



Assessment of Teachers' Competence and Interest in Online Teaching during the COVID-19 Pandemic in Nigeria

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ABSTRACT

Despite the numerous advantages of the online mode of instruction in terms of flexible learning methods, convenience, broader coverage and its ability to ensure that no child was ignored educationally during the COVID-19 lockdown, teachers found it difficult to cope with such an approach. A survey was conducted on teachers' interests, competencies, and awareness of the online mode of instruction and its possible problems. The snowball sampling technique was used to identify 377 teachers at all levels of education in Nigeria during the lockdown. Amongst the outcomes of the study, it was revealed that teachers were fully competent in online teaching, thus encouraging them to continue using the approach after the COVID-19 pandemic. Support from private organisations, especially in the provision of subsidised technology devices and organisation of skills development programmes for teachers at all levels of education, will enhance their competency and performance in the 'new normal' generation.

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1. INTRODUCTION

Teaching and learning activities all over the world are triadic, involving teachers, students and materials. In formal education, teachers are an essential factor that facilitates learning. They coordinate students and ensure optimal utilisation of available learning material to help achieve the unique goals of education. Rohaan et al. (2009), Eickelmann and Vennemann (2017), and Ventouris et al. (2021) believe that teachers' wealth of knowledge affects students' concepts and attitudes towards learning, especially in technological terms. As such, the roles of competent teachers who have acquired knowledge, skills and values cannot be overemphasised. As in other countries around the world, Nigeria is concerned with training individuals who can shoulder the responsibility of using the available materials to impart knowledge to students. Therefore, it is evident that current colleges and universities should conduct such training.

Globally, schools have shifted to online teaching (OT) in response to the COVID-19 pandemic, which has required teachers to adjust their classroom practices quickly, regardless of the preparation involved (Scherer et al., 2021). As a result of the outbreak of COVID-19, Nigerian teachers are under increasing pressure to demonstrate competence and dynamism. The outbreak of the pandemic is therefore testing the competency and dynamism of teachers globally, including in Nigeria. The circumstances call for more from teachers, since schools have been in lockdown, causing disruption to instruction activities. Teachers and students have been forced to rely on alternative instruction methods due to the lockdown. As a result, most schools transitioned to online learning to sustain what students had learnt and to curb the transmission of the virus. UNESCO/UIS (2020) reported that as of April 24, 2020, over 1.5 billion learners and 63 million teachers had been affected in 191 countries, including Nigeria.

Every level of education requires teachers to the actualisation of alternative modes of instruction (online, e-learning), as necessitated by the COVID-19 pandemic, which cannot be ignored. Teachers as human agents are essential resources. According to Yengin et al. (2010), such agents are considered the most critical factor in information management systems. Teachers know when, how, where and what type of information will be imparted to their students. The question of whether they perceive themselves to be ready for OT is a complex

one (Martin et al., 2019; Scherer et al., 2021). Due to the rapid adoption of full OT, there has been a significant shift in teaching practices. Individual, institutional and cultural factors all play a role in these changes in practice, or in the willingness to initiate change at any level (Kukulka-Hulme, 2012). For more in-depth understanding of teachers' interest in and readiness for OT, it is critical to examine its relationship with these factors (Hung, 2016; Scherer et al., 2021).

Despite the numerous advantages of the online mode of teaching and learning in terms of its flexible learning method, convenience, more comprehensive coverage, and assurance that no child is ignored educationally, it has still not been productively embraced in Nigeria. This is because the propelling forces for its success, the instructors and teachers and their state of mind (interest) have not been considered. Little has been discussed about teachers' role in actualising the OT dream.

Numerous scholars (Cole et al., 2016; Kebritchi et al., 2017; Yengin et al., 2010) have conducted studies that have revealed teachers' roles in the challenges of online learning in advanced countries such as the United States. Therefore, this study seeks to assess teachers' interests in online teaching in Nigeria during the COVID-19 lockdown.

Purpose of the study

The primary purpose of the study is to investigate teachers' interest in OT during the COVID-19 pandemic; their awareness of the online approach as an alternative medium of instruction; their level of motivation related to their interests; the problems facing teachers' interest in OT; gender role in the teachers' interest in OT; teachers' ICT preparedness; and their level of competency in OT during the COVID 19 period in Nigeria.

