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Perception and Experience of Online Learning During COVID-19: Inclusivity of Online Instruction for Undergraduate LIS Students

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Abstract

This study examined the inclusivity of online education during the COVID-19 pandemic from the perspectives of LIS undergraduate students across four Nigerian universities. A quantitative method and survey design were employed, targeting undergraduate library and information science (LIS) students. A purposive selection of 20 students from years two, three, and four in the four universities resulted in a sample of 240 students. Data collection was conducted via a questionnaire distributed through Google Forms to students' group forums, with the first 60 respondents from each university forming the sample. Of the 240 distributed questionnaires, 232 were returned and used for analysis. The findings revealed that online education during the pandemic was only partially inclusive: 70% of respondents indicated that many students could not participate in most online classes due to a lack of access to compatible technology, such as smartphones, tablets, and laptops. Platforms for online classes included Microsoft Teams, Google Classroom, Zoom, Moodle, and social media tools like blogs, Telegram, WhatsApp, and email. Course materials were sent via email and social media, but only 30% of students with access received them. The study concluded that online learning was not inclusive, as 70% of students were sidelined due to a lack of access to necessary devices and internet connectivity. For online learning to be inclusive, all students must be provided with compatible devices and data for connection to live classes. The government must also improve network infrastructure in rural areas to enable participation. This study is pioneering in focusing specifically on the inclusivity of online learning for LIS students during the pandemic.

Keywords: COVID-19; inclusivity; library science students; Nigeria; online learning

Publication Type: research article

Introduction

The COVID-19 pandemic, which began in the Chinese city of Wuhan in late 2019 and spread throughout the world, prompted an abrupt change toward online teaching, learning, and evaluation, which was problematic for both teachers and students. The consequences of COVID-19 are also being seen on Nigerian campuses, where a growing number of schools have chosen to move all of their classes online. Teaching remotely presents a variety of challenges for faculty members, including the pedagogical and technological aspects of moving lab or studio learning experiences, class debates, and lectures online. One issue that needs specific attention is unequal access to the learning environment. How can educators ensure that every student has access to the resources they need to succeed in the course when learning environments are changing so quickly?

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Regardless of the mode of instruction, online, face-to-face, or a mix of the two, inclusive pedagogy encourages us to consider ways to help every student succeed. A few examples of inclusive teaching strategies used in conventional classroom settings include developing inclusive learning environments where students feel respected and included, outlining expectations for assignments and deadlines, and making learning and assessment relevant and approachable to all students. Although access and equality may appear very differently in online learning environments and become more difficult when students are no longer enrolled in on-campus courses, these concepts can still be applied when learning moves from traditional classroom settings to online spaces and methodologies (Jungels, 2020).

When schools are closed or remote education is required, not all students have access to cutting-edge software and technology or consistent internet service, whether on or off campus. It is possible that students will not have access to physical devices such as tablets, computers, webcams, printers, or other equipment. They might not be able to run particular apps or software on their devices or have access to specialised software. They might rely on data plans that don't last long enough to complete their schoolwork or run out before they do (Egielewa et al., 2021; Ogolodom et al., 2023; World Bank, 2021). Even while there may be neighbourhood-based options to aid with some of these access problems (like free Wi-Fi at public libraries and coffee shops), these services might not be available at all times for all students in the event of neighbourhood-level closures. COVID-19 has resulted in many issues, including the need to adjust to a system of education centred on physical schooling, school closures, and negative effects on kids' feelings of self-worth and esteem, which are essential for inclusion in education.

The cancellation or postponement of tests and assessments, as well as school closures, has had a negative impact on children's academic development. The closures raise concerns about the critical role that schools play in supporting children's physical and mental health, social development, and safe refuge from threats such as abuse, violence, unintended pregnancies, and criminal activity. Students from low-income or insecure households are more likely to be affected by this isolation from classmates and the supportive environment that schools offer, which exacerbates educational inequality (World Bank, 2021). However, the move to online learning has left many issues unresolved, particularly in Nigeria and Africa. The fourth goal of the Sustainable Development Agenda (SDG) is to guarantee universal access to opportunities for lifelong learning as well as inclusive and equitable education. Alfaro and Parker (2022) posit that “access to all levels of education for the vulnerable, including persons with disabilities, Indigenous peoples, and children in vulnerable situations" (p. 7) is the specific goal of Target 4.5, which aims to reduce the achievement gap.

Like their peers in other areas, LIS undergraduate students received their education virtually during the pandemic. The inclusiveness of online learning in terms of offering fair and inclusive access to learning environments, the different platforms, tools, and devices used, as well as how educators make sure that every student has access to the resources they need to succeed in the course when learning contexts are rapidly changing were all in question and unknown. As a result, the inclusivity of online education during the COVID-19 pandemic was investigated from the perspectives of LIS undergraduate students in Nigerian universities. Schools were closed during the pandemic, and students were receiving lectures from their various locations rural and urban. Unfortunately, students in some rural areas were disadvantaged due to inadequate or lack of connectivity in their area.

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Insufficient digital literacy, limited technological infrastructure, and socioeconomic limitations prevented many LIS students from participating fully in and benefiting from online instruction, even despite the quick shift to online learning that was required in response to global health concerns. This problem emphasises how critical it is to evaluate and improve the inclusivity of online learning environments to guarantee fair access and assistance for all students, especially during COVID-19 emergency scenarios where standard teaching techniques are disrupted. To create effective strategies and policies that support inclusive, accessible, and resilient educational frameworks in the face of future disruptions, these attitudes must be understood.

Objectives of the study

The broad objective of the study was to examine the perception of LIS undergraduates on the inclusivity of online instruction during the COVID-19 pandemic. The specific objectives of the study were to:

1. Determine the inclusivity of learning during the pandemic
2. Examine whether or not there was provision for equitable and inclusive access to learning conditions
3. Identify the teaching and learning platforms and tools used for the online classes during the pandemic
4. Identify the social media used to complement the online teaching platforms and determine the percentage of undergraduates who were able to access the materials.
5. Identify the challenges confronted by LIS lecturers and students in teaching and learning during the COVID-19 pandemic.

