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Perceptions of Undergraduate Students in Private Universities towards Online Learning during the Covid-19 Pandemic

Perceptions des Étudiants de Premier cycle dans les Universités Privées à L'égard de L'apprentissage en ligne pendant la Pandémie de Covid-19

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Abstract

The COVID-19 pandemic disrupted the traditional mode of learning across the world, forcing educational institutions to adopt online learning methods to mitigate the effects of the virus. This study aimed to investigate the perceptions of undergraduate students in private universities towards online learning during the COVID-19 pandemic. It also sought to identify the benefits and challenges that students faced in migrating to online learning, and their overall satisfaction with the online learning experience during the pandemic. The study employed a survey design.. A questionnaire was peer-reviewed, and Cronbach's Alpha was used to assess the internal consistency, with a reliability coefficient of 0.492, indicating a moderate value. The data collected covered four private universities in the south-western part of Nigeria. A random selection of 50 respondents from each of the four institutions was selected, giving a total of 200 respondents. The administration and retrieval of the questionnaire were done online via Microsoft Forms. Data collected were analysed using frequency counts, percentages and t-test. Findings showed that the perception of students towards online learning is generally positive; the prevalent platforms used during the pandemic by the instructors were video conferencing tools. The students, however, used social media more; the perceived benefits are that they could learn at one's pace, they could learn anywhere and at any time, flexibility, etc., and the most perceived constraint are high cost of data

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subscription, unstable internet, and unstable power supply. There is significant relationship between perceived benefits and constraints of e-learning and students' perception about e-learning during the COVID-19.

Keywords: Online learning; Students' perception; COVID-19

Resumé

La pandémie de COVID-19 a perturbé le mode d'apprentissage traditionnel dans le monde entier, obligeant les établissements d'enseignement à adopter des méthodes d'apprentissage en ligne pour atténuer la propagation du virus. Cette étude visait à étudier les perceptions des étudiants de premier cycle des universités privées à l'égard de l'apprentissage en ligne pendant la pandémie de COVID-19. Il a également cherché à identifier les avantages et les défis auxquels les étudiants ont été confrontés lors de la migration vers l'apprentissage en ligne, ainsi que leur satisfaction globale à l'égard de l'expérience d'apprentissage en ligne pendant la pandémie. L'étude a utilisé un modèle d'enquête. Un questionnaire a été examiné par des pairs et l'alpha de Cronbach a été utilisé pour évaluer la cohérence interne avec un coefficient de fiabilité de 0,492 indiquant une valeur modérée. Les données recueillies portaient sur quatre universités privées du sud-ouest du Nigéria. Une sélection aléatoire de 50 répondants de chacune des quatre institutions sélectionnées a donné un total de 200 répondants. L'administration et la récupération du questionnaire ont été effectuées en ligne via le formulaire Microsoft. Les données recueillies ont été analysées à l'aide de comptages de fréquences, de pourcentages et d'un test t. Les résultats ont montré que la perception des étudiants à l'égard de l'apprentissage en ligne est généralement positive ; Les plateformes les plus utilisées pendant la pandémie par les instructeurs étaient des outils de vidéoconférence, mais les étudiants ont davantage utilisé les médias sociaux ; Les avantages perçus sont qu'ils pourraient apprendre à son rythme, qu'ils pourraient apprendre n'importe où et n'importe quand, la flexibilité, etc., et les contraintes les plus perçues sont le coût élevé de l'abonnement aux données, l'instabilité de l'Internet, l'instabilité de l'approvisionnement en électricité ; il existe une relation significative entre les avantages et les contraintes perçus de l'apprentissage en ligne et la perception des étudiants à l'égard de l'apprentissage en ligne pendant la COVID-19.

Mots-clés: Apprentissage en ligne ; Perception des étudiants ; COVID-19

Introduction

In the later part of the year 2019, the world was greeted by a deadly viral outbreak called coronavirus disease 2019 (COVID-19), previously referred to as 2019-novel coronavirus (2019-nCoV). COVID-19 was first reported from Wuhan, the capital and major business city of Hubei province, China (Wuhan city, 2020). Within a very short time, the disease had spread across China, and cases were reported with an exponential increase in morbidity and mortality rates. The disease evolved and continued to be a very serious emergency globally. Considering the spread of the disease, on March 11 2020, the World Health Organisation (WHO) declared COVID-19 a pandemic, having met the epidemiological criteria of having infected over 100,000 people in at least 100 countries (Cucinotta, Vanella, 2020). Nigeria's first index case arrived on February 28, 2020. He was an Italian who visited the country. Nigeria tried to curb the spread of the disease, but the cases continued to increase every day. The actual number of people infected remained unknown, because people who claimed to be healthy did not go for the test except when they were travelling. (Ohia, Bakarey and Ahmad, 2020).