2. LITERATURE REVIEW

ONLINE LEARNING: A DEFINITION

Online learning is a concept that has received attention from many researchers. According to Albrahim (2020), "e-learning, virtual learning, cyberlearning, internet learning, technology-based, learning, web-facilities learning, distance learning" are terminologies used to describe such learning. E-learning is defined as remote education, in which students are bodily detached from teachers (Aguilera-Hermida, 2020; Itasanmi et al., 2022). Using technology for interaction between students and teachers is becoming more prevalent. Regarding the use of internet technologies, Demir Kaymak and Horzum (2013) conceptualised e-learning as a means of receiving education and building competence through synchronous and asynchronous learning applications.

OT is becoming popular around the world. As such, with the speed at which technology is advancing, it may be an unavoidable choice for learning institutions. Kebritchi et al. (2017) argue that the numerous opportunities that the online mode of instruction presents to teachers, students and institutions have led to the attention it has globally. However, despite these opportunities, the relevant authorities must consider and build teachers' interest and competency for effective service delivery. Yengin et al. (2010) consider that teachers' interest will directly affect the efficiency and effectiveness of OT worldwide. This is because teachers inject emotional investment (interest) into achieving tasks in the learning process, without which teaching and learning would be uncoordinated and fruitless.

In Nigeria, central government and states have been working on the modalities to continue teaching and learning activities, of which e-learning has been an option considered since the closure of schools. However, many factors regarding confidence, satisfaction and resource availability will determine teachers' interest in the online mode of instruction during and beyond the COVID-19 pandemic. Zhao et al. (2000) found teachers' attitudes were directly related to the use of computers for teaching activities. The role interest plays in teaching and learning activities cannot be overemphasised. Highlighting its essential role, Beena and Mathur (2012) identified a lack of interest in teachers to adopt ICT tools in teaching-learning as an impeding factor. In line with this, factors such as gender type, competency and qualification are investigated, as they determine teachers' interest in OT.

THEORETICAL FRAMEWORK

As the underlying assumption framework for this study, self-determination theory (SDT) was adopted. SDT distinguishes between autonomous and controlled motivation based on empirical studies of human motivation and personality in social contexts (Deci et al., 1989; Deci & Ryan, 2012; Sørensen et al., 2009; Van Den

Broeck et al., 2016). The conditions in which teachers develop and function in OT can significantly impact their capacity to be either proactive and engaged or passive and alienated (Deci et al., 1989; Deci & Ryan, 2012). SDT emphasises the significance of individuals' changed inner resources to advance and regulate the personality and behaviour related to teacher motivation and personality by using traditional pragmatic methods and an organismic metatheory (Deci & Ryan, 2012). From a SDT perspective, the need for teachers' autonomy, competence and connectedness for ongoing psychological growth, innovations and wellbeing is fundamental (Van Den Broeck et al., 2016).

SDT is proposed in this study as it relates to the interest, motivation and use technology tools in connection with educators' competence, preparedness and commitment (Sjorebø et al., 2009). In order to motivate teachers' interest in OT, three elements are necessary: control, connectedness and capability (Baranova et al., 2021; Copriady, 2014; Hartnett, 2016; Selvi, 2010).

Gender as a Determining Factor in Teachers' Interest in Online Teaching

Interest, an object of this study, could be influenced by several factors, including the teacher's gender. There is a need for a concerted effort to understand the role of a teacher's gender and how it shapes interest in online teaching. There is often inconsistency and contradiction regarding the relationship between gender, online teaching and learning effectiveness (Yu, 2021). Evidence from Markauskaite (2006) indicates that men are more intensive internet users and enjoy e-learning more than women. Such variation might be caused by the involvement of females in home-related activities, which are both time-consuming and energy-sapping. In addition, Markauskaite (2006) observed that women educators have a tendency to be nervous, and less proficient and self-assured about ICT. This presupposes that they will be unlikely to use ICT-related skills in their teaching and learning compared to their male counterparts. On the contrary, Hung (2016) found no significant differences between men and women in teachers' readiness for OT.