Literature Review

The African LIS landscape and online learning during COVID-19

The African Library and Information Science (LIS) landscape is a dynamic and evolving field, characterized by efforts to align education and practice with global standards while addressing local realities. African organizations, such as the African Library and Information Associations and Institutions (AfLIA) and the International Federation of Library Associations and Institutions (IFLA), play essential roles in shaping LIS education across the continent (AfLIA, 2023; Igbinovia, & Okuonghae, 2023). In Nigeria, key professional bodies, including the Nigerian Library Association (NLA) and the Nigeria Association of Library and Information Science Educators (NALISE), contribute to developing a responsive LIS curriculum that addresses national needs and global competencies.

In Nigeria alone, there are over 30 accredited LIS programs at the university level, with several others offered by polytechnics and colleges of education. AfLIA's (2023) statistics indicate that as of the last count, Africa has over 200 LIS programs spread across its countries, with Nigeria and South Africa hosting a substantial portion of them. IFLA's regional reports highlight Nigeria's active engagement in LIS education, emphasizing the need for programs that meet international

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standards while addressing local needs (Abubakar & Maidabino, 2022; Adeagbo & Mabawonku, 2022; Olubiyo & Olubiyo, 2022).

The conceptualization of LIS education in Nigeria largely centers around preparing professionals for service in academic, public, and special libraries. Nigerian LIS educators often theorize LIS through a blend of traditional librarianship, such as cataloging, classification, and reference services, with an increasing focus on digital literacy, information technology, and data management (Abubakar & Maidabino, 2022). This approach is geared toward producing graduates who are technically proficient and adaptable to both Nigerian and global library environments.

Critical analyses of LIS education in Nigeria and Africa are becoming more common, particularly around issues of decolonization and the relevance of curriculum to African contexts. Scholars such as Ocholla (2020) have called for the decolonization of LIS, emphasizing that African LIS programs should move beyond Western frameworks and include Indigenous knowledge systems, African epistemologies, and local community needs. Ocholla's work argues that LIS education in Africa should empower students to tackle local issues, like information access disparities, digital divides, and the preservation of Indigenous knowledge.

Furthermore, research data from AfLIA and NALISE suggests that there is a significant need to re-evaluate how LIS programs are structured to support inclusivity and adapt to online and blended learning models, a challenge brought to the forefront during COVID-19 (Abigstan, 2023). Despite the pandemic's challenges, the shift toward online learning has opened conversations on making LIS education more accessible, particularly to students in rural or under-resourced areas. These discussions underline the critical need for educational reforms, leveraging lessons from COVID-19 to ensure that future LIS programs are inclusive, adaptable, and aligned with Africa's unique cultural and socio-economic landscape.

Inclusivity of learning during the pandemic

According to Rus (2021), the COVID-19 pandemic revealed and made worse inequalities in access to high-quality education. Several studies conducted during this time frame show that certain student groups were left out of the educational process and were not allowed to engage in online learning with their peers (Igere, 2020; Nwaokugha & Wogonwu, 2023). Usually, this was caused by a lack of internet access or availability of the necessary equipment. It affected entire classes or schools in some remote villages.

On this topic, the numbers that are currently accessible are often erroneous. This is due to the fact that they fail to take into consideration variables that affect how well teaching is delivered and how learning occurs. Because of this, not everyone's online device experience is the same. Youngsters who can use their parents' phones for a few hours a day and those with computer access to the internet are substantially different. Many low-income families with several children find it difficult to provide them with access to online education because all they have are their phones. An inadequate internet connection might occasionally be another barrier to effective learning. The home environment has a big impact on the effectiveness of online learning. Low-income students require private study spaces that are appropriate for their needs, as hook-ups are often unavailable. Those taking online classes may feel inferior due to the surroundings that the cameras record.

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Chua and Bong (2024) conducted research on the usage of virtual classrooms by Malaysian secondary school teachers to deliver more inclusive instruction during the pandemic, particularly in science-related subjects. An online survey was completed by 126 science teachers. The findings demonstrate how ill-prepared science instructors are to provide an inclusive education. The criteria for affective attitude, conduct, cognition, competence, and awareness were hardly met by them. Issues were discovered, such as parents lacking the technological know-how to assist their children's virtual classrooms at home, a lack of experience in teaching online, and inadequate training and support from schools and educational authorities. Researchers and educational institutions hoping to advance inclusive education in the context of distance learning and teaching should note this study's findings.

Makhado et al. (2022) explored nursing students' experiences in a historically disadvantaged rural-based university regarding the impact of COVID-19 on teaching and learning. The study employed an exploratory-descriptive qualitative design among nursing students who were purposively sampled to participate. A qualitative self-administered open-ended online Google form was used to collect data. Thematic analysis was employed for this study. All ethical measures were respected during this study.

Interviews were conducted with 68 participants, including 12 undergraduate second-year students, 7 third-year students, and 49 fourth-year students. A total of 51 females and 17 males participated in this study. The study yielded several themes, including participants' expression of their experiences related to teaching and learning during the national lockdown, participants' views on the impact of COVID-19 on teaching and learning/research, and Participants suggested sustainable strategies to promote teaching and learning during the national lockdown. In conclusion, the role of preceptors in all clinical areas should be strengthened to improve clinical teaching and learning. The researchers recommend strengthening collaboration among university lecturers to share ideas and find innovative solutions appropriate for handling any pandemic that threatens teaching and learning processes.

Equitable and inclusive access to learning conditions

In general, equitable and inclusive teaching requires that we acknowledge and work with the diversity of our pupils on many levels. Akaeze and Akaeze (2024) and Egielewa et al. (2021) posit that education equity refers to the provision of educational resources and rigour to all students at the appropriate time in their education, irrespective of their race, gender, ethnicity, language, disability, sexual orientation, family background, or income. Blahuta (2024) reminds us that ensuring that every student has access to the educational resources and rigour they need at the right moment in their education is a tall task unless we consider how to offer every student access to the resources and rigour they need at the right moment in their education.

The first step in establishing an equitable learning environment is assisting students in realising that their skills and opinions are valued and needed in the classroom. The aim of inclusive pedagogy is to help all students succeed. To encourage inclusion in the physical classroom, it is often necessary to set clear goals, create conditions where students feel valued and included, and ensure that learning and evaluation are accessible to all students. The internet change may make these tactics more complex, but the ideas behind them remain the same.

For inclusive teaching and learning that is adapted to online learning settings, transparency, accessibility, and flexibility are crucial (Kaneb Center for Teaching and Learning, 2020).