The landscape of education, worldwide, was no longer the same because of the pandemic, as most higher institutions battled with the challenges that the virus brought (Tadesse and Muluye, 2020). As part of the measures to curtail further spread of the virus, the Nigerian government had locked down every form of gathering, including schools, indefinitely (Ogunode, 2020a; Jegede, 2020; Ogunode, Abigeal & Lydia, 2020). Migration to online learning was, therefore, a necessity and not a choice, particularly by undergraduate students in the private universities, whose perceptions and attitudes offer a unique perspective through which online learning in Nigeria could be viewed. At the time of the virus, undergraduates in public universities were on strike, and the gates of their institutions were locked, but the management of private universities could not afford a total closure, as this would mean that the duration of studentship in these schools would be elongated.

The abrupt migration to online learning brought several challenges to students, ranging from familiarising themselves with the online platforms that replaced the traditional face-to-face interactions. This perception could vary from one individual to another; the variations could be a result of many factors such as digital literacy skills, constant power supply, access to reliable internet connectivity, institution's digital infrastructural support, lack of interaction between students and instructors, isolation brought about by the physical distance from other learners and instructors, among others. Beyond the challenges posed by the sudden shift to online learning are the benefits that online education brought: students could engage more with their course materials in a new and innovative way, learning was more self-motivated and self-directed; the flexibility (in time and space) and autonomy that online learning afforded, learning was more learner-centred/focused; learning could be done at one's pace; independent learning could be promoted, among others (Holmes and Gardner, 2006 as cited in Muhammad, Asma and Munnaza, 2015). Based on the experiences of individual students, it is important to note that their perception of online learning during COVID-19 was not necessarily determined by the pedagogical effectiveness, but also by their socio-economic realities and their perceived benefits and perceived constraints/challenges of online learning during the pandemic.(Kennedy, Mejía-Rodríguez, Strello, 2022).

Statement of the Problem

The COVID-19 pandemic has affected the education sector across the world, including Nigeria. The enormity of this impact had prevented students from continuing their learning, and the academic calendar stalled. Students in public universities had peculiar challenges: first, the university gates were shut, as lecturers had embarked on a nationwide strike in early March, 2020; second, as part of measures to curtail the spread of the COVID-19 in Nigeria, the government had locked down indefinitely every form of physical gathering, including in schools: primary, secondary, and tertiary (Ogunode, 2020a; Jegede. 2020; Ogunode, Abigeal & Lydia, 2020). Private universities could not afford to close down their schools, as this would restrain students from continuing their studies, and prolong the duration of

completion of their programmes. In responding to this challenge, online learning presented itself readily as a pertinent solution. The institutional readiness for e-learning during the pandemic era is one thing, the students' readiness, perception, and attitude to online learning is another. Going by the assumption that private university students are from comfortable homes, it is expected that they would have their Personal Computers (PCs), regular access to the internet, among other digital literacy tools. Eze, Eze and Bello (2018) had posited that students in private universities in Nigeria are doing better than their public counterparts in terms of ICT infrastructure and power supply.

As stated earlier, the pandemic forced many educational institutions, including private institutions, to adapt to online learning quickly. This posed significant challenges for both educators and students, as they had to adjust to a new mode of learning and teaching. Online learning has its advantages. It allowed students to continue their education from the safety of their homes and provided more flexibility in terms of scheduling and pacing. It also provided an opportunity for educators to explore new teaching methods and tools that they may not have considered otherwise (Zounek and Sudický 2016). There have been concerns about the quality of online learning in Nigeria, especially the lack of face-to-face interaction and issues of infrastructure, inadequate funding, and limited access to technology, including computers, laptops, and high-speed internet, which are crucial for successful online learning. These have been highlighted in the literature as part of the barriers to effective online learning.

Despite the advantages and disadvantages of e-learning, many Nigerian undergraduates in private universities have embraced online learning as a viable option for continuing their education, especially since it has been implemented in most Nigerian public universities. It, however, remains unclear how undergraduate students in private universities fared with online learning during the pandemic. It is equally important to assess the benefits, challenges, and common platforms of e-learning used by undergraduates during the pandemic, which is believed to influence the perception of the learners. Thus, this study aimed to investigate the perception of undergraduate

students in private universities towards online learning during the COVID-19 pandemic; examine the prevalent e-learning platforms used during the pandemic; identify perceived benefits and challenges that students faced in migrating to online learning; and their overall satisfaction with the online learning experience during the pandemic.

Research Questions

1. What is the perception of undergraduates of e-learning during the COVID-19 pandemic?
2. What e-learning platforms were prevalently used during the COVID-19 pandemic?
3. What were the perceived benefits of e-learning in the study area during the COVID-19 pandemic?
4. To what extent are the perceived challenges of e-learning in the study area during the COVID-19 pandemic?

Hypotheses of the Study

Ho1: Perceived benefits of e-learning and students' perception of e-learning during the COVID-19 epidemic in the research area do not significantly correlate.

Ho2: There is no significant relationship between perceived constraints to e-learning and students' perception about e-learning during the COVID-19 pandemic in the study area.

