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Online Learning During the Covid - 19 Pandemic in Ekiti State Public Tertiary Institutions: Effectiveness and Challenges

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Abstract

The COVID-19 pandemic lockdown period was typically a time when all human activity was halted. The educational system in Nigeria is not free from this. To mitigate the effect of COVID-19 on education, several educational institutions made the decision to use e-learning for the first time. Only a few public institutions were able to join the system, whereas some private institutions were able to do so on time. Therefore, the goal of this study is to assess the success or failure of online learning at public universities in Ekiti state during the shutdown. Because it would enable the researchers to collect pertinent data from a huge study sample without any alteration, the study used a descriptive survey research methodology. All of the final-year students from the two Ekiti State universities made up the population. The sample for the study consisted of one hundred twenty (120) final-year scientific students from the two universities' faculties of sciences. A 4-point Likert scale structured questionnaire was the tool used to collect data from respondents. The study was directed by three research questions and two research hypotheses in total. The frequency counts and mean scores were used to analyze the research questions while the research hypotheses were analyzed using paired – t-test and One-Way Analysis of Variance (ANOVA), using the Statistical Package for Social Sciences (SPSS) version 20. Each hypothesis was tested at the 0.05 threshold. The findings demonstrated that online learning is more enjoyable than conventional face-to-face learning, making it an excellent platform for teaching and understanding scientific concepts. Online learning also improves students' academic performance in terms of motivation, learning achievement, and learning engagement. Budgetary issues and slow internet, however, make it difficult for people to learn online. In order to preserve the progress gained during the lockdown after COVID-19, it was recommended that educational stakeholders should increase the accessibility of online learning facilities in schools at all levels of education.

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Introduction

Covid-19 is an infectious disease that was detected in December 2019 in Wuhan City, Hubei Province, China, and the causative virus was isolated on January 7, 2020. Covid is a novel coronavirus. Nearly all countries instituted a social lockdown during the height of the Covid-19 outbreak, making it impossible for citizens to go about their daily lives or receive an education in urban or suburban areas. After China informed the WHO of the presence of the Covid-19 outbreak on December 31, 2019, the WHO formally declared it a worldwide pandemic on March 11, 2020. This deadly virus moved from China to the rest of the world by the middle of March 2020, affecting over 163 countries. The first case of the virus was discovered in Nigeria on February 27, 2020. The evolution and spread of the coronavirus have been thoroughly described using expository and exploratory data analysis, revealing how the pandemic affected practically every country on Earth (Yaseen & Salah, 2021).

Since it was first noticed in late December 2019, the global Covid-19 outbreak has disrupted nearly every aspect of human life. The educational system was hit as hard as any other essential industry. There had a widespread effect on academic institutions from elementary schools to universities. Over 800 million pupils throughout the world were impacted, as stated in a study by the United Nations Educational, Scientific, and Cultural Organisation (UNESCO). According to the UNESCO study, one in five children are unable to attend school, one in four are barred from enrolling in higher education, and 102 nations have imposed statewide school closures, while 11 have enacted localised school closures. This means that for over six months, millions of children will be absent from school every day due to the outbreak.

In Nigeria, for example, several tiers of government, organisations, and agencies have issued warnings and restrictions. As a result of these regulations, the Federal Ministry of Education issued a notice demanding the closure of all schools, universities, and other educational institutions. Students in affected countries were already struggling to recover from natural catastrophes and armed war when the Covid-19 outbreak hit. As in many other nations, the outbreak caused a complete shutdown of schools across Nigeria for well over six months. Only a few of private schools had the means to keep classes going even while pupils were at home since they had access to the Internet and other online tools. Public schools were powerless to prevent the scenario, which caused students to fall behind by more than half a year. The failure of schools to provide children with meaningful educational opportunities outside of school hours highlighted the dismal status of education in the country. Distance education, online education, and information and communication technology (ICT) infrastructure were found to be lacking in Nigerian schools as a result (Hamdallat & Adesegun, 2022). This unfortunate condition not only increased the number of student dropouts but also diminished interest in online learning, substantially damaging the regularity of the academic calendar.

Given the worldwide spike in reported cases of Covid-19, closing schools was seen as the best option for containing the disease. The public health agency took the decision to close schools, but other individuals felt that emergency measures should be in place to ensure that children always had access to education. Without regard to socioeconomic status or geographical location, education is a fundamental human right. Every kid, teen, and adult has the right to an education, even in times of crisis, and it must be given top priority in all emergency operations right away (Muhammad, 2021).