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Ainscow (2020) presented inclusive education in the "Prospects" special edition by highlighting the need for care while reading about inclusive education in other parts of the world. Although the stories in the special issue offer valuable insights, caution must be exercised in applying them. Without a doubt, different kinds of evidence can help identify the difficulties that certain learners face as well as the strategies that can be used to get past those difficulties. On the other hand, efforts to improve inclusion and justice in educational systems ought to be based on a review of particular contexts.

Teaching and online learning platforms and tools used during the pandemic

As a menace to humanity, the COVID-19 pandemic forced the suspension of many international operations, including educational ones, in a number of countries, including India. Many impoverished countries, like Nigeria, did not accept online learning as a legitimate form of instruction or learning prior to the present pandemic. This is especially true for public colleges in developing countries, as many of them do not have access to formal learning management systems. In order to avoid the virus from spreading, higher education institutions are required to adopt the e-learning platforms that are now available.

Since global limits on the dissemination of COVID-19 were placed in place, higher education institutions have started to offer the majority of their services, including lectures and other evaluations, online via several platforms for over 60% of students globally (Alqahtani & Rajkhan, 2020). There is less of an issue with students' willingness to use e-learning systems in developed countries than in developing ones because of the tremendous advancements in students' adoption and utilisation of these systems. The digital divide that currently exists between developed and developing countries is observed to be a major obstacle to the adoption of e-learning technology (Eltahir, 2019). The COVID-19 lockout has compelled many colleges to create online teaching and learning programmes. The majority of universities and colleges have found it difficult to transition from traditional classroom education to online learning, notwithstanding a few notable successes. The shift proved to be more difficult in many developing countries, especially in light of the dearth of digital resources and formal learning management systems (Sobaih et al., 2021).

Online platforms that support the following features are essential given the spread of this deadly virus: (a) video conferences with at least 40 to 50 students; (b) student discussions to preserve an organic classroom environment; (c) dependable internet connections; (d) mobile access to lectures instead of just laptops; (e) the capacity to watch lectures that have already been recorded; and (f) the ability to turn in assignments and receive immediate feedback from students (Basilaia et al., 2020). Overnight, traditional classrooms evolved into virtual learning environments, requiring educators to modify their teaching approach to meet the demands of the ever-shifting market. The more important question in these challenging times is not whether online teaching and learning methods can provide high-quality education, but rather how academic institutions will be able to implement online learning on such a large scale (Carey, 2020).

The only practical way to combat the COVID-19 pandemic is to move from traditional classroom lectures to virtual ones. It is true that educational institutions cannot immediately turn their whole college curriculum into an online resource. Scale, distance, and individualised instruction are the three primary barriers to online education. Only with the help of creative institutional responses will this pandemic be contained (Liguori & Winkler, 2020). Making the switch to online

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learning quickly is essential. As a result, a variety of internet platforms were taken into consideration, including Google products, which proved to be quite beneficial in these trying times, such as Google Meet, Module, Gmail, Google Forms, Calendars, G-Drive, Google Hangouts, Google Jam Board and Drawings, Google Classroom. Other popular online products included Zoom and Open Board Software. Basilaia et al. (2020) underlined that the tools were successfully employed in place of in-person classes.

Challenges confronted in LIS teaching and learning during COVID-19

Using digital pedagogy to prepare students for online learning is one of the largest problems. Even if they have the skills and knowledge required to use computers, software, and the Internet, some students may not be as tech-savvy as others (Hung et al., 2010; Tsai & Tsai, 2003). Those with higher levels of self-efficacy when it comes to computers, the internet, and online communication perform better in online courses than those with lower levels of proficiency. The same requirements also apply to staff, faculty, and teachers (Tsai & Tsai, 2003).

Lack of experience with the hardware and software used in online learning may hinder students' understanding and enjoyment of the process (Kumar, 2015). While it is true that educators and students may enhance their digital literacy, the sudden shift to an online environment during the pandemic left little time for it. The digital divide has widened significantly due to the COVID-19 pandemic; many students cannot engage equitably in the online learning process because they cannot access dependable internet connections or adequate technology at home. The digital divide exists in wealthy and developing countries, although it is more prevalent in the latter (United Nations, 2020). The exorbitant cost of data plans and digital devices has left students from lower-class and underprivileged households with little choice (Tam & El-Azar, 2020).

The possibility of security problems arising from the greater use of digital technologies is another factor to consider when it comes to technology. During the COVID-19 pandemic, phishing schemes and online fraud cases increased significantly, and various academic institutions were the target of hackers (United Nations, 2020). Furthermore, as most students now spend a lot of time on non-academic activities in front of their computers and/or mobile devices, the shift to online instruction may result in a noticeable rise in screen time: these include reading the news, playing video games, networking, and making online purchases (ITU, 2020). Prolonged computer staring and sitting has been associated with a number of health issues, such as sleep disorders, computer vision syndrome, and chronic neck, back, shoulder, and muscle pain (Pandika, 2016).

Students participate and show interest in different ways in online classes. While some students prefer to listen and take notes simply, others actively participate in debates and discussions (Vonderwell & Zachariah, 2005). A study conducted in 2013 with 96 undergraduate students found that around 75% of the students' time is spent observing and listening. Small- and medium-sized classrooms had higher participation rates than large-sized ones, indicating that the size of the classroom affects students' willingness to participate in an online course (Parkes et al., 2014). Adaptability is still another major challenge. When students switch from an in-person to an online learning environment, it may take some time for them to get used to the new setting. Again, students with more traditional mindsets generally resist abrupt changes when they have not had enough time to acclimate in this fashion due to the abrupt transfer to an online format (Kebritchi, et al., 2017; Kumar, 2015).

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While many tools are available for online learning, they can occasionally present many difficulties. Modern technology presents a number of difficulties and problems, such as problems with downloading, installing, logging in, audio and video hiccups, and more (Dhawan, 2020). Sometimes, students find that online learning is boring and uninteresting. Students can never find enough time to do their online coursework, even with the flexibility and time it gives.

The absence of individualised attention in online learning is another significant issue. Students want two-way connection, but sometimes it's difficult to achieve. The learning process can't reach its full potential if pupils don't practise what they learn. Sometimes, online content is completely theoretical, which makes it challenging for students to practise and pick up new abilities. Course material that is of poor quality is another major issue. According to Song et al. (2004), students say that difficulties comprehending the course objectives, a lack of community, and technical difficulties are the biggest barriers to online learning. Students find it difficult to balance their social life, occupations, and families with the demands of an online learning environment, according to a survey. It was also demonstrated that pupils were not adequately prepared for a large number of academic and e-learning competencies. Furthermore, Parkes et al. (2014) claim that students are ill-prepared to use learning management systems.