Literature Review

E-learning encompasses digitally empowered learning, utilising various hardware (e.g., PCs, tablets, projectors), software (operating systems, applications), and other tools (USB drives, CD-ROMs) in both remote and face-to-face settings. The European Union defines e-learning as the use of multimedia technologies and the internet to enhance learning quality, providing access to resources, and facilitating collaboration (European Commission, 2001). E-learning tools come in diverse platforms and shapes, including the internet, audio and videotape, virtual classrooms, and satellite broadcasts. The flexibility of e-learning has contributed to its widespread popularity

across various fields. Recognised globally as essential for educational reform, technological advances aim to prepare graduates for the 21st century, emphasising practical application and knowledge creation rather than mere memorisation (McClain and Brown, 2013; Vernadakis, 2012).

E-learning gives rise to an exodus in higher institutions of learning from the traditional form of learning to the ICT-based form of learning (Aboderin, 2015; Olojo et al., 2012). E-learning is a learning process that utilises innovation and other platforms such as wikis, blogs, podcasts, the internet and web offices(www), among others, to improve teaching and research. It has also contributed significantly to the empowerment of students and teachers to produce, manage and share learning content in a more regulated structure (Chiaha et al. 2013). Over the years, the traditional form of learning is perceived to be teacher-focused, that is, the teachers control the pace of the learning process; however, e-learning is perceived to be learner-focused.

Studies such as Aboderin (2015) and Olojo et al. (2012) are of the opinion that using ICT for learning is an approach that is crucial and persuasive, and should be integrated into the existing educational practices of institutions for students' education and community-focused learning. Also, students' learning and mentoring are done via digitally conveyed content, system-based management and coaching assistance. Using e-learning to execute educational content and modules in Nigeria makes for instructor-student dynamism in instruction and learning of the subjects. Kajetanowtez and Wierzejewski (2010) consider e-learning as an effective approach that promotes independent learning through ongoing testing and developmental assessments, encouraging authentic evaluation of educational progress. Learners create an environment that encourages curiosity, energises creative abilities, generates interests, widens perspectives, and transforms attitudes; these are all aimed at establishing the foundation for education (Garrison and Anderson, 2003).

According to Eze, Eze and Bello (2018), there is a connection between the educational programmes and Information Communication Technology (ICT). They noted that technology can influence learning in three main ways: first, through the presentation, exhibition, and execution of information using productivity tools; second, through the use of curriculum and specialised applications like educational games, drills, simulations, tutorials, virtual lab observations, illustrations of abstract concepts, musical compositions, and expert systems; and third; through accessing information and resources on CD-ROMs, online encyclopaedias, interactive maps and atlases, electronic journals and other references.

Scholars have been urging that e-learning be adopted to revolutionise traditional approaches and methods in handling curriculum implementation. E-learning is propelled by curriculum delivery using computers and the Internet. Some universities in Nigeria now use e-learning facilities, but the ratio of students to the available facilities is not favourable, as the number of students is more than the available facilities. Furthermore, many schools have inadequate intranet facilities due to the high costs of acquisition and maintenance, compounded by the challenge of unreliable power supply. Consequently, a significant percentage of students resort to public internet cafes (Eze, Eze and Bello, 2018). Salawudeen (2006) noted that while many universities in Nigeria are establishing ICT/e-learning centres, these centres are often configured as web offices, overlooking key facilities essential for comprehensive e-learning environments. Critics are scrutinising e-learning centres in Nigerian universities, pointing out numerous barriers. One notable challenge is the instructors' perceived incapacity to help students develop the skills and knowledge required for effective utilisation of e-learning facilities. Additionally, learners encounter various challenges, including the absence of teaching methods in their educational programmes, a lack of user engagement in their e-learning platforms, and a deficiency in vision and structure when it comes to implementing e-learning (Kizito and Bijan, 2006; Oguzor, 2011).

Anene, Iman & Odumah (2014), in their exploration of the challenges and potential benefits of e-learning in Nigerian universities,

discovered that the institutions lack sufficient e-learning library domains, online seminars or discussions with lecturers, online examination capabilities, and face limitations in terms of bandwidth. The study implied a connection between these issues and the recurring strikes by the Academic Staff Union of Nigerian Universities (ASUU), often aimed at pressuring the government to address these shortcomings. Also, in a study conducted by Chiaha, Eze &Uzendu (2013), the focus was on determining the types of e-learning facilities available to students, the percentage and frequency of student access to these facilities, and the factors impeding their access. The findings indicated that approximately 42.9% of students had access to e-learning facilities, with a majority limited to email accounts. Hindrances to accessing these facilities included irregular electric power supply, poor network connections, and other related factors. Atsumbe (2012), in their study, examined the presence and utilisation of e-learning infrastructures within a Nigerian university. The findings indicated a shortage of facilities specifically dedicated to teaching and learning, with the available e-learning infrastructure primarily geared towards administrative purposes. Furthermore, the study highlighted that despite lecturers and students access to computers or laptops with internet facilities, these resources were not effectively utilised for teaching and learning purposes.