Yu (2021) observed that online female participants were more persistent and engaged, while males had a higher likelihood of having a positive interest towards OT. Despite females having more robust self-regulation, males exhibit superior technical skills in online learning contexts, as well as more learning strategies than females (Alghamdi et al., 2020). There may be more than one reason for the inconsistencies found in gender differences. Based on Yu's (2021) study, gender affected online instructional outcomes during the lockdown, with male educators being more likely than their female counterparts to have a positive attitude toward OT (Gururaja, 2021).

Relationship between Teachers' Academic Qualifications and their Interest in Online Teaching

The initial training received by teachers leads to the entry qualification into the teaching profession (Ahiatrogah, 2017). Teachers' beliefs and interest in the OT mode are usually shaped by their experience of their teacher education programme (Varol, 2013). In the 21st century, digital skills/ICT are required by all teachers who want to remain relevant in the academic setting. Darling-Hammond (1998) described a qualified teacher as one who is fully certified and holds the equivalent of the main qualifications in the field being taught. A fully qualified teacher must be dynamic and versatile (Ademola et al., 2021; Muhammad, 2021). Bamidele and Adekola (2017) report that teacher effectiveness improves significantly in the first three years of teaching and peaks between the third and fifth years, but sees no substantial improvement after five years. Bamidele and Adekola (2017) and Bonney et al. (2015) found that teachers' academic qualifications were not sufficient to ensure good results, but a professionally trained teacher who has acquired pedagogical skills in teaching. In a study conducted by Lee and Hirumi (2005), it was found that a would-be online teacher must have six essential skills: interaction, management, content knowledge, instructional design, teamwork and technology skills. The demand and expectations placed upon an online teacher's improvement influence the value of online teaching (Brinkley, 2016).

The future of online instruction was examined in a study recently published by Kim and Bonk (1996), who found that pedagogical skills were perceived to be more crucial than technological expertise for OT. In terms of communication and the ability to transfer learning, educators' education level has been shown to play a statistically significant role in their readiness (Hung, 2016). Hung found no significant difference in readiness for institutional support and self-directed learning among teachers with different education levels. In a related study,

Yu (2021) found that the educational levels of participants and personality types affected OT effectiveness during the COVID-19 pandemic.

Moreover, it has been found that academic qualification are not only the determinant of teachers' interest in and effective use of OT but with professional experience. Fish and Gill (2009) found that teachers' personal experience influences their interest in the OT mode. According to Adetayo (2016), teachers' qualifications, competencies, and commitment to teaching are not sufficient to determine their teaching quality. They also need passion, content knowledge, and motivation. When teachers are endeared to teaching, they will be productive. Their enthusiasm for the online mode of instruction should attract students by providing adequate materials for themselves and their students.

Awareness Level as a Determining Factor of Teachers' Interest in Online Teaching

Teachers' awareness of ICT and the OT mode, together with their modus operandi, is unavoidable for successful online teaching and learning activities. Varol (2013) notes that teachers' experience significantly shapes their general classroom disposition and decision taking, while in their study on ICT awareness among M.Ed trainees, Beena and Mathur (2012) found that male participants had a significantly higher level of ICT awareness than their female counterparts. They further found that such an ICT-based culture enhanced their enthusiasm to make their society informative. There is evidence that some prospective online teachers might not have undergone detailed training on transitioning from the traditional approach to OT. Kebritchi et al. (2017) explain that having the opportunity to observe experienced teachers when using technology is part of an awareness strategy that is germane to prospective OT.

Level of Teachers' Motivation in relation to to their Interest in Online Teaching

Teachers' interest in the academic arena cannot be divorced from motivation. The type of treatment received by teachers will shape their attitudinal disposition towards the profession. They could be either extrinsically or intrinsically motivated. Intrinsic motivation is an inbuilt strength at a personal level that enhances interest, personal need, self-motivation, self-control and learning independence (Selvi, 2010). On the other hand, extrinsic motivation is an external factor which encourages teachers to achieve their teaching goals (Han & Yin, 2016). Copriady (2014) argues that teachers' enthusiasm could help them use more e-learning tools to make learning more enjoyable.

The reasons for teachers' interest in the alternative online mode of instruction must be studied. The success of a learning programme is closely related to motivation. A motivated teacher will be curious and have sufficient energy to transform educational theories into practice and continually be searching for solutions to education challenges. In support of this notion, Selvi (2009) found that teachers' enthusiasm and relevant course materials, together with warm and friendly characteristics, were essential considerations for creating interest in online programmes. According to the study by Suryanti et al. (2021), educators are more inclined to be self-assured, ready, motivated, and enthusiastic about OT if their confidence is high. In addition, Cole et al. (2016) reported that seven of the eight educators they interviewed were willing to engage in the online mode of instruction.