Workshops, conferences, intramural and interscholastic sports, and other campus events were cancelled or postponed at several universities throughout the world during the start

of 2020 (Sahu, 2020). After around six months of not attending classes or universities, students' lot began to improve as several countries opted to reopen all educational institutions. Precautions were made to ensure the safety of all staff and students. Students and faculty alike took measures to protect themselves, such as wearing protective masks whenever loud noises were present, washing their hands often, using hand sanitizer, and keeping a safe distance from each other at all times. Due to the "compulsory" break from conventional classrooms in 2020, both students and teachers were left to make do with online learning and teaching. Universities in Ekiti State, along with the other of Nigeria's universities, were not excluded from this digital campaign, which was expected to continue even after the pandemics when students returned to campus as normal.

The term "online learning" is used to describe educational programmes that are accessible solely online. Terms like "web-based learning," "e-learning," "computer-assisted instruction," and "internet-based learning" are all synonyms. The term "online learning" describes the dissemination of knowledge through mediums such as the Internet (www), electronic mail (email), instant messaging (im), online discussion forums (forums), new media (new groups and texts), and electronic conferences (audio and video). Students have the freedom to study whenever and wherever they choose with this method.

While few Nigerian universities provide distance education, many secondary and primary schools now make use of the internet for student instruction. The instructional materials might be accessed through online learning tools. Students also have the option of participating in organised learning programmes designed and led by instructors in real-time through the usage of virtual meeting platforms (Olawale, 2021). The advent of online learning platforms has revolutionised the educational system in this age of upheaval, globalisation, rapid change, and technology. However, Nigerian educators' views on distance learning were mixed. It has both proponents and detractors. For instance, Bczek (2021) liked that it allowed pupils to pick when and where they studied, but Mukhtar (2020) thought it wasn't adaptable enough. Online education has several advantages, one of the most important being that it encourages student-centered learning through the use of interactive pedagogy, which was created to keep students extremely motivated in their studies. The onus of education is shifted to the pupils in this kind of instruction (Dhawan, 2021).

However, there are drawbacks to online learning, such as challenges in the classroom, students' short attention spans, and students' general lack of interest (Mukhtar, 2020). Additionally, there is a problem with academic honesty. Muhammad (2021) noted that students frequently copied text from the internet without properly citing or referencing it in their coursework or other work. Furthermore, Bczek (2021) saw bad relationships between students and instructors as being a significant threat to this system.

Despite the flaws that have been found, many developed countries had already embraced online education before the COVID-19 outbreak. On the other hand, many developing nations, including Nigeria, who had previously used this method infrequently, are now feeling pressure to do so in order to advance and stop wasting students' valuable time. In order to better understand how online learning platforms have impacted undergraduate students' learning results during the COVID-19 Pandemic, this study will look at both their advantages and disadvantages.

This study's goal is to evaluate the effectiveness of online learning during the Covid-19 pandemic in public tertiary institutions in Ekiti State in order to identify its successes and shortcomings. In particular, this study aims to:

i. assess undergraduate students' attitudes and perceptions concerning online learning during the COVID-19 epidemic in public universities in Ekiti State;
ii. assess the effects of online learning instruction on students' academic performance in public universities in Ekiti State during the COVID-19 pandemic; and
iii. assess the impact of online instruction on students' academic performance in Ekiti State public universities during the COVID-19 pandemic.

Research Questions

To direct the investigation, the following research questions were posed:

1. What were undergraduates' views and perceptions of online learning during the COVID-19 pandemic in public universities in Ekiti State?
2. What challenges did students at the public universities in Ekiti State face while taking classes online during the COVID-19 outbreak?
3. How successful was the online study for students at public universities in Ekiti State during the COVID-19 pandemic?

Research Hypotheses

The following guided the study:

H_{01}: There was no significant difference in the perception of undergraduate students regarding online learning during COVID-19 pandemic in public universities in Ekiti State.

H_{02}: There was no significant difference in the use of online learning and learning outcomes among science undergraduates in public Universities in Ekiti State.

Literature Review

The decision to close schools because to the COVID-19 outbreak was likely unforeseen, but it seems justified given the pressing need to contain the Coronavirus pandemic. The fortunate worldwide shutdown of schools has once again highlighted the importance of using cutting-edge technologies into the classroom. Global demand for online education rose as a result of the COVID-19 outbreak. Technology has the potential to make it possible to get a good education from the comfort of one's own home. As a result, the usage of educational technology platforms would become the new reality for educational institutions, instructors, and learners as the globe battles to contain the spread of COVID-19 or any subsequent breakouts.