Aboderin and Kumuyi (2013) explored the challenges and potential benefits of incorporating e-learning into curriculum development and execution within secondary schools in Ondo State, Nigeria. Their focus was on assessing the availability of e-learning resources for curriculum implementation, the degree to which teachers utilised these tools, and the overall strategies and prospects of e-learning in secondary education. The study revealed a shortage of e-learning tools, and the ones in use were not utilised to their full potential. The authors concluded by recommending that the government and relevant agencies should initiate in-service training and ongoing education (through seminars, symposia, workshops, and conferences) to enhance educators' proficiency in utilising e-learning tools. Moreover, Aboderin (2015) delved into the obstacles and potential advantages of e-learning within the context of the National Open University of Nigeria. The research identified key challenges, such as

a shortage of computers, limited access to internet facilities, students' restricted availability of e-learning tools, the high expenses associated with software, and inconsistent power supply.

On the flip side, Eze, Eze, and Bello (2018) argued that private universities in Nigeria outperform their public counterparts. The suggestion here is that these private institutions are more inclined towards Information and Communication Technology (ICT). Nevertheless, it is important to acknowledge that private universities, being self-funded and relatively few as they are usually owned by a few persons, may have a higher operational flexibility. This flexibility allows them to swiftly make decisions and implement projects compared to their public university counterparts. The self-financing and sole proprietorship attributes provide a rationale for expecting private universities to outperform public ones in harnessing the significant socio-economic benefits of e-learning. Ideally, universities in Nigeria and other developing nations should lead in embracing e-learning, especially given their common struggle with inadequate funding. Despite this, public universities are making modest progress; but what is the case with the private universities as it concerns e-learning during COVID-19? Overall, the adoption of e-learning in Nigerian universities remains at a relatively low level.

Theoretical Framework

Connectivist Theory

Siemens (2004) suggests that connectivist theory is well-suited for the contemporary digital age, where individuals participate in learning and work within interconnected environments. Connectivists emphasise the transformative influence of technology on the learning process, asserting that individuals no longer have complete control over what they learn. This is due to the ongoing changes to information within the network by others, requiring a continual process of acquiring new knowledge, unlearning outdated information, and assimilating current insights.

Due to the proliferation of information, it is crucial to permit learners to explore and investigate up-to-date information. Future learners should develop autonomy and independence to effectively acquire current information, thereby constructing a knowledge base that is both valid and accurate. Effectively utilising the Internet is a valuable learning strategy in today's interconnected world. Given the constant changes and innovations in various fields, some information and procedures become outdated. Therefore, learners should possess the ability to unlearn obsolete information and mental models while acquiring current information and mental models. The essence of learning and knowledge lies in the diversity of opinions. Consequently, learners should have the opportunity to connect with individuals globally, allowing them to explore others' perspectives and share their own thoughts with the world. Mobile learning holds the potential to enable learners to thrive in a networked world, offering the flexibility to learn at any time and from any location (Ally, 2005). In comparison to traditional teaching methods, e-learning provides students with access to a broader range of materials. Additionally, it facilitates connections with students from various global locations, fostering interactive learning experiences. Given the constant influx of discoveries, connectivity in learning becomes essential to keep both students and lecturers linked to updated documents. The digital network age has overcome one of the challenges of e-learning, which is the absence of direct interaction. Thanks to video conferencing tools such as Google Meet and Zoom, there is now the opportunity for real-time interaction with lecturers during lectures. This allows students to ask questions and receive answers, thus enhancing the overall learning experience. This theory suggests that students would use the affordances of the internet, specifically the interactive platforms, to interact and learn from their peers both locally and globally during the pandemic.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theory that outlines the process of how users embrace and integrate technology into their lives. According to this model, the adoption of a technology is shaped by the users' intention to use it, and this intention is, in turn,

influenced by their attitudes towards the technology. When confronted with a new technology, users' choices regarding its utilisation are influenced by various factors. Four key predictors of actual use of technology are suggested: Perceived Usefulness; Perceived Ease of Use; Attitude towards using Technology, and Intention to use. Specifically, TAM attempts to explain users' acceptance of technology based on two specific behavioural beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). Research employing the Technology Acceptance Model (TAM) has suggested that an individual's prior experience with a particular technology significantly shapes their perceptions of the technology's ease of use and usefulness. Perceived ease of use refers to the extent to which an individual believes that acquiring the skills to use a technology will demand minimal effort. Perceived usefulness in the context of technology adoption is the degree to which a learner believes that using the technology will enhance their overall performance or effectiveness. It reflects the individual's perception of the tangible benefits and advantages that the technology brings to their learning or work (Efferson, Lalive, Richerson, Mcelreath, & Lubell, 2006). The behavioural beliefs, encompassing perceptions of ease of use and perceived usefulness, play a crucial role in shaping an individual's overall attitude toward using technology. Essentially, positive behavioural beliefs contribute to a favourable attitude, while negative beliefs may lead to reluctance or resistance in adopting the technology. Since students in private universities were suddenly migrated to online learning during the pandemic, their acceptance or rejection, and overall attitude to the technologies used would be determined by their perceived benefits or constraints of the technologies.