Problems of online learning inclusiveness

There are still notable challenges with online learning and inclusiveness today. Digital divides persist, especially in rural and low-income areas where reliable internet, computers, and smartphones are less accessible. This gap in access limits the ability of many students to fully participate in online learning, perpetuating educational inequality (Nwogu, 2015). Even when access is available, learners may lack the digital literacy skills required to use online learning platforms effectively, creating another layer of exclusion.

Furthermore, online learning platforms and content are often not designed inclusively. Students with disabilities face barriers if platforms are not equipped with accessibility features, such as screen readers or closed captioning (Igere, 2020). Language and cultural differences can also hinder inclusiveness, as many platforms primarily support major languages, limiting access for non-native speakers or Indigenous language users.

Social factors also affect inclusiveness. Online learning can be isolating, impacting students' sense of belonging and motivation, especially those who thrive in collaborative, interactive environments (Nwaokugha & Keri-Frank, 2023). This lack of in-person support disproportionately affects younger and disadvantaged students, as they might need more guidance.

Investments in equitable internet infrastructure, inclusive platform design, and training for educators and students are essential to address these issues. Improving online learning inclusiveness will require comprehensive policy efforts and a commitment to reaching underserved populations.

Related studies

The online learning environments that were used for education during the COVID-19 lockdown are examined by Aduba and Mayowa-Adebara (2021). The data for the survey-based study came from students at Delta State University's Abraka Department of Library and Information Science. For the research, students in the second semester of the 2019–2020 academic year who were in

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their second year (200 level) were specially selected. Students were provided with a link to an online survey that was developed using Survey Monkey.

The study involved 187 pupils. In order to supplement the information collected from the students, three academics took part in an open-ended WhatsApp conversation interview. As to the study, during the period of global shutdown due to the COVID-19 outbreak, LIS educators delivered their online courses via WhatsApp and Telegram. The flexibility to ask questions of the lecturer at any time, the availability of lecturers around the clock, the wealth of learning resources, the capacity to store lectures and files for later use, collaborative learning, sharing of course materials, and home-based learning environments are all advantages of taking lectures online. Some of the challenges that Nigerians encountered when using online platforms to access information included not having a smartphone or Android phone, the excessive number of messages that appear during the lecture, the high cost of purchasing data for each lecture, the time commitment, eye strain, and network failure. The LIS professors who were interviewed also mentioned a few of these problems with using an online platform for instruction. These difficulties included the price of purchasing data, network outages, students' slackness, the difficulty of conducting tests, and students' negligent behaviour during lectures.

As the lockdown of all human activity became the sole immediate approach to halt the spread, Igere (2020) noted that the global COVID-19 epidemic destabilised academic operations. The adoption of e-learning systems, which are new to the majority of Nigerian educational institutions, is the only palliative for ongoing educational activities worldwide. The majority of students at Delta State University, the case study, complain about the difficulties of using the implemented e-learning system, therefore this study examined the e-learning application, its benefits, and its drawbacks under three main goals. The study's population comprised 370 students studying library and information science. From the total population of 370 respondents, 230 replies were obtained, which served as the study's sample size. The study's questionnaire contained 12 areas for data collection (Appendix I). Simple percentages were used to examine the generated data. The results showed that students use their phones, not laptops, to participate in the e-learning system by sending text messages and listening to audio. It was also discovered that the high cost of data subscriptions, expensive gadgets, unintuitive technology, and power outages make it impossible to use the e-learning system that has been put in place. Therefore, organizations were suggested to subscribe for data and ensure the e-learning system is updated to make it more user-friendly.

In 2020, Abdulmajeed, Joyner, and McManus investigated the difficulties associated with online education in Nigeria. According to this study, the use of online learning in Nigeria is hampered by socioeconomic, sociocultural, and information technology (IT) infrastructure concerns. Numerous sociocultural and infrastructure elements, including network service quality, power supply, motivation, language, and prejudice, were noted in the responses; nevertheless, socioeconomic considerations present the most significant obstacles. In Nigeria, the cost of living and internet connectivity may hinder the uptake of online learning. IT infrastructure comes second to socioeconomic obstacles, while sociocultural challenges are the least severe.

The difficulties teachers in Nigerian universities encountered when implementing and utilising e-learning platforms were investigated by Akaeze & Akaeze (2024). In their study, 12 university instructors from six different regions participated in virtual interviews, where the respondents identified a number of significant challenges, including erratic internet connectivity, frequent power outages, and restricted access to technology resources. Inadequate institutional support

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and training are also mentioned as major obstacles. The qualitative data was analysed using thematic analysis, producing common themes and patterns about these difficulties. According to the study, strengthening training and technical support and upgrading electricity and internet infrastructure are essential tactics for resolving these problems. The findings emphasize the need for targeted interventions to create a more supportive environment for e-learning, aiming to improve the educational experience for both lecturers and students.

The coronavirus outbreak, particularly in undeveloped and underdeveloped nations, prompted Nwaokugha and Keri-Frank (2023) to talk about online education. In addition to identifying the opportunities and difficulties of online education, the scholars methodically pointed out that the education sector experienced incredible spectacular developments during the pandemic, particularly the possibility that the lockdown phase could create the groundwork for inclusive new beginnings in general policy formulations and behavioural dispositions. This is the basis for Nwaokugha and Keri-Frank's (2023) argument that social justice can take precedence, which makes clear that improving the circumstances of the world's poorest people and states is a prerequisite for ensuring the safety and prosperity of the richest people and states worldwide. Among other aspects, the study strongly suggests a new way of thinking that might establish global moral consciousness and global social justice as standards for directing educational activities.

In the midst of COVID-19, Eli-Chukwu et al. (2023) looked into the difficulties facing e-learning in Nigerian higher education. The study used a quantitative research approach and pulled data from 395 academics in a variety of disciplines at private, state, and federal universities in Nigeria who were given a structured questionnaire. Descriptive statistics were used to analyse the quantitative data. Nigerian higher education institutions are still in the early stages of implementing e-learning, according to the data. Furthermore, prior to the pandemic, there was no e-learning curriculum in place. Additionally, due to a lack of knowledge of information and communications technology and a lack of infrastructure to support e-learning, both lecturers and students faced significant challenges when implementing e-learning.