Teachers' Level of Competency in Online Teaching and ICT Preparedness

The success of online learning programmes lies in teachers' level of intensity in their engagement with new ideas and executing them with their students. Teachers have become a critically important factor in OT. Technical knowledge is an essential component of effective OT instruction (Varol, 2013). Ofojebe and Ezugoh (2010) assert that competent teachers, whose knowledge is enriched with innovation to attain educational goals, will be effective in their teaching activities. Comas-Quin (2011) posited that learners see teachers as the highest authority in learning and related programmes. Helpful training systems must be implemented for teachers with no interest in OT to change their perspectives (Comas-Quin, 2011). Teachers who will use ICT investment determine educational development and innovation (Ofojebe & Ezugoh, 2010; Copriady, 2014).

Competency means being well qualified to perform an activity, task or job function (Queiroz & Mustaro, 2009). Teachers' competency is necessary to determine the platform, courseware, and tools for the duration of OT and learning processes. Muñoz Carril et al. (2013) note that a would-be OT needs a working template to improve their skills. By implication, teachers must have been undertaken comprehensive training. Knowledge of

the nature of the virtual and traditional approaches are a prerequisite for an OT, who should be aware of the differences and rationale behind the employment of either of them (Albrahim, 2020). A teacher's success depends on pedagogical, content, design, technological, management, institutional, and social skills (Albrahim, 2020).

Problems Facing Teachers' Interest in Online Mode of Instruction

Ideally, teachers should be trained to be eager and ready to take up any teaching activity. However, studies have raised their concern on some of the challenges facing teachers in using the online medium to train students. Lack of its perceived value, concerns regarding technical skills and support, and teachers' commitment and incentives, among other issues, may pose a threat to teachers' interest in the online mode of instruction. Teachers may confront obstacles in e-learning due to their inexperience with OT; uncertainty about evaluation; lack of infrastructure for e-learning at home; and inadequate and expensive internet access (Bao, 2020; Gurung, 2021; Kamal & Illiyan, 2021).

The lack of perceived value is a problem that online teachers face. Mascher (2016) found that many teachers do not believe that online environments provide comparable learning outcomes to face-to-face ones. The negative beliefs, which may be erroneous, that teachers have about virtual teaching and learning activities can pose a problem for their OT participation.

Concerns regarding technical skills and support are other challenges facing teachers in the online mode of instruction. Despite the use of technology, Mascher (2016) found that many teachers were still hesitant to do so because of their lack of ICT skills. In addition, Mascher states that educators may be uncertain of their abilities to learn or display the desired behaviour and are more likely to query the availability of technical support.

Furthermore, another problem that can hinder teachers' participation in OT is their commitment and incentives. Their workloads increase day by day, and their participation in the required professional development training is limited (Mascher, 2016). Teachers' interest in OT can also be hindered by the significant time commitment and a lack of financial incentives (Stenfors-Hayes et al., 2010).

Teachers who participated in online teaching and learning during the COVID-19 lockdown faced various challenges, such as electricity supply and internet connectivity; technical/software knowledge; motivating students; tracking students' progress; reaching students living in rural areas; the time spent in preparing course content; learners' motivation in online learning; teaching numerical subjects; and ensuring discipline (Alghamdi et al., 2020; Eze et al., 2021; Gurung, 2021).

RESEARCH QUESTIONS

1. Do teachers have an interest in OT?
2. What are the problems concerning teachers' interest in the online mode of instruction?
3. Does gender determine teachers' interest in OT?
4. Are teachers prepared for OT?
5. What is the level of teachers' competency in OT?
6. Is there any significant difference between the OT of male and female teachers in terms of the following?
i. interest ii. awareness iii. competence iv. teaching problems
7. Is there any significant difference between teachers with degrees and higher degrees in their OT in terms of the following?
i. interest ii. awareness iii. competence iv. teaching problems
8. Is there any significant difference between experienced and highly experienced teachers in their OT in terms of the following?
i. interest ii. awareness iii. competence iv. teaching problems