Methodology

This study employed a quantitative research approach survey, to collect the data used in the study. A 23-item questionnaire, which was randomly distributed in electronic format - Microsoft form through their various social networking platforms - was used to collect data from the undergraduate students studying in four private universities in the Southwestern part of Nigeria, namely Anchor University,

Babcock University, Joseph Ayo Babalola University, and Elizade University. The respondents used in the study were undergraduate students of the selected universities who migrated to online learning during the COVID-19 pandemic. A random selection of 50 respondents from each of the institutions was selected. This gave a total of 200 respondents for the study, but only one hundred and sixty-two questionnaires (162) were completed and submitted. The questionnaire comprised two sections: while section A collected the demographic information of the respondents, section B gauged the perception of the students towards online learning during the pandemic. The study employed a combination of descriptive and inferential statistical analyses to examine the data collected from the survey. Descriptive statistics were utilised to summarise and present key characteristics of the respondents and their experiences with e-learning. This included the presentation of frequencies and percentages for the socio-demographic variables, access to online e-learning facilities, and preferences related to online learning. Pearson's Product-Moment correlation was employed to investigate the relationship between variables. The correlation analysis was aimed at exploring associations between the time spent on online learning and their perception of online learning. The t-tests involved comparing mean differences against a test value of 0. The significance level was set at 0.05.

Cronbach's Alpha Formula = $\alpha = \frac{N}{N-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_{total}^2}\right)$.

Where:

$N\ is\ the\ number\ of\ items$

$\sigma_i^2\ is\ the\ variance\ of\ each\ items$

$\sigma_{total}^2\ is\ the\ total\ variance\ of\ all\ items\ combined$

The Cronbach's Alpha coefficient calculated for the hypothetical data is approximately 0.492. This suggests a moderate level of internal consistency for the questionnaire items.

Presentation, Analysis of Data and Discussion of Findings

Table 1: ***Respondents' Socio-demographic Variables***

Variable	Category	Frequency	Percentage (%)
Age	14 – 19	102	63
	20 – 25	50	31
	36 – 30	6	4
	31 – 35	4	2
	35 and above	0	0
Sex	Male	81	50.3
	Female	80	49.7
Name of Institution	Landmark University	0	0
	Joseph Ayo Babalola University	71	44.1
	Anchor University	7	4.3
	Babcock University	69	42.9
	Elizade University	14	8.7
Type of Secondary School	Public	28	17.3
	Private	134	82.7
Source of Income	Salary	6	3.7
	Business	13	8.0
	Monthly Allowance from Sponsor	127	78.4
	Self-Sponsor	4	2.5
	Others	12	7.4

Table 1 outlines the socio-demographic profile of the 162 respondents. Notably, the majority (63%) are aged between 14 to 19 years, with a significant portion (31%) falling within the age range of 20 to 25. The gender distribution is almost equal, comprising 50.3% male and 49.7% female respondents. Among the private universities represented, Joseph Ayo Babalola University has the highest participation (44.1%), followed by Babcock University (42.9%). The respondents predominantly attended private secondary schools (82.7%), which might have influenced their choice of private universities. The primary source of income for most respondents

(78.4%) is monthly allowances from sponsors, with other sources including salary, business, self-sponsorship, and miscellaneous categories. This financial dependence on sponsors may be attributed to a substantial number falling within the dependency age bracket.

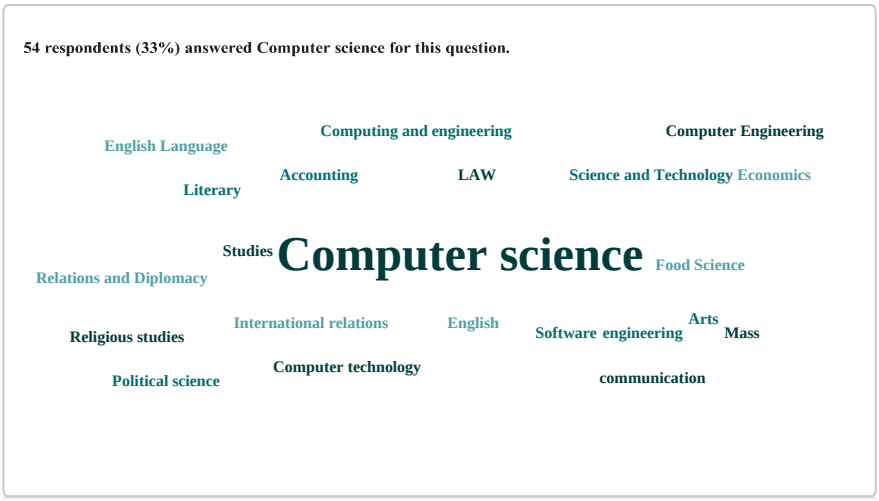

Figure 1**: **Distribution of Respondents' Courses of Study

Figure 1 presents respondents' disciplines, revealing that 33% (54 participants) studied Computer Science. This graphical illustration highlights a concentration in Computer Science, even though the questionnaire was randomly distributed across disciplines. The interpretation emphasises the coincidental prevalence of Computer Science students and suggests a potential correlation between their field of study and ICT skills.