During lockdowns, quarantines, and isolations due to medical difficulties or other circumstances, Oni (2021) argues that technology is especially important for student-teacher contact and communication. During and during pandemics, technology is a vital resource for offering educational, psychological, spiritual, and medical guidance or support to parents, teachers, and students. To contain the spread of COVID-19, technological advancements in case reporting, testing, and social isolation are essential. Robots and drones were also used to make deliveries in some areas, with the goal of reducing the need for human interaction. Learners and teachers can be kept productively and educationally engaged with the use of technology during lockdowns during pandemics, preventing them from becoming "Covidiots" due to boredom (Oyekanmi, 2021).

Ogunmode (2021) argues that schools that had already begun using emerging technology had an advantage over their counterparts when the COVID-19 pandemic hit. Teachers had to educate from a distance, and students had to adapt to new ways of learning and teaching. Students in countries without the infrastructure to enable online education faced challenges when the educational paradigm shifted. The digital divide was also a major problem, especially for kids living in rural regions. This is done so that students and instructors in more remote areas can take advantage of remote teaching and learning. While many individuals

lack the technical know-how to take advantage of online education, technology continues to be used as a treatment to make up for the educational gaps that arise when schools are unexpectedly closed during pandemics.

The phrase "online education" is used to describe any type of formal or informal education that takes place through the Internet. Several factors, including reliable internet connectivity, helpful study resources, digital savvy, portability, and availability of technology, are crucial to the achievement of desired outcomes in online education. Online education platforms are critical tools for facilitating distance education and expanding access to higher education. The foundations of online education are distance learning and the development of digital technologies that allow for the efficient and trustworthy transmission of lectures, virtual classroom sessions, and other educational materials and activities through the internet (Onlineeducation.com, 2020). The broad availability of mobile and internet technologies makes it possible to make full use of online education platforms to reduce the prevalence of global illiteracy and bridge educational disparities. When pandemics strike, as the one caused by the coronavirus, educators can turn to a variety of online education platforms and technology (Owolabi, 2020).

The coronavirus outbreak forced millions of kids to stay home and complete their schoolwork. The home has always been the centre of informal education, therefore this trend is not new. Distance education has established itself as the norm for today's students. Education Task (2020) reports that the vast majority of secondary school pupils still opt to study at home rather than in a traditional classroom since they have all they need right at their fingertips. However, the logistics of having a formal education while living at home might be exceedingly challenging for many educators, students, and parents, especially in underdeveloped nations where the availability, accessibility, and usage of technology in education is not widely spread. There is a lack of technical knowledge even in regions with established infrastructure. For instance, Adnan and Anwar (2020) studied how well online education served college students during the COVID 19 epidemic. They found that e-learning is ineffective in developing countries like Pakistan because the vast majority of disadvantaged students lack access to the internet and/or find that the internet in their rural and/or urban communities is unreliable. Adenuga (2019) argues that Nigeria's online educational opportunities hold great promise for fostering creativity, motivation, and proficiency in the classroom. There's hope that it may help educators give their classes a more interesting and instructive twist. However, he noted that Nigeria is unable to completely deploy online learning due to a variety of factors, including the country's unreliable power grid, teachers' lack of familiarity with the necessary technology, and outdated teaching methods.

The inability to access or use the online learning and teaching tools; difficulties adjusting, especially for students living in rural areas and those from low-income families; and associated stress, depression, and anxiety are some of the challenges Zethembe (2020) identified in effectively implementing e-learning and e-teaching in the era of the COVID-19 pandemic. Access to the Internet and the cost of obtaining gear like laptops or PCs or mobile devices were shown to be significant barriers to the successful application of online learning in a mixed-method research undertaken by Van and Thi (2021) during the Covid-19 epidemic. Lack of engagement, students' motivation, and family distractions were all identified as additional challenges to online teaching and learning. According to research conducted by Muthuprasad et al. (2021), 70% of respondents are open to using online classrooms to manage the curriculum during the pandemic. They also found that most students preferred to study remotely utilising their mobile devices. Students in remote areas,

they claim, have a harder time taking advantage of online learning programmes despite the fact that online sessions provide greater convenience and flexibility.

