use Online tools for learning in North Central, Nigeria

S/N	<i>College of Education Students 'intention towards the use Online tools</i>	mean ($\bar{x}$)	Std. dev
1	I wish I never had anything to do with learning with online instructional tools.	2.81	.954
2	I plan to use online instructional tools for learning on a regular basis in the future.	2.83	.987
3	It will take me time before I can think of using online instructional tools for learning.	3.00	.867
4	I will rather quit learning than to use online instructional tools for learning.	3.17	.764
5	Atrocities that colleagues perform with online instructional tools will never make me to use it for learning.	3.24	.674
6	It is too late for me to begin to use online instructional for learning.	3.23	.674
7	I will always prefer to stay in the four walls of the class room.	3.22	.695
8	I can never be convinced to use online instructional tools for learning.	3.46	.582
9	I hesitate to use online instructional tools for learning but fear of making errors that may be difficult to correct.	3.16	.657

10	The fear of colleagues that are more skilful in the use of computer applications than me will never make me use online instructional tools for learning.	3.32	0.91
Grand mean		3.23	

Table 9 reveals that College of Education students in North Central, Nigeria, exhibit a moderately positive intention towards using online tools for learning, as indicated by a grand mean of 3.23. This suggests that while there is some level of interest and openness towards adopting these tools, there are also some reservations and uncertainties. Specifically, the data shows that while some students express a clear intention to use online tools regularly in the future (mean = 2.83), others seem more hesitant, indicating that it may take them some time before they can consider using these tools (mean = 3.00). This hesitation could be due to factors such as a lack of familiarity with the tools or concerns about their effectiveness in enhancing learning. Furthermore, the data highlights some negative attitudes towards the use of online tools for learning among a subset of students. For instance, some students express a strong preference for traditional classroom settings over online tools (mean = 3.22), while others indicate that they would rather quit learning than use online tools (mean = 3.17). These findings suggest that there may be barriers to the adoption of online tools among some College of Education students in the region. Overall, the data indicates a mixed attitude towards the use of online tools for learning among College of Education students in North Central, Nigeria. Efforts to promote the adoption of these tools should consider addressing concerns and uncertainties among students to facilitate their effective integration into teaching and learning practices.

Hypotheses Testing

Hypothesis Two

Ho₂: There is no significant difference between male and female College of Education students' perceived usefulness, ease of use, intention to use and attitude towards the use of Online tools for learning in North Central Nigeria,

Table 15: t-test Analysis of Male and Female Respondents' Perceived Usefulness

S/N	Gender	N	Mean	Std.	T	df	Sig.(2taile)	Remarks
1	Male	524	13.14	.43	0.141	1424	0.88	Not Rejected
2	Female	902	23.13	.50				
	Total	1426						

The significant difference between male and female College of Education students' perceived usefulness, ease of use, intention to use and attitude towards the use of Online tools for learning in North Central Nigeria, was revealed in Table 16. The result showed that, $t(1424) = 0.141$, $p > 0.05$. The null hypothesis was not rejected. This is because the result of the t-value of 0.141 resulting in 0.88 significance value was greater than the alpha value. This implies that the null hypothesis, Therefore, based on the analysis, the null hypothesis that there is no significant difference between male and female College of Education students' perceived usefulness of online tools for learning in North Central Nigeria is not rejected. This implies that both male and female students in this context perceive online tools for learning to be similarly useful.

t test Analysis of Male and Female Respondents' College of Education students' Perceived Ease of use of Online tools for learning in North Central Nigeria

S/N	Gender	N	Mean	Std.	T	Df	Sig.(2taile)	Remarks
1	Male	524	13.20	.37	1.13	1424	0.25	Not Rejected
2	Female	902	23.17	.40				
Total		1426						

The significant difference between male and female College of Education students' perceived ease of use towards the use of Online tools for learning in North Central Nigeria was revealed in table 18. The result showed that, $t(1424) = 1.134$, $p > 0.05$. The null hypothesis was not rejected. This is because the result of the t-value of 1.134 resulting in 0.257 significance value was greater alpha value. This implies that the null hypothesis which indicated that there is no significant difference between male and female College of Education students' perceived usefulness, ease of use, intention to use and attitude towards the use of Online tools for learning in North Central Nigeria was not rejected. Thus, based on the analysis, the null hypothesis that there is no significant difference between male and female College of Education students' perceived ease of use of online tools for learning in North Central Nigeria is not rejected. This suggests that both male and female students perceive online tools for learning to be similarly easy to use in this context.