Table 2: Respondents' Digital Learning Tools Access and Usage

Variable	**Category**	**Frequency**	**Percentage (%)**
Do you own a computer?	Yes	132	81.5
	No	30	18.5
Do you know how to operate a computer?	Yes	151	93.2
	No	1	0.6
	Maybe	10	6.2

Do you have a smartphone?	Yes	162	100
	No	0	0
If you do not own a computer, do you have access to one?	Yes	144	88.9
	No	18	11.1
How frequently do you use the computer?	Daily	96	59.3
	3 – 4 times a week	27	16.6
	Twice a week	12	7.4
	Once a week	14	8.6
	Not at all	13	8.2
Do you use the internet?	Yes	160	98.8
	No	0	0
	Maybe	2	1.2
If you use the internet, how regularly during COVID-19?	Once daily	11	6.8
	Three times daily	28	17.3
	Once every three hours	9	5.5
	Once every hour	11	6.8
	Once every 30 minutes	15	9.3
	Whenever there is a notification	88	54.3

Table 2 highlights respondents' ownership and usage patterns of digital learning tools. Of the 162 participants, 81.5% own Personal Computers (PCs), while 18.5% do not. Computer literacy is prevalent, with 93.2% having the skills, including 6.8% among non-owners of digital devices. All respondents (100%) own smartphones. Notably, 59.3% use the computer daily and engage in activities such as programming, research, video watching and using Microsoft Word. Regarding ICT skills, the majority rate themselves as being very good (43) and good (70), which indicates proficiency in digital literacy

skills. All respondents (100%) use the Internet, with 54.3% responding to notifications regularly and 6.9% using it daily. This data affirms that digital literacy skills are not a challenge for most private university undergraduates, which is consistent with the existing literature that private university students fare well with digital facilities more than their counterparts in public universities.

Research Question One:

Table 3: Perception of undergraduates towards e-learning during the COVID-19 pandemic

		Average Time Spent on Online Learning	Perception
Average Time Spent on Online Learning	Pearson Correlation	1	.835**
	Sig. (2-tailed)		.000
	N	162	162
Perception	Pearson Correlation	.835**	1
	Sig. (2-tailed)	.000	
	N	162	162
** Correlation is significant at the 0.01 level (2-tailed)			

Table 3 displays a robust and statistically significant positive correlation ($r = 0.835$, $p < 0.01$) between the average time spent on learning online and students' perception. The strong correlation ($r = 0.835$) indicates that an increase in the time invested in online learning corresponds to a more positive perception among students. The p-value of 0.000, below the 0.01 significance level, confirms the statistical significance, suggesting that this relationship is not due to chance. In essence, dedicating more time to online learning is associated with a more favourable perception of the experience, emphasising the significance of time investment in shaping students' views, considering the time investment aspect when assessing students' attitudes and opinions toward online learning.

Research Question Two:

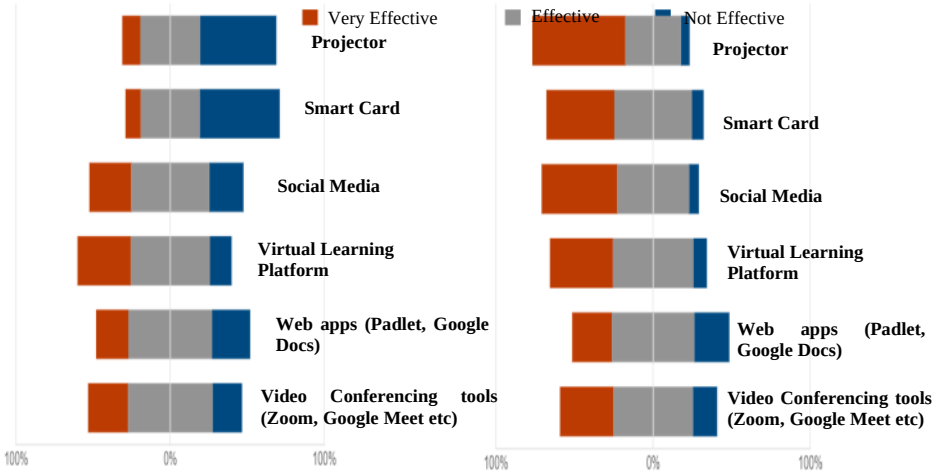

Figure 2: Technologies Teachers and Students used during COVID-19

Learning Platforms, Web Apps, and Video Conferencing Tools. The high perceived effectiveness of social media indicates its prevalence as a communication and collaboration channel. Virtual Learning Platforms, Web Apps, and Video Conferencing Tools played central roles in delivering content and facilitating engagement. This diversity underscores the varied use of e-learning tools during the pandemic, emphasising the importance of real-time interaction and synchronous communication. Ally's (2005) supports the idea that mobile learning, particularly smartphones, contributes to learning anytime and anywhere. The effectiveness of smartphones as personal tools aligns with the concept of leveraging mobile devices for educational content access in a networked environment.