Students' attitudes towards online education in the midst of the CoVD19 outbreak have been studied in Nigeria. For instance, a research of undergraduates' perspectives on online learning at universities in Kwara state by Hamdallat and Adesegun (2022) found that students had a positive view of their own online learning self-efficacy. Similar results were obtained by Olalekan et al. (2021) who concluded that Nigerian students were well-equipped and ready for online learning, thanks to their proficiency in information and communication technology. However, they found that high data charges, poor internet services, intermittent power outages, a lack of access to digital libraries, and a lack of readily available computers were still cited as the most significant perceived hurdles to successful online learning. Students at the University of Ilorin utilise e-learning systems regularly, according to a study by Naeem et al. (2023), although this is mostly due to the administration's decision to use these technologies as the only means of instruction during the epidemic. The results also revealed that both students and teachers had positive impressions of the system's overall quality and were open to making use of e-learning tools. They concluded that the rollout of an e-learning system for post-pandemic education at the University of Ilorin was a significant success. They suggested a hybrid learning approach, combining online and in-person education, to keep e-learning alive when the Covid-19 era ended.

Researchers have examined the pros and cons of online education in Nigeria before and after the coronavirus epidemic, but their findings do not include the perspectives of students in Ekiti state. Therefore, it is crucial to assess the efficacy of online learning in Ekiti state.

Methodology

To facilitate data collection and interpretation for this research endeavor, the study used a descriptive survey research design. This is because it will allow the researchers to gather pertinent data from a sizable study sample without any change utilizing a validated and trustworthy questionnaire. All of the final-year students at Ekiti State University in Ado Ekiti and Federal University in Oye-Ekiti made up the study's target population. These two universities were chosen because, throughout the Covid-19 period, they were the only educational institutions in the state to organize online learning for their final-year students.

One hundred twenty (120) final-year science students from the faculties of sciences at Ekiti State University in Ado Ekiti and Federal University in Oye-Ekiti made up the study's sample. The faculty chosen for the study was chosen using a purposeful sampling strategy. This was done to make sure that all of the responders came from the same faculty and had similar circumstances. Sixty (60) final-year students from the faculty of sciences at each of the institutions included in the study's population were chosen using the simple random sampling technique. Hence, a total of one hundred and twenty (120) respondents were used for the study. All the respondents were exposed to online learning during the covid-19 pandemic.

The instrument used to gather information from respondents was a structured questionnaire. A 4-point Likert scale was used in the creation of the questionnaire. The scale included four categories: SA stood for "Strongly agree," A for "Agree," D for "Disagree," and SD for "Strongly disagree." The scale was scored in such a way that SA received four points, A received three, D received two, and SD received one. The questionnaire comprised of twenty items for the students. The option that the participants felt was most enticing to them was required to be checked (√)

Face, content, and purpose validity were used to determine the instrument's validity. This was done to allow time for any necessary amendments and changes before it was implemented. The instrument's reliability was ensured using the split-half method. The instrument's reliability coefficient was discovered to be 0.87, meaning that the items were reliable within allowable bounds. The appropriate statistic was used to assess the data collected. The frequency counts and mean scores were used to analyze the research questions. Each item's response frequency was determined and translated into mean score items. The mean scores were rejected if they were less than 2.5, otherwise they were accepted. The Statistical Package for Social Sciences (SPSS) version 20 was used to test the hypotheses using paired t–test and One-Way Analysis of Variance (ANOVA). Each hypothesis was tested at 0.05 threshold.

Results and Discussion

Research Question 1: What were undergraduates' views and perceptions of online learning during the COVID-19 pandemic in public universities in Ekiti State?

Table 1: The views and perceptions of undergraduates towards online learning in during COVID-19 pandemic in public Universities in Ekiti State

S/N	ITEMS	SA	A	D	SD	X	Decision
I.	Online learning is a good platform for teaching and learning	60% (72)	38% (46)	2% (02)	-	3.58	Accepted
II.	Given 24 hours access on the material, students can get more time to read and practice.	36% (43)	50% (60)	8% (10)	6% (07)	3.16	Accepted
III.	Online learning is more enjoyable that traditional face to face learning	64% (77)	32% (38)	4% (05)	-	3.6	Accepted
IV.	Online learning enables students to learn autonomously	50% (60)	36% (43)	14% (17)	-	3.36	Accepted
V.	Taking the online classes increases students' interest and understanding of subject matter.	22% (26)	30% (36)	30% (36)	18% (22)	2.56	Accepted
VI.	Online learning should continue after the Covid-19 era	44% (53)	38% (46)	12%(14)	6% (07)	3.2	Accepted
	Grand Mean: 3.23						