Nigerian inclusive education's prospects and problems are examined by Angwaomaodoko (2023). The social model of disability serves as the theoretical underpinning for the study, which uses critical disability theory as its theoretical framework. In Abeokuta, Ogun State, teachers from forty mainstream primary schools completed and turned in 147 questionnaires. Additionally, 18 parents of disabled children were invited to participate in interviews at the same time. According to the report, inclusive education in Nigeria is still in its infancy and faces a number of obstacles, such as a lack of knowledge and awareness, insufficient facilities and resources, and a teacher shortage. Despite the challenges, there are several opportunities for developing inclusive education in Nigeria. The Nigerian government has committed to promoting inclusive education by adopting policies that favour inclusive education.

Nwaokugha and Wogonwu (2023) discussed the potential of online teaching and learning by using a philosophical approach. The study demonstrates the benefits of online instruction for educators, students, and school administrators. It makes teaching and learning more flexible and convenient for both teachers and students, saves money for management, improves management's ability to document effectively, and helps teachers and students review what they have learned. All of these benefits contribute to the growth of the teaching profession. The report suggests, among other things, that teacher education should be repositioned to

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incorporate the revolutionary changes that emerged during this time and that the spirit of cooperation that the education sector experienced during this time should be maintained.

There are also related studies beyond Nigeria and the African continent. For instance, Li (2022) highlighted in a study how the COVID-19 pandemic has significantly changed and disturbed education, causing many schools and universities to close their physical locations and switch to online learning. Prior to the pandemic, online learning offered a number of benefits and drawbacks, and it's possible that the pandemic brought forth more benefits and drawbacks. This study examined the attitudes of students towards online learning throughout the pandemic. The survey looked at four topics: general perceptions and attitudes, perceived benefits of online learning, perceived challenges, and potential future developments. Many Chinese first- and second-year undergraduate students received an online survey. There were 23 closed-ended and 23 open-ended questions in all, and 342 complete and accurate responses were received. The creation of a community for digital learning, improving students' aptitude for digital learning, and preserving relationships throughout trying times were all considered benefits. Time management, becoming distracted by social media, adjusting to the sudden shift to online learning, and technological obstacles were among the challenges. Students' thoughts were that a hybrid model combining online and classroom instruction was necessary in the post-pandemic era. Many improvements are being looked into, and suggestions are being made to make online courses more sustainable in the post-pandemic era.

Azer et al. (2023) evaluated the usage of social media and other online tools by medical students during the COVID-19 pandemic. King Saud University undergraduate medical students in years 1, 3, and 5 had their preferences for social media sites and Internet resources examined using a validated questionnaire. The questionnaire was divided into three sections: (i) demographic information, (ii) access to and use of social media and online resources, and (iii) student assessments and explanations for using technology-enabled instruction during the COVID-19 pandemic. The online survey was completed by 321 undergraduate medical students.

There was a noteworthy rise in the variation in the number of students using the Internet every day over the course of academic years as students progressed through the medical course ($p=0.025$). 198 students (61.9%) used WhatsApp, while 83.1% and 73.4% of students used YouTube and videoconferencing tools like Zoom for their studies, respectively. The most popular social media platforms among students were WhatsApp (310, 96.6%), YouTube (296, 92.8%), Twitter (288, 90%), and Zoom (269, 84.1%). When asked how COVID-19 affected their social isolation, 250 respondents (78.1%) responded that technology helped them feel more connected to their peers. Although 245 students (76.7%) felt that using technology in the classroom increased their involvement, 187 students (58.4%) wanted technology to be utilised more often in the classroom. The report claims that in an effort to close the social and educational gaps, people are using social media and the Internet more regularly on all levels as a result of the COVID-19 pandemic. Medical institutions should embrace the effective use of the Internet and draw from their experience and lessons learned to assist educators in creating online resources that will improve students' learning well after the epidemic.

Sobaih et al. (2022) look into Indian university students' thoughts on using social media for online learning in the context of the COVID-19 pandemic. An online questionnaire was distributed to a sample of Indian students seeking higher education for this purpose through a personal network. The results showed that students' perceptions of social media's ease of use and usability played a role in their elevated level of platform satisfaction. The majority of students spend one to two

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hours each day on social media ($p < 0.01$). YouTube was the most widely used platform among all responders ($n = 154$; 36%). The results confirmed that students think social networking sites greatly raise their overall academic performance ($p < 0.01$). Educators are constantly looking for fresh and innovative approaches to teaching and learning. Now is the moment to consider and assess the possible educational advantages of social media platforms and compare their relative merits in terms of enhancing student learning through technology use.

Tauhidah et al. (2021) investigated the utilisation of e-learning platforms during the COVID-19 pandemic, namely in the biology education curriculum. A quantitative survey design was used for this investigation. Using purposive sampling, 100 professors from 43 Indonesian universities participated in this study. The information was gathered through an online questionnaire. The data were analysed using descriptive statistics and thematic content analysis. The findings showed that Zoom, Google Classroom, and WhatsApp remain the most widely used e-learning platforms in Indonesian colleges due to their affordability and user-friendliness. Respondents mentioned a number of challenges with online learning, including the limited network and capacity as well as the controlling features. Additional suggestions for e-learning include assisting students with their internet allotment, enhancing networks and infrastructure, and meticulously and carefully creating the course syllabus. The study's findings can help biology professors and university administrators make informed decisions about which e-learning tools to use to improve online instruction in Indonesian higher education during the pandemic.

Husna et al.'s (2022) study examined students' perceptions of using a single social media site as their primary means of language acquisition for a reading-intensive subject. Open-ended questionnaires and semi-structured interviews were the data collection techniques used in this case study. Sixty-four students, 52 girls and 12 boys from three classrooms and a lecturer were chosen for participation via purposeful sampling. The outcomes showed how effective and satisfying it was to use Facebook as one of the social media platforms for online learning. Furthermore, the findings from the professor interviews and the student questionnaire suggested that Facebook is an easy communication tool. This study suggests that educators should begin utilising social media more frequently as a platform for their in-class teaching activities.

Methodology

A quantitative method and a survey design were employed. The study's target population was LIS undergraduate students. Four universities provided the sample. The four universities were chosen because they were the ones that engaged in teaching online during the COVID-19 pandemic.