3. RESEARCH METHODS

A survey approach was employed (Creswell, 2014; Leavy, 2017; Ponto, 2015) to compile an accurate picture of teachers' interest and competence in using the online mode of instruction to transmit knowledge at all levels of education in Nigeria. An online-based questionnaire was used to elicit teachers' interest and competency in such instruction during the COVID-19 lockdown in Nigeria. Due to the lack of estimated numbers of teachers in Nigeria during the period of study, the sample size formula for an unknown population was used ($n = Z^2Pq/e^2$), where n = sample size, Z^2 = z table at the 95% confidence level of 1.96, e^2 = margin error at 0.05, P = 50% variability of the population, and $q = 1 - P = 0.5$ (Gert, 2013). The sample size was hence calculated to be 385. The survey was made open to all teachers regardless of their educational qualifications, age, marital status, religion, ethnicity or educational background. The sample was drawn from teachers across all levels of education using the non-probability snowball sampling technique, with a sample size of 377. Based on the calculated sample size, the response rate was 98%. The researchers created groups on WhatsApp and Google Documents as forums for deliberation and discussion on the progress of the response and for writing up the findings.

The items used were generated based on similar empirical studies and the researchers' personal experience with teachers during the lockdown. The survey was also tested for validity by professionals in educational technology and testing and evaluation. Their observations and comments were implemented. In addition, to confirm the internal consistency of the instruments, Cronbach's alpha (α) was used. Items on problems hindering teachers' interest in the online approach as a mode of instruction yielded 0.76, which is good, while items on teachers' competency in OT yielded a high co-efficient of 0.92.

In contrast, from the seven items developed to measure teachers' interest in OT, item 3 was deleted, with the remaining six items yielding a co-efficient of 0.62. Therefore, it can be said that the instrument had good internal consistency (DeVellis, 2003; Griethuijsen et al., 2007; Pallant, 2011). The data obtained were analysed in mean, frequency and percentage terms to describe the demographic data of the respondents along with research questions one, two, four and five, while an independent t-test statistic was used to answer research questions three, six, seven and eight, since the dependent variables are categorical and coded (either 1 and 2) (Pallant, 2011).

Table 1: Respondents' Demographic Data

Demographic Data	Frequency	Percentage (%)
Gender		
Male	219	58.1
Female	158	41.9
Teaching Experience (years)		
01-05	71	18.8
06- 10	99	26.3
11-15	82	21.8
16-20	44	11.7
21 and above	81	21.5
Qualifications		
NCE	40	10.6
ND/HND	28	7.4
BA/BSc	41	10.9
BSc(Ed)	62	16.4
B(Ed)	39	10.3
PGDE	20	5.3
M.Sc./M.A	29	7.7
M.Ed.	56	14.9

PhD	62	16.4
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Data on the respondents' demographics are shown in Table 1. It can be seen that there were more males 219 (58.1%) than females 158 (41.9%). The respondents had a wide range of experience in teaching. 71 (18.8%) had teaching experience of between 1 and 5 years; 99 (26.3%) 6-10 years, which is the highest in the category; 82 (21.8%) between 11 and 15 years; 44 (11.7%) 16-20 years, the lowest in the group; and 81 (21.5%) had 21 years of experience or more. The largest group of respondents, 62(16.4%), were PhD holders, followed by those holding a Master's in Education, at 56 (14.9%).

4. RESULTS

Table 2: Awareness and use of online mode of instruction

	Frequency	Percentage (%)
Awareness		
No	17	4.5
Yes	360	95.5
Placement in Online Teaching		
No	57	15.1
Yes	320	84.9
Total	377	100

Table 2 shows teachers' awareness of the online mode of instruction and consideration for using the OT platform. It can be seen that 360 (95.5%) were aware of the online mode of instruction, while 17 (4.5%) said they were not aware of it. Teachers' consideration for placement in OT is also shown. 57 (15.1%) did not want to be considered for placement in online teaching, while 320 (84.9%) were willing to be considered for placement.