Mean greater than 2.50 'Agreed' otherwise 'Disagreed'

The opinions and attitudes of undergraduate students concerning online education during the COVID-19 epidemic in the public universities in Ekiti State are shown in Table 1. The outcome showed that all of the assertions were acceptable because they all scored on average over the benchmark of 2.50. With a mean score of 3.58, the table showed that 98% of the students thought that online learning is a good platform for teaching and learning, while only 2% disagreed. In a similar vein, 86% of respondents agreed—with a mean score of 3.16—that

students can have more time to read and practice if they have access to the material for 24 hours, while 14% disagreed. As for whether online learning is better than traditional face-to-face learning, 96% of respondents agreed, with a mean score of 3.6, while 4% disagreed. 86% of the students agreed with the statement that online learning allows for individual study, scoring a mean of 3.36, while 14% disagreed. On the other hand, 52% of respondents agreed and 48% disagreed, meaning that 2.56 respondents on average agreed that taking online classes boosted students' interest in and comprehension of their subject matter. In a similar vein, 82% of respondents believed that online education should continue in the post-Covid-19 age, while only 18% did not.

Since items 1 through 6 have mean values larger than 2.50, they are accepted with a Grand Mean of 3.23. The claims are accepted since the critical value is greater than the statistical value.

Research Question 2: What challenges did students at the public universities in Ekiti State faced while taking classes online during the COVID-19 outbreak?

Table 2: Responses to the challenges that students of public universities in Ekiti State faced during online learning in COVID-19 era

Mean greater than 2.50 'Agreed' otherwise 'Disagreed'

Results of statistics in Table 2 on the difficulties students encountered when using online learning platforms to learn scientific concepts during the COVID-19 pandemic in specific

S/N	ITEMS	SA	A	D	SD	X	Decision
I.	I used to send text messages to their lecturers whenever they had difficulty in understanding the lecture materials during online learning	34% (41)	55% (66)	11% (13)	-	3.2	Accepted
II.	I used to take a part in discussions forum in online lessons	52% (63)	32% (38)	10% (12)	6% (07)	3.4	Accepted
III.	I had access to online lessons from both personal computers and mobile phones.	50% (60)	34% (41)	10% (12)	6% (07)	3.24	Accepted
IV.	Online lecture materials presented on slides and videos materials helped me to understand the topics easily.	45% (54)	15% (18)	12% (14)	28% (34)	3.42	Accepted
V.	I gain get new experience in learning sciences by using online learning technique.	38% (45)	50% (60)	8% (10)	4% (05)	3.24	Accepted
VI.	Lecturers, through E-facilities do use good examples to explain scientific concepts.	45% (54)	31% (37)	20% (24)	4% (05)	3.18	Accepted
VII.	**Grand Mean**: 3.28						

universities in Ekiti State showed that 89% of the students agreed that they always texted their lecturers whenever they had trouble understanding lecture materials, while 11% disagreed. The majority of respondents agreed, as indicated by the mean score of 3.70. With a mean score of 3.4, more respondents agreed than disagreed with the statement that they have previously participated in discussion forums during online lectures, 84% agreeing and 16% disagreeing. Additionally, according to the chart, 84% of respondents—who gave a mean score of 3.24—agreed that they can access online courses from both personal computers and

mobile devices. 16% of the respondents, however, disagreed with this assertion. The table also revealed that 70% agreed—with a mean score of 3.42—that scientific lecture materials delivered on slides and in videos help people understand these ideas quickly, while 30% disagreed. The study also showed that students gain new learning experiences by utilizing new techniques, with a mean score of 3.24 and a total agreement rate of 88% to 12%. With a mean score of 3.18, a total of 76% of respondents felt that instructors using e-facilities do use effective examples to illustrate scientific concepts, while just 24% did not.

According to the grand mean of 3.28, all of the statements are accepted. Items 1 through 6 were allowed with a Grand mean of 3.28 since they all had means higher than 2.50, the threshold number. This results in the statements being accepted.

Research Question 3: How successful was the online study for students at public universities in Ekiti State during the COVID-19 pandemic?