Summary of Findings

The findings of this study based on the research questions and the hypotheses formulated were summarized as follow:

1. WhatsApp, ZOOM, Google Meet, Google Classroom, are the most widely used online tools, COE students have access to with 98.8%, 92.8%, 59.0% and 67.6% respectively;
2. COEs' students had positive perception towards the usefulness of online tools for learning;
3. COE students had positive perception towards the ease of use of online tools for learning;

Discussion of the Findings

The study investigated the availability of online tools accessible to College of Education (COE) students for learning purposes, including popular platforms such as WhatsApp, ZOOM, Google Meet, and Google Classroom. The research revealed that COE students have varying degrees of access to these tools, with percentages indicating the prevalence of each tool among the student population. These findings agreed with previous research by Trivedi et al. (2023), which identified a range of technologies and services, including Microsoft Teams, course management systems, Moodle, Waggle, and media sharing platforms, as well as social media software, used by faculty and students to support learning. Similarly, Can et al. (2019) found that a diverse array of educational applications, tools, and services are available for use in education to enhance learning experiences, regardless of geographical location.

The study investigated the perception of College of Education (COE) students regarding the usefulness of online tools in instruction, as outlined in research question 2. The results, as indicated by the mean scores, revealed that COE students held a positive perception towards the usefulness of online tools for learning. These findings are consistent with prior research by Yuen et al. (2011), which showed that teaching staff expressed positive perceptions of the pedagogical

benefits and importance of online tools for teaching and learning. Additionally, the study found that teaching staff were interested in enhancing their skills and understanding of these technologies to more effectively integrate them into classroom instruction. These results align with the findings of Hortshore and Ajjan (2009), who reported that students believe certain online tools are effective in enhancing their satisfaction with a course, improving their learning and writing abilities, and increasing interactions with both peers and faculty members. The findings are consistent with Alsadoon (2018), who observed that faculty members' perceptions of the usefulness of online tools significantly predict their intention to use these applications in teaching. This aligns with the findings of Ajjan and Hartshorne (2008), who noted that the usefulness of technologies manifests in enhancing learning outcomes, increasing satisfaction with courses, improving students' grades, and facilitating evaluation and access to learning materials. Overall, assessing the perceived usefulness of online tools is essential for predicting their actual use in teaching and learning activities. Based on the mean values derived from the results, College of Education (COE) students held a positive perception regarding the ease of use of online tools for instruction. This finding is supported by Roblyer et al. (2010), who suggest that new ideas and innovations that are easier to understand are adopted more rapidly than those requiring significant new skills. Similarly, Konstantinids et al. (2013) affirmed that technologies easily integrated into the classroom environment foster the usage of online tools in higher learning institutions. Additionally, Ma et al. (2018) found that low skill complexity, easy interface usage, and quick access to information predict the usage of such tools. These results align with previous findings by Hortshorne and Ajjan (2009), indicating that ease of use positively affects the adoption of technologies. Research questions 3 and hypotheses 1 and 2 explored the influence of College of Education (COE) students' gender on their perceived usefulness and ease of use. The results of the t-test revealed no significant difference between male and female COE students' perceived usefulness and ease to use online tools for learning. These findings align with previous research by Sahranavard (2018), who found no gender difference in students' attitudes towards e-learning, and Kurniawan et al. (2022), who concluded that there is no difference between male and female students' perceptions towards technology utilization.

Conclusion

Based on the findings of this study this study concluded that College of Education (COE) students in North Central Nigeria have widespread access to and positive perceptions of online tools such as WhatsApp, ZOOM, Google Meet, and Google Classroom for learning purposes. While students generally view these tools as useful and easy to use, their attitudes and intentions towards using them do not significantly correlate with perceived usefulness or ease of use. Moreover, there are no significant differences in perceptions towards online tools between male and female students. These results indicate a strong potential for the effective integration of online tools in COE settings in North Central Nigeria, with implications for enhancing learning experiences and outcomes. However, further research is needed to explore the factors that influence students' adoption and use of these tools to optimize their educational benefits.

Recommendations

1. Training programs to familiarize COE students with the effective use of online tools such as WhatsApp, ZOOM, Google Meet, and Google Classroom, despite their already high levels of access should be given top consideration. This training should focus on maximizing the educational benefits of these tools;
2. COE students to continue using online tools by highlighting their usefulness for learning should be encourage. Emphasize how these tools can enhance collaboration, communication, and engagement in the learning process.
3. Ensure that online tools are easy to use by providing clear instructions and userfriendly interfaces. This can help maintain positive perceptions and intentions towards using these tools for learning.
4. While there were no significant differences between male and female students in terms of perceived usefulness and ease of use, it is important to remain gender-sensitive in the design and implementation of online learning initiatives.

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