Table 3: Possible problems hindering teachers' interest in OT

Problem	No	Yes
Lack of appropriate devices.	135 (35.8%)	242 (64.2%)
I cannot use a computer, smartphone and internet for self-study.	339 (89.9%)	38 (10.1%)
I cannot use a computer, smartphone and internet to teach students online.	300 (79.6%)	77 (20.4%)
Internet network fluctuations.	69 (18.3%)	308 (81.7%)
Lack of pre-training.	173 (45.9%)	204 (54.1%)
Home factors leading to inadequate student concentration.	79 (21%)	298 (79%)

Table 3 indicates the possible problems that hinder teachers' interest in OT. Internet network fluctuations are shown to be a significant problem, at 308 (81.7%). This was followed by home factors leading to students' inadequate concentration, at 298 (79%). The table further reveals that using a computer, smartphone and the internet for self-study and teaching students online did not pose any problem, with 339 (89.9%) and 300 (79.6%) of respondents saying no to such problems. The lack of appropriate ICT devices posed a challenge to teachers in their participation in OT during the lockdown. In addition, home factors and lack of pre-training programmes on OT also posed challenges.

Table 4: Teachers' competence level in online teaching

Level	Score Range	Frequency	Percentage
Weak	4-13	4	1.1
Competent	14-23	144	38.2
Fully Competent	24-33	197	52.3
Outstanding	34-44	32	8.5
Total		377	100.0

As shown in Table 4, participants' responses were compiled and analysed using mean ratings. This was done in order to address the research question concerning teachers' ability to utilise computer applications in

OT. The mean scores of the responses were totalled and converted to frequency and percentage terms. Hence, the decision was taken based on the level with the highest frequency and percentage. Table 4 shows the teachers' level of competency in using computer applications to facilitate OT during the COVID-19 pandemic in Nigeria. Based on their self-rating, it is indicated that a slightly above average number of participants were fully competent. The range was determined by aggregating the 11 items (applications) and multiplying these by 4 (the response scale) to equal 44. The maximum minus minimum (44-4) equalled 40 divided by 4 (levels). Therefore, the data was recoded as 4-13 = 1, 14-23 = 2, 24-33 = 3 and 34-44 = 4. Therefore, frequency and percentage were used to determine the level. This indicates that the teachers were fully competent in using computer applications to facilitate OT during the COVID-19 pandemic in Nigeria, since 52.3% of their ratings were within the range of 23-33.

Table 5: Level of Teachers' Interest in OT during the COVID-19 Lockdown

Level	Score Range	Frequency	Percentage
Low	6-11	1	0.3
Moderate	12-17	166	44.0
High	18-24	210	55.7
Total		377	100.0

Table 5 indicates the level of teachers' interest in OT during the COVID-19 lockdown. The range was determined by aggregating the six items and multiplying by 4 (response scale), equalling 24. The maximum minus minimum (24-6) equalled 18 divided by 3 (levels). Therefore, the data were recoded to 6-11 = 1; 12-17 = 2; and 18-24 = 3. Hence, the frequency and percentage were employed to ascertain the level of interest. Teachers' interest in online instruction at all levels of education was moderate during lockdown because 55.7% of their interest rating was within the range of 12-17 on the aggregate.

Hypotheses Testing

The following hypotheses were tested as follows:

H0 1A: Is there any significant difference between male and female teachers in terms of their online: i. interest ii. competence and iii. problems?

Table 6: Gender Means Scores and t-test on Online Interest, Competence and Problems

	Gender	N	Mean	Mean Diff	Std. Deviation	T	Df	Sig. (2-tailed)	d
Online interest	Male	219	21.08		2.83				
	Female	158	20.83	0.25	2.77	0.85	375.00	0.40	0.09
Online competence	Male	219	15.45		7.44				
	Female	158	11.75	3.70	6.27	5.09	375.00	0.00	0.54
Online problems	Male	219	2.84		1.50				
	Female	158	3.45	-0.61	1.51	-3.87	375.00	0.00	-0.41

As shown in Table 6, male teachers were more likely to have interest in OT than female ones. Based on the paired t-test, the mean difference was calculated as 0.25, $t = 0.85$, $df = 375$, $p > 0.05$. Cohen's d was calculated as 0.09, indicating no effect. The online competence of male teachers was higher than that of female teachers. In the paired t-test, the mean difference was 5.09, $df = 375$, $p < 0.05$, indicating statistical significance. Cohen's d effect was 0.54, which is high.