Table 3: Students' evaluation of online learning in public university universities in Ekiti State during the COVID-19 pandemic

S/N	ITEMS	SA	A	D	SD	Mean	Decision
I.	There are many distractions while using e-learning facilities for learning	42% (51)	40% (48)	12% (14)	6% (07)	3.18	Accepted
II.	It is often difficult to have group discussions while using online medium.	28% (34)	48% (57)	14% (17)	10% (12)	2.94	Accepted
III.	Internet connection is a major challenge to online learning	24% (29)	36% (43)	26% (31)	14% (17)	3.28	Accepted
IV.	Financial issue does matter during online learning	48% (57)	36% (43)	12% (14)	4% (06)	3.28	Accepted
V.	Power supply hinders effective use of online learning platforms	34% (41)	46% (55)	16% (18)	4% (06)	3.10	Accepted
VI.	Meeting up with scheduled time of learning is a big challenge in online learning	32% (39)	30% (36)	22% (26)	16% (19)	2.78	Accepted
Grand Mean: 2.94							

Mean greater than 2.50 'Agreed' otherwise 'Disagreed'

Table 3 shows that 82% of respondents agreed with the statement that there are many distractions surrounding the effective use of e-learning facilities for learning while 18% disagreed with the statement regarding the difficulties faced by students during the online learning of scientific concepts during the COVID-19 pandemic era in public universities in Ekiti State. The table also revealed that, with a mean score of 2.94, 76% of respondents agreed that it is frequently difficult to hold group discussions online, while 24% disagreed. Additionally, the data reveals that 60% of respondents overall felt that having a poor Internet connection was a significant barrier to e-learning, with a mean score of 3.28. However, 40% of respondents said they disagreed with the assertion. The table also reveals that 84% of respondents, with a mean score of 3.28, agreed that financial considerations matters when learning online, while 16% disagreed. Similarly, the table showed that 62% of respondents,

with a mean score of 3.10, agreed that inadequate power supplies make it difficult to use online learning platforms effectively, while 38% disagreed. A mean score of 2.58 suggests that online learning makes it difficult to keep to the allotted learning time.

Items 1 through 6 were allowed with a grand mean of 2.94 since they all had means higher than 2.50, the threshold figure. This results in the statements being accepted.

Test of Hypotheses

Hypothesis 1: There was no significant difference in the perception of undergraduate students regarding online learning during COVID-19 pandemic in public universities in Ekiti State.

Table 4: Paired t-test statistics of students' responses

Variable	**N**	**Mean**	**SD**	**Df**	**$t_{cal.}$**	**$t_{cal.}$**	**Decision**
Male	56	1.67	0.82	38	0.43	1.96	Significant
Female	64	1.53	0.71				

P < 0.05

The outcome in Table 4 demonstrated the relationship between how male and female students perceived the utilization of an online learning environment during the COVID-19 pandemic in the public universities in Ekiti State. The t-calculated (0.43) was smaller than the critical t-value (1.96) at the 0.05 level of significance, indicating a significant positive connection between male and female perceptions of level and perceived causes of reading anxiety. As a result, the null hypothesis was rejected. This indicates that there is a considerable gap in how male and female undergraduates in the public universities in Ekiti State perceive online learning during the COVID-19 epidemic.

Hypothesis 2: There was no significant difference in the use of online learning and learning outcomes among science students in the public Universities in Ekiti State

Table 5: ANOVA table for correlation between the use of online learning and Students' Academic outcomes

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	31.932	2	10.644	21.751	.000
Within Groups	46.978	120	.489		
Total	78.910	118			

P < 0.05 (Significant)

Table 5 demonstrated the considerable impact of online learning on students' academic performance in science concepts at public universities in Ekiti State. The high F-value (21.751), df = (1, 118), and P< 0.05 at the 0.05 level of significance in the table further demonstrated a positive and significant effect. As a result, null hypothesis 1 was rejected. This implies that there is a considerable link between scientific students' use of online learning and their academic success at public universities in Ekiti State.

Discussion of Findings

Online learning is a good platform for teaching and learning, according to research on undergraduates' opinions and impressions of it during the COVID-19 epidemic in public universities in Ekiti state. Online learning is therefore enjoyable than conventional face-to-face learning. Students can study and practice their lessons more if they have 24 hours access

to the resources. Additionally, because online courses are available, students are better equipped to learn independently and retain more of the material. The conclusion reached was that online education should continue in the post-Covid-19 era. This suggests that during the COVID-19 pandemic, teachers and students have a favorable opinion of online learning scientific topics. In support of this, Hamdallat and Adesegun (2022) showed that using online learning is appropriate during the Covid-19 epidemic. Prior to the epidemic, the majority of students were accustomed to online education. As a result, it is informed that the students could use the online platform well. Due to the COVID-19 epidemic, online learning has suddenly become extremely important. In order to improve teaching and learning during the pandemic, great consideration must be given to ensuring that the variety of already available resources is optimized (Muthuprasad, et al., 2021).