Research Question Three

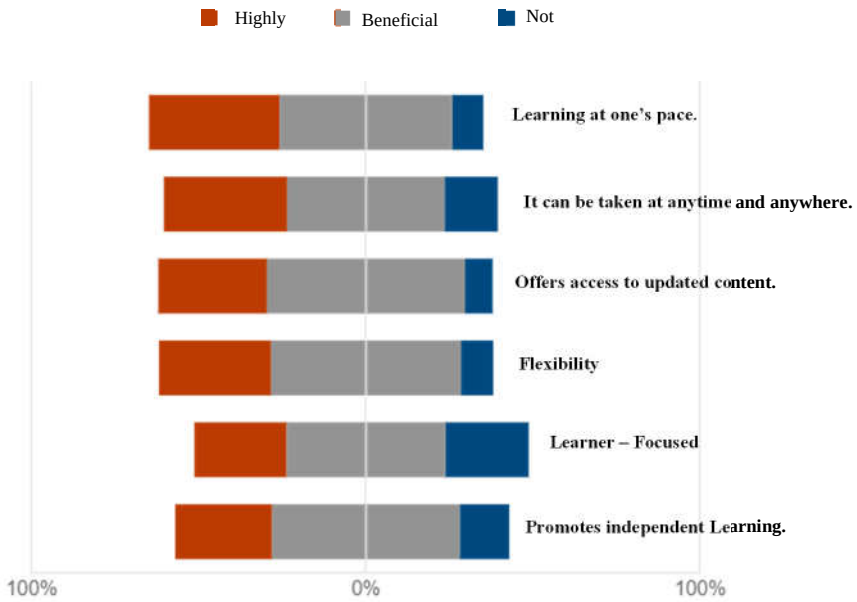

Figure 3: Perceived benefits of e-learning in the study area during the Covid-19 pandemic

Figure 3 presents respondents' perceptions of e-learning benefits, with all listed advantages, such as flexibility, self-paced learning, time/location flexibility, access to updated content, a learner-focused approach, and independence promotion, deemed beneficial. According to participants, e-learning during the COVID-19 pandemic in the study area aligns with widely recognised advantages of online education. Learners value flexibility and independence, enabling them to learn at their own pace and access updated content anytime, anywhere. These findings contribute to understanding the positive aspects of e-learning in the study area during the challenging circumstances of the COVID-19 pandemic.

Research Question Four: Perceived challenges faced in e-learning in the study area

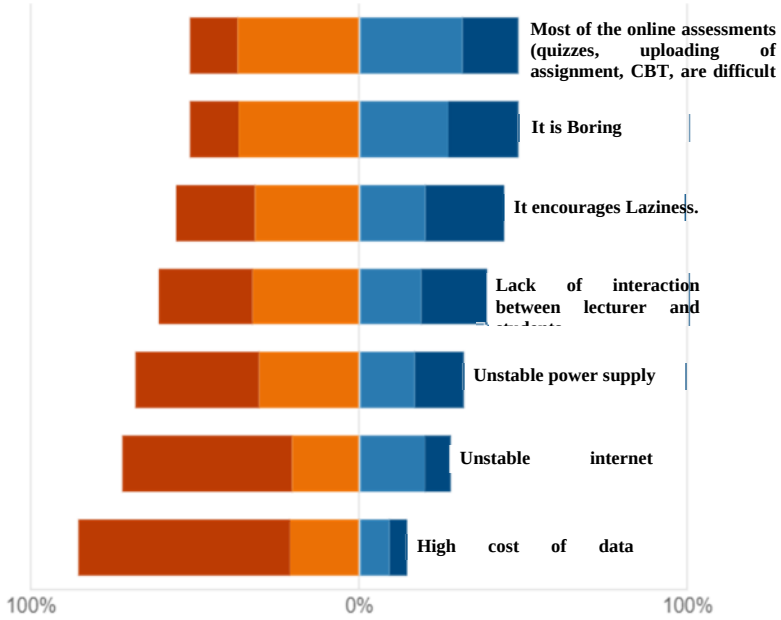

Figure 4: Perceived constraints and how severe they are to respondents

Figure 4 illustrates respondents' perceptions of e-learning constraints, revealing that all identified issues are considered severe, with unstable power supply, unstable Internet connection, and high data subscription costs reported as the most severe. These findings emphasise the challenges faced by students in the study area during the COVID-19 pandemic with e-learning. The persistence of issues like unstable power and Internet, coupled with expensive data subscription, underscores ongoing obstacles to effective online learning. In the context of the study's research questions, this information contributes to understanding significant challenges in the e-learning environment, pinpointing areas for improvement and potential solutions to enhance overall online learning experiences.

Hypothesis Testing

Null Hypothesis One: Perceived benefits of e-learning and students' perception of e-learning during the COVID-19 epidemic in the research area do not significantly correlate.

Table 4: Correlation Between Perceived Benefits and Perception of E-Learning

		Perceived Benefits	Perception
Perceived benefits	Pearson Correlation	1	.627**
	Sig. (2-tailed)		.000
	N	162	162
Perception	Pearson Correlation	.627**	1
	Sig. (2-tailed)	.000	
	N	162	162
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 4 displays a significant positive correlation (Pearson coefficient = 0.627, p = 0.000) between perceived benefits and overall perception of e-learning. The coefficient of 0.627 indicates a substantial positive association, suggesting that as the perceived benefits increase, overall perception of e-learning also tends to improve. In practical terms, students recognising more advantages in e-learning are likely to have a more positive overall perception. These findings support hypothesis Ho1, emphasising the importance of promoting perceived benefits to enhance students' satisfaction and acceptance of online education.