Moreover, male teachers' online problem mean scores were lower than those of their female counterparts. There was a statistically significant difference of 0.61; however, the paired t-test shows that $t = -3.87$, $df = 375$, $p < 0.05$. The calculated Cohen's d effect was -0.41, which is moderate. By implication, this shows that gender plays a significant role in teachers' interest and competence in OT and the problems faced when using OT during COVID-19 in Nigeria.

H0 2A: Is there any significant difference between experienced and highly experienced teachers online in terms of: i. Interest ii. competence and iii. problems?

Table 7: Teaching Experience Mean Scores and t-test in terms of Online Interest, Competence and Problems

	Teaching Experience	N	Mean	Mean diff	Std. Deviation	T	Df	Sig. (2-tailed)	d
Online interest	Experienced	252	21.05		2.78				
	Highly Experienced	125	20.81	0.24	2.86	0.77	375	0.44	0.08
Online competence	Experienced	252	14.02		7.27				
	Highly Experienced	125	13.65	0.37	7.07	0.47	375	0.64	0.05
Online problems	Experienced	252	3.14		1.57				
	Highly Experienced	125	3.00	0.14	1.46	0.85	375	0.40	0.09

Table 7 shows that the mean score of the online interest of experienced teachers was higher than that of highly experienced teachers. According to the paired t-test, the mean difference was 0.24, statistically not significant, at $t = 0.77$, $df = 375$, $p > 0.05$. Cohen's d effect was 0.08, which implies no effect. Experienced teachers scored higher on the online competence scale than highly experienced ones. There was no statistical significance found in the paired t-test, at $t = 0.47$, $df = 375$, $p > 0.05$. Cohen's d was 0.05, which shows no effect. Furthermore, the mean score of the online problems faced by experienced teachers was higher than that of highly experienced ones. The mean difference was 0.14; the paired t-test also demonstrates that the difference was not statistically significant, at $t = 0.85$, $df = 375$, $p > 0.05$. In this calculation, Cohen's d was 0.09, meaning no effect was detected. Consequently, teachers' experience level had a significant relationship with their interest in OT and difficulties faced during the COVID-19 lockdown in Nigeria.

H0 3A: Is there any significant difference between teachers with a degree or a higher degree in terms of their online: i. interest ii. competence and iii. problem?

Table 8: Educational Degrees Mean Scores and t-test in terms of Online Interest, Competence and Problems

		N	Mean	Mean Diff	Std. Deviation	T	df	Sig	D
Online interest	Degree	230	20.93		2.86	-0.34	375	0.738	-
	Higher Degree	147	21.03	-0.10	2.72				0.04
Online competence	Degree	230	13.45		7.21	-1.50	375	0.134	-
	Higher Degree	147	14.59	-1.14	7.15				0.16
Online problems	Degree	230	3.26		1.55	2.57	375	0.011	
	Higher Degree	147	2.84	0.41	1.48				0.28

Table 8 indicates that the mean score of the online interest of teachers with a degree was lower than that of those with a higher degree. the paired t-test showed no statistically significant difference, at $t = -0.34$, $df = 375$, $p > 0.05$. The mean difference was -0.10. The calculated Cohen's d effect was -0.04, which indicates no effect. The mean score of the online competence of teachers with a degree was lower than that of those with a higher degree. Based on the paired t-test, the difference is not statistically significant, at $t = -1.50$, $df = 375$, $p > 0.05$. The calculated Cohen's d effect was -0.16, which showed no effect. Furthermore, the mean score of the online problem of teachers with a degree was higher than that of those with a higher degree. However, the paired t-test analysis showed that the difference was statistically significant, at $t = 2.57$, $df = 375$, $p < 0.05$. The calculated

Cohen's *d* effect was 0.28, which indicated a low effect. In summary, academic qualifications did not significantly influence teachers' interest, competence, or problems faced in the use of OT during the COVID-19 lockdown.