A purposive selection of 20 students from year 2, year 3, and year 4 in each of the four universities was embarked upon. This implies that 60 students were taken from each university, giving a total of 240 students who represent the sample for the study. Location (rural/urban) was considered before selecting the students. A questionnaire was used as the instrument for data collection. A questionnaire seemed to be the only practicable instrument for data collection during this period. Interviews could not be conducted not to violate the COVID-19 protocol of social distancing. Since the students were not physically available to enable interviews except remotely, the questionnaire was prepared using Google Forms. The link was sent to each participating school's students' group forum. The researcher filled out, returned, and collated the questionnaire. The first sixty to fill out and submit feedback in each of the four LIS schools

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were taken as the sample for each school. Of the 240 copies of the questionnaire administered, 232 copies were returned and used for the data analysis.

Data Analysis

The collected data were analysed using percentages, mean, frequency count, and percentages. The results are presented in the following section.

Results

Table 1. Demographic Profile of the Respondents (N =232)

Demographics	Frequency	Percentage
Gender		
Male	113	48.7
Female	119	51.3
Total	**232**	**100.0**
Age		
16-20 years	110	47.4
21-25 years	82	35.4
26-30 years	37	15.9
31 years +	3	1.3
Total	**232**	**100.0**
Year of Study		
Year 2	78	33.6
Year 3	77	33.2
Year 4	77	33.2
Total	**232**	**100.0**
University		
A	58	25
B	58	25
C	58	25
D	58	25
Total	**232**	**100**

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The demographic profile of the respondents in the study revealed that there were more female than male respondents. This presupposes that the LIS programme seems to be dominated by female students compared to male students. Similarly, the age of the respondents revealed that respondents aged 16-20 constituted the majority, 47.4%, while the least were students aged 31 years and above, 1.3 percent. Regarding the year of study, 33.6% were from year 2, 33.2% were from years 3 and 4, respectively, and 25% of respondents were selected from each of the four participating universities.

The inclusivity of learning during the pandemic

To achieve the objective, respondents were asked to indicate the level of inclusiveness of online teaching and learning during the pandemic. Table 2 presents the result.

Table 2. Level of Inclusivity Online Teaching and Learning

Please, indicate the level of inclusivity of online learning during the pandemic.	**Frequency**	**%**
Totally inclusive	36	15.5
Partially inclusive	193	83.2
Not Inclusive	3	1.3
Total	**232**	**100.0**

The results on the inclusiveness of online teaching and learning during lockdown revealed that 83.2% of the respondents indicated that online teaching and learning were partially inclusive during lockdown during COVID-19. However, 15.5% indicated total inclusivity, and 1.3% indicated not inclusive at all. This implies that teaching and learning during the lockdown during COVID-19 was partially inclusive.

Provision for equitable and inclusive access to learning conditions

To achieve the objective, respondents were asked to indicate the provision for equitable and inclusive access to online teaching and learning during lockdown during the pandemic. Table 3 presents the result.

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Table 3. Provision for equitable and inclusive access to learning conditions

Please, indicate whether or not there was a provision for equitable and inclusive access to learning conditions during the pandemic.	**Frequency**	**%**
Many students were unable to participate in most of the organised online classes	162	70
Only students who have technology devices compatible with the platforms with which online classes were conducted were able to follow the classes.	26	11.2
There was no equity in the organised classes, and the lessons were not inclusive in terms of access.	23	9.9
Most students were sidelines for reasons like being rural residents, not having devices such as smartphones, android phones, tablets, palmtops, laptops to follow the classes, etc.	21	9.1
Total	**232**	**100.0**

The results on the level of inclusiveness of online teaching and learning during lockdown revealed that 83.2% of the respondents indicated that online teaching and learning were partially inclusive during lockdown during COVID-19. However, 15.5% indicated total inclusivity, and 1.3% indicated not inclusive at all. This implies that teaching and learning during the lockdown during COVID-19 was partially inclusive.

Teaching and learning platforms and tools used for online classes during the pandemic

To achieve the objective, respondents were asked to indicate teaching and learning platforms used for online teaching and learning during the lockdown during the pandemic. Table 4 presents the result.

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Table 4. Platforms used for teaching and learning during the pandemic

Teaching/Learning Platforms used for teaching and learning during the pandemic	Frequency	%
Microsoft Teams	22	9.5
Google Classroom	40	17.2
Zoom	99	42.7
Moodle	71	30.6
Others	0	0.0
Total	**232**	**100.0**

Table 4 revealed the platforms used for teaching and learning during the lockdown during the pandemic. The results that the notable teaching and learning platforms and tools used for the online classes during the pandemic were Microsoft Team, Google Classroom, Zoom, and Moodle. The most prominently used ones are Zoom, 42.7%, and Moodle, 30.6%. These two are followed by Google Classroom 17.2% and Microsoft Team 9.5%. This implies that the most commonly used online teaching and learning platforms during lockdown during the pandemic are Zoom, Moodle, Google Classroom, and Microsoft Teams.

Social media was used to complement the online teaching platforms and determine the percentage of undergraduates who were able to access the materials.

To achieve the objective, respondents were asked to indicate the social media used to complement online teaching and learning platforms used during lockdown during the pandemic. Table 5 presents the result.

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Table 5. Social Media Platforms for Complementing Teaching and Learning at Lockdown

Please, indicate the social media platforms used to complement online learning platforms during the pandemic.	**Frequency**	**%**
Blog	25	10.8
Telegram	37	15.9
WhatsApp	89	38.4
Email	26	11.2
Facebook	55	23.7
Others	0	
Total	**232**	**100.0**

Table 5 shows that the common social media platform used to complement teaching and learning during lockdown is WhatsApp indicated by 38.4%. This is followed by Facebook with 23.7%, and Telegram, with 15.9 percent. This means that WhatsApp, Facebook, Telegram, email, and blogs are the social media used to complement teaching and learning during the lockdown during COVID-19.

Table 6. Access to Materials Sent by the Lecturers

I am able to download materials sent by our lecturers.	**Frequency**	**%**
Yes	162	70
No	70	30
Total	**232**	**100**

Some lecturers endeavour to ensure that all students have access to the materials they need to succeed in the courses. They do that by sending course materials through email and social media platforms, but still, only 30% of those who had access got the materials, while the remaining 70% did not.