According to study findings on the impact of online learning during the COVID-19 pandemic on students at the universities under investigation, participants in online classes always participate in discussion forums and send text messages to their instructors whenever they have trouble understanding the material they're studying in class. Since materials are easily accessible in slide and video formats, students can access online lessons from both personal computers and mobile devices. Students can much more easily understand the concepts they have studied thanks to this technique. Students gain new experience using novel methods to study scientific concepts as a result. Teachers do convey scientific ideas using effective examples with e-facilities. This is supported by Naeem, et al. (2023) finding, which shows that using e-learning tools increases students' enthusiasm to learn. Additionally, e-learning has a favorable impact on students' performance, learning motivation, and learning outcomes. Furthermore, Adnan and Anwar (2020) confirmed that putting E-learning into practice increases students' motivation. Students are more likely to participate in the e-learning process when they are motivated. They can better accomplish their learning goals as a result.

According to study findings on the difficulties of online learning during the COVID-19 epidemic on scientific students in particular universities, there are a lot of distractions close to e-learning facilities, making it difficult to have group discussions. Financial concerns are certainly significant when learning online, and power supply also makes it difficult to use online learning platforms effectively. Internet connectivity is another major barrier to e-learning. This result is consistent with that of Olalekan, et al. (2021), who discovered that a lack of reliable electricity and slow internet access were the main obstacles to using e-resources. This finding supports those of Arua and Chinaka (2021), who found that among the difficulties facing school libraries, their services, and their programs were a lack of adequate orientation to the library, a lack of adequate relevant materials, a staffing shortage, a lack of facilities, a lack of funding, and a lack of support from Library Associations. According to Ogunmode (2021), some of the obstacles to the effective use of e-resources include a lack of resources and facilities, a lack of trained staff, inadequate funding, a lack of support from library associations like the Nigerian Library Association (NLA), a lack of current and up-to-date information materials, the exclusion of library use from the school curriculum, and a poor attitude on the part of school administration.

Conclusion

The COVID-19 pandemic lockdown period was typically a time when all human activity was suspended. This does not exempt Nigeria's educational system. For the first time, many educational institutions chose e-learning to mitigate the impact of COVID-19 on education. Therefore, the purpose of this study is to evaluate online education at public universities in Ekiti state during the lockdown in order to determine its success or failure. Two hypotheses

and three research questions were put forth. The results showed that because online learning is more pleasurable than traditional face-to-face learning, it is a good platform for teaching and learning scientific concepts. Additionally, online education has a beneficial effect on students' academic performance in terms of learning engagement, learning achievement, and motivation. Students also showed the relevance of online learning during pandemics. Furthermore, the advantages of doing online learning include flexibility, accessibility, autonomy in the learning process, and raising student accomplishment. Online learning is hampered, nevertheless, by budgetary problems and slow internet. Therefore, based to this study, educational stakeholders should improve the availability of E-learning facilities in schools at all levels of education in order to maintain the gains made during the lockdown after COVID-19.

Recommendations

Based on the findings, the researchers make the following recommendations:

i. Online facilities should be provided for all the public institutions in Ekiti state.
ii. Fast Internet facilities should be deployed to all public institutions in the state. In the same vein, electricity power supply should be provided, while alternative power (eg standby generators and solar inverter) should be provided.
iii. In-service training on the usage of online learning platforms should be organized for teachers in the state.
iv. Institutional email accounts should be provided for all the students in the state. Teachers should ensure that such accounts are made functional by making sure that assignments are sent to and received via the mail.
v. Teachers at all levels of education should be encouraged to participate in both long-term and short-term in-service training in order to stay current with new teaching strategies and improve the quality of their instruction and student learning in classrooms.
vi. vi. The government and school administrators should provide schools with electronic equipment, including computers and smartphones, as well as teacher training requirements.
vii. Information and Communication Technology (ICT) should be included intt the curriculum of educational levels, and ICT infrastructure should be accessible and reliable.

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