Hypothesis Two: There is no significant relationship between perceived constraints to e-learning and students' perception of e-learning during the COVID-19 pandemic in the study area.

Table 5: Significance Between Perceived Benefits and Perception of E-Learning
One-Sample Test

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H_{o2}	26.362	161	.000	68.0002	76.0234	88.7783

The calculated t-value of 26.362 at a 5% significance level is greater than the critical t-table value of 1.69, leading to the rejection of the null hypothesis (Ho2). The small p-value (less than 0.001) confirms a significant relationship between perceived benefits and perception of e-learning during the COVID-19 pandemic. The positive mean difference (68.0002) and the confidence interval not including zero further support the rejection of the null hypothesis. In essence, the results provide evidence that perceived constraints significantly impact students' perception of e-learning in the study area during the COVID-19 pandemic.

Discussion of Findings

This research focused on understanding the reception that undergraduate students in private universities have towards e-learning occasioned by the COVID-19 pandemic. As such, it provides important information on the benefits, as well as the issues associated with online learning from the student’s point of view.

An overwhelming number of the respondents displayed a positive attitude towards online learning during the pandemic. They enumerated the following advantages: learning at one’s own pace, time and place convenience, updated content, flexibility, among others. These advantages, according to the earlier findings by Ally (2005), suggest that mobile learning may be of great benefit to learners within a networked society because it affords them the option of learning at a time and place of their convenience. This further emphasised that perceived benefits play a key role in forming a positive attitude toward e-learning among participants, as the overall perceived perception of e-learning was positively related to the perceived benefits, as evident in this study.

Perhaps the most relevant result of this study is the relatively high level of digital literacy among the surveyed individuals. All respondents possess computers, laptops, and smartphones, and frequently use the internet. This indicates that, at least in terms of technological and digital literacy, students in private universities are not burdened with substandard facilities, unlike their counterparts in

public institutions. This observation aligns with findings from other studies, which highlight the disparity in digital access between private and public educational institutions (Aboderin &Kumuyi, 2013; Chiaha et al., 2013).

The widespread availability and use of technological devices and various digital platforms significantly enhanced students' learning experiences during the pandemic. According to Anene, Imam, and Odumuh (2014), access to and proficiency in digital tools can mitigate the challenges posed by the sudden shift to online education. Similarly, Eze, Chinedu-Eze, and Bello (2018) emphasise that digital literacy is crucial for the effective utilisation of e-learning facilities, which was evident among the private university students in this study.

However, the study established that there were significant limitations regarding e-learning. Unsurprisingly, the respondents cited the lack of a stable power supply, inconsistent Internet connectivity, and high costs of data as the biggest barriers. These challenges are consistent with recurring concerns in the context of online learning environments. For instance, Anene, Imam, and Odumuh (2014) highlight similar issues, noting that unreliable power supply and Internet connectivity are major obstacles to effective e-learning in Nigeria. Similarly, Ogunode, Abigeal, and Lydia (2020) emphasise that high data costs significantly hinder students' ability to fully participate in online education. These persistent issues underscore the need for infrastructural improvements to support sustainable e-learning environments. Since perceived constraints significantly correlated with the students' perceptions of e-learning, one can consider these challenges as negative for the overall online learning process. Resolving these infrastructural challenges is indispensable towards increasing the efficiency as well as the sustainability of online learning in our clime.

The outcome of the research reveals that though online learning has many advantages, the issue of technological and infrastructural problems should be solved, so as to make the online learning experience great for the students. More importantly, that online learning has come to stay. It emphasises that students in private

universities adopted inventive solutions and were resourceful in the use of new technologies to continue learning during the pandemic. However, some of the challenges, like erratic power supply and Internet connectivity, among others, need the attention of both public and institutional authorities to make online learning more reliable and effective for all.

Conclusion

The subject of this study was to examine the attitudes of undergraduate students in private universities towards e-learning during COVID-19 pandemic. The study indicates that overall, the students had a positive perception toward the online learning mode, as they admitted flexibility, being free to study at their own pace, and other advantages of the mode. Some of the challenges experienced by students were power fluctuations, intermittent Internet connection and expensive data subscription services, yet learners displayed high digital media literacy and possession of essential devices. Results of the statistical analyses revealed strong and positive correlations between perceived benefits, perceived constraints, and overall impression towards e-learning. These factors were critical in determining the e-learning experiences of the students, as evidenced by the rejection of both null hypotheses. This paper underscores the importance of eliminating technical and organisational challenges to support the efficiency of online learning. The knowledge acquired in this work adds to the current discussion of e-learning and acknowledges the possibilities of technology in learning, as well as identifies the fields that should be enhanced to create a stronger and more inclusive learning environment.

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