Challenges confronted by LIS students in teaching and learning during COVID-19

To achieve the objective, respondents were asked to indicate the challenges LIS students encountered from online teaching and learning platforms used during lockdown during the pandemic. Table 7 presents the result.

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Table 7. Challenges of Learning Online by LIS Students During COVID-19

Challenges	Frequency	%
Slow internet connection	40	17.2
Cost of data	57	24.6
Compatibility of devices with the teaching platforms	35	15.1
Lack of connectivity by the students living in rural areas equitable access	83	35.8
Inadequate skills to teach online	17	7.3
Others	0	0
Total	**232**	**100.0**

The common challenge is connectivity by the students living in rural areas, equitable access, which was indicated by 35.8%, and cost of data by 24.6%. Other challenges are slow internet connection 17.2%, devices non-compatibility with the teaching and learning platforms 15.1% inadequate skills to teach online by some lecturers 7.3%. This means that connectivity by students living in rural areas with no equitable access, high-cost of data, and slow internet connections are the major problems encountered in teaching and learning online during lockdown during COVID-19.

Discussion

The study investigated, from the viewpoints of LIS undergraduate students in Nigerian universities, the inclusion of online education during the COVID-19 pandemic. The results showed many important problems that demonstrate how unfair and only partially inclusive the online learning platform used during the lockdown was.

Regarding inequity and partial inclusivity, the study discovered that there were notable differences in access to online education and that teaching and learning during the lockdown were only partially inclusive. Due to their socioeconomic level and geographic location, many students were marginalised in the way that classes were organised and delivered, which was a particularly glaring example of this inequality. One way that the lack of inclusivity was evident was in the way that students from remote areas were unable to engage successfully because they did not have appropriate access to the internet and necessary gadgets. The inequity as a result of access was earlier reported by Aduba and Mayowa-Adebara (2021), and this buttresses the current finding in this study and is also responsible for the partial inclusiveness of teaching and learning during the pandemic. Students whose financial status is fairly okay can afford to buy data to connect to the online classes, while the adverse is the case for those who are not financially buoyant, thereby creating differences in access and making the teaching and learning partially inclusive.

Lack of access to necessary technologies, including laptops, tablets, cellphones, and other digital tools needed for online learning, was one of the leading causes of the exclusion of some students. The inability of many students, particularly those living in rural regions, to buy these gadgets posed a serious obstacle to their ability to participate in online learning. This lack of technology

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access highlights the student population's digital divide and exacerbates educational disparities. The report on the same lack of access to technologies by (Aduba & Mayowa-Adebara, 2021) such as smartphones or Android phones to receive lends support to the current finding in this study. Li (2021) identifies technological barriers as one of the difficulties in online learning during COVID-19 and agrees with the current finding. It should be noted that technologies and their tools drive online learning and the absence of technology will make learning grounded in an online teaching and learning platform.

Online learning platforms, including Zoom, Moodle, Google Classroom, and Microsoft Teams, were among the most widely utilised online teaching and learning platforms throughout the epidemic, according to the report in this study. Although these platforms worked well for providing online learning, many students lacked the necessary gadgets and a steady internet connection. In addition, blogs, email, Facebook, Telegram, and WhatsApp were utilised as social media channels to enhance online education. Although these platforms offered some accessibility, they were unable to close the gap completely. Aduba and Mayowa-Adebara (2021) corroborate the current finding by stating that LIS educators used WhatsApp and Telegram as platforms for their online course delivery during the general lockdown caused by the COVID-19 pandemic. This implies that in this current study, only social media platforms were majorly focused on online teaching-learning.

Regarding connectivity issues for students, especially those who lived in remote locations, connectivity issues were a serious barrier. The survey highlighted students' problems, including slow internet speeds, expensive data plans, and spotty or nonexistent internet access. Their inability to participate in online learning effectively was significantly hampered by these connectivity problems. The issue was exacerbated by the high cost of data, making it impossible for low-income students to continue their online education. Some studies have reported challenges confronted when teaching online during COVID-19 which lends credence to this study. For instance, Li (2021) identified the cost of paying for data, network failure, laxity of students, inability to administer exams, and a careless attitude toward lectures from students. Similarly, Aduba and Mayowa-Adebara (2021) identified the lack of a smartphone or Android phone, the excessive number of messages that appeared during the lecture, the high cost of purchasing data for each lecture, the time commitment, eye strain, and network failure were mentioned as some of the difficulties that Nigerians faced when using online platforms to receive lectures. So also, Li (2021) identified time management, being sidetracked by social media, adaption problems brought on by the abrupt switch to online learning and technological barriers. All of these support the findings in this study. Tauhidah et al. (2021) also support the current finding by reporting that based on ease of use, Zoom, Google Classroom, and WhatsApp were the most popular e-learning platforms in Indonesian colleges during the pandemic. However, Sobaih et al. (2022) contradict the current finding with the report that the most popular platform used for learning during COVID-19 in their study, as indicated by their responders, was YouTube.

Given the urban-rural divide, the study revealed a clear disparity between students who attend school in urban and rural settings. In general, urban students had easier access to digital gadgets and the internet, which made it possible for them to engage in online learning more successfully. On the other hand, rural students faced severe disadvantages due to inadequate infrastructure and economic constraints.

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Implications of the study

The findings in this study have implications for practice, research, and society based on the recommendations for improving the inclusivity of online education during the COVID-19 pandemic.

For practice

1. Increased Accessibility to Education: Improved technology infrastructure and the implementation of digital literacy programmes will improve accessibility for students, especially those who live in remote regions. This would support equity in educational opportunities by ensuring that all students, regardless of their socioeconomic situation or residence, can engage in online learning.

2. Ongoing Professional Development for Teachers: Teachers must adjust to changing instructional pedagogies and resources, necessitating continuous professional development. With ongoing training, lecturers will be better equipped to use many digital platforms, help students more effectively, and conduct online courses. This will improve student outcomes and strengthen the foundation of the educational system.

3. Shift to Online Learning Environments: The prevalent use of platforms like Zoom, Moodle, Google Classroom, and Microsoft Teams during the *COVID*-19 lockdown highlighted a shift in Nigerian Library and Information Science (LIS) education toward digital learning environments. However, this shift also exposed significant infrastructure and accessibility gaps. Many students and institutions lacked stable internet access, affordable data, and digital literacy skills to utilize these platforms, creating a digital divide effectively. For the Nigerian LIS field, this underscores the need for strategic investments in digital infrastructure, localized training on digital tools, and expanded access to affordable internet. Addressing these challenges is crucial for inclusive, resilient LIS education post-pandemic.

For research

Examining Solutions for the Digital Divide: Research might concentrate on assessing the efficacy of different initiatives meant to close the digital divide. Research can explore the most effective technology and pedagogical approaches in many settings, especially remote and underprivileged regions, offering information to guide policy and practice.

The Effect of Digital Literacy on Learning Outcomes: Scholars can investigate the connection between student performance in online learning environments and digital literacy. By examining the relationship between improved digital abilities and academic accomplishment, researchers can offer recommendations for incorporating digital literacy into the curriculum that are supported by evidence.

For society

Greater Educational Equity: Improving online education inclusion and tackling the digital gap would help create a more equitable society. All pupils should have access to high-quality education to close the achievement gap and increase prospects for social mobility.

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Economic and Workforce Development: Expanding access to technology and enhancing digital literacy may have broader economic effects. A population with higher levels of digital literacy is better prepared for the modern workforce, which promotes innovation and economic expansion. Thus, society as a whole stands to gain since this helps close the skills gap and get kids ready for the workforce of the future.

Implications beyond the pandemic

The online learning experience of Library and Information Science (LIS) undergraduates during COVID-19 provides important information for enhancing future teaching strategies. After the pandemic, online education should change to emphasize inclusivity, tackling problems such as students' disparities in digital literacy, various learning demands, and unequal access to technology. Institutions must keep making investments in digital infrastructure to promote diversity and guarantee that all students, particularly those from underprivileged backgrounds, have access to dependable internet and appropriate equipment.

To create interactive, captivating, and readily available online content that caters to a variety of learning styles and skill levels, educators must receive training in digital pedagogy. While accessibility features like screen reader compatibility and closed captioning will make content more inclusive for students with impairments, integrating tools for personalised learning will assist in fulfilling the various needs of students. The epidemic also brought attention to how crucial mental health assistance is for online learning. In order to preserve students' sense of community and lessen isolation, educational institutions should prioritise resources for peer support groups, online counselling, and community-building exercises in the future.

To prepare students for the contemporary, technologically advanced workplace, LIS and other field curricula should incorporate digital skills training in addition to technical and infrastructure enhancements. Placing a strong emphasis on inclusivity and adaptation can produce a more resilient and equitable learning environment that lasts long after the epidemic.

Recommendations

Based on the findings and conclusion that teaching and learning during the COVID-19 lockdown were partially inclusive and inequitable for many LIS undergraduate students in Nigerian universities, here are three recommendations:

1. Technology infrastructure in rural areas needs to be improved. Governments and academic institutions ought to work together to improve rural areas' technology infrastructure. This entails giving students access to key gadgets like computers, tablets, and smartphones as well as supplying them with inexpensive data plans and dependable internet connectivity. Enhancing rural students' access to technology will enable them to engage more fully in virtual learning settings, closing the digital gap and advancing educational equity.

2. Universities must implement thorough digital literacy programmes to improve faculty and student proficiency with digital tools and online learning environments. These programmes should include the fundamentals of using Google Classroom, Zoom, Moodle, Microsoft Teams, and other platforms, as well as the usage of social media for teaching.

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Improving digital literacy will guarantee that every student can effectively traverse virtual learning settings, hence elevating their overall educational experience.

3. The creation of adaptable and inclusive learning methodologies is necessary. To meet the varied demands of its students, educational institutions should create inclusive and adaptable online learning methodologies. This entails giving students with sporadic internet access and offline access to course materials, employing a range of communication techniques to guarantee that every student receives information, and offering asynchronous learning choices to suit various schedules and situations. Institutions should also set up support networks, such as peer mentorship programmes and online help desks, to help students who are having trouble with technology or other issues.

The findings demonstrate a lack of fairness in terms of access since students in remote areas were unable to attend scheduled classes due to their location. Considering this, it is necessary to expand the network's coverage to include more places where students live so they can follow the class as necessary.

Post-COVID-19 improvement in learning and lesson learned

Arising from this study's outcomes and considering the study's limitation to the situation of 4 years ago, the paper provides a segue to highlight lessons learned that could improve inclusivity today, particularly in rural areas.

The COVID-19 epidemic brought to light important insights for updating education. First, it illustrated the significance of digital infrastructure; schools' quick adoption of online platforms highlighted the necessity of digital literacy and ubiquitous, egalitarian internet access. Furthermore, the move to online learning demonstrated that flexible teaching strategies utilising interactive sessions, asynchronous materials, and adaptive assessments might better accommodate a range of learning needs than conventional approaches. This adaptability promoted student independence by letting them participate at their own speed, which is still useful.

The epidemic also brought attention to the importance of social and emotional support. Isolation emphasised the importance of teacher assistance and peer contact, arguing that more comprehensive mental health resources and community-building exercises should be incorporated into future learning models, whether conducted in-person or virtually. Last but not least, COVID-19 showed the promise of blended learning, which combines online and in-person methods to maximise resource utilisation, boost student engagement, and prepare them for a increasingly digitally integrated world.

Due to initiatives to expand internet infrastructure and heightened awareness of digital inclusion, rural areas have grown considerably more inclusive. Notable disparities in digital literacy, connectivity, and technology availability still constrain full inclusion. Online learning could be advantageous by filling in educational gaps and offering materials that are often unavailable in remote locations. Digital gadgets, community support networks, and a reasonably priced internet connection are necessary to succeed. The potential of online learning to increase educational inclusion in rural areas would be further enhanced by initiatives that include digital literacy training, language support, and localised content.

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Conclusion

Teaching and learning during the lockdown during COVID-19 was partially inclusive. There was no equity in the organised classes. The lessons were not inclusive regarding access since most students were sidelined for reasons like being rural residents, and not having devices such as smartphones, android phones, tablets, palmtops, and laptops. The most commonly used online teaching and learning platforms during lockdown during the pandemic are Zoom, Moodle, Google Classroom, and Microsoft Teams. WhatsApp, Facebook, Telegram, email, and blogs are the social media used to complement teaching and learning during the COVID-19 lockdown. Lecturers send course materials through email and social media platforms, but only 30% of those who have access got the materials, while the remaining 70% did not.

Online learning for LIS students during the COVID-19 lockdown encountered connectivity issues by rural students who did not have equitable broadband or