5. DISCUSSION OF THE FINDINGS

Teachers' interest in OT during the COVID-19 lockdown in Nigeria was assessed. There is a high level of OT knowledge among Nigerian teachers. Teaching in the 21st century requires ICT knowledge for teachers to perform effectively, and more importantly, to teach students online regardless of the situation. Lockdown policies and other COVID-19 protocols such as social distancing changed the world's approach to digital settings during the pandemic. Therefore, since education is pivotal in societal development, teachers should be informed about the online approach as a mode of instruction. This is in line with the study by Beena and Mathur (2012), who found that in ICT-based culture, the ICT awareness level among M.Ed. trainees played a significant role in their use of ICT tools to facilitate instruction. In addition, Varol (2013) argued that teachers' awareness level was pivotal in their decisions about their classroom practices, either virtual or face-to-face. Suryanti et al. (2021) state that educators who are confident, ready, motivated, and optimistic about teaching online are likely to be more confident, ready, motivated, and more likely to use it effectively. Similarly, Cole et al. (2016) found that seven out of eight interviewees were open to online instruction.

This study further revealed that teachers were fully competent in using most OT packages during the COVID-19 lockdown, thus indicating that they were ready to take up OT. In contrast, Mascher's (2016) findings showed that many teachers found it inconvenient to integrate technology into instruction, whether in the classroom or online. The emerging interest shown in this study may be connected with necessity and demand. Many teachers seem to have realised the need, and acquired the necessary skills. Further investigation revealed that male teachers were better or more competent in using online applications as a mode of instruction across the different levels of education in Nigeria. This may be the result of males' exploratory attitude and constant access to the internet. Considering the number of years of teaching experience and the educational degree of the teachers, although there was a difference in their mean score, these factors did not have an association with or effect on their interest in online teaching. In their studies, Ofojebe and Ezugoh (2010), Boadu (2022), Liu (2022) and O'g'li and Qizi (2022) assert that effective teachers whose knowledge is enriched with modern techniques and who are competent in their discipline will be more efficient in the classroom.

The study identified a lack of necessary devices and network fluctuations as amongst the significant problems hindering teachers' interest in online teaching during the lockdown. This shows that many teachers did not have the necessary devices, such as smartphones and laptops. The general problem of network connection in developing nations has been singled out one of the difficulties faced. This contradicts the study of Itasanmi et al. (2022), who did not find that the provision of online learning resources was a determinant of teachers' interest in participating in OT. In addition, Bruce (2000) argued that the gap in the use of the internet between males and females was not solely the result of gender-specific factors but also socio-economic ones. Hence, it could be deduced that the differences in gender competency could be related to time and family care factors that might hinder female teachers from developing themselves in the use of computers and the internet. During lockdown, the increase in female teachers' responsibilities as homemakers could also have contributed to their low interest in OT. Globally, it has been reported that COVID-19 lockdown was harder on females than males both socially and economically (Wenham et al., 2020).

Further examination was made to ascertain if the teachers' teaching experience and educational degree level affected the problems facing OT during the lockdown, despite differences in their mean score, which showed a low effect. This indicated that the teachers' qualifications (degrees) had little effect on the problems faced using online mode instruction during the lockdown. Moreover, it was found that teachers' years of teaching experience had no association with the OT problems during the lockdown. This finding is different to those of Zalat et al. (2021), who found that the teaching experience of teachers could not be overemphasised when determining their interest in OT.

Furthermore, it was revealed that male teachers were both more interested and competent than their female counterparts in OT. This finding may be a result of the limited time available to female teachers, coupled with their other commitments. It corroborates the work of Markauskaite (2006), who found that men are more intensive users of the internet and enjoy e-learning more than women.

Further, Markauskaite found that female teachers were less confident, less experienced and less worried about their ICT competencies. This supports the findings of Cuadrado-García et al. (2010), that there is significant variation between males and females in e-learning platforms.

6. CONCLUSION

The study shows that most teachers are prepared and interested in OT if provided with the necessary devices. COVID-19 has given most teachers opportunities to sharpen their skills in OT, which is an excellent development for Nigeria's educational system. It is therefore necessary to harness this opportunity for the overall development of education.

RECOMMENDATIONS

Based on the study findings, the following recommendations are made.

Teachers should be trained in some of the major applications, such as Google Classroom, Microsoft Outlook, Online White Board, and One Note Edu, in areas of OT in which they were deficient. In addition, the necessary devices should be made available or subsidised for teachers to ease their employment of OT. Such provision can be achievable with support from private organisations, especially multinational companies and communication technology companies. Moreover, female teachers should be encouraged to develop more interest and acquire the necessary skills for online instruction in the 'new normal' era. In practice, online skills should be included in teacher education programmes and regular training on the use of these skills and applications should be organised for teachers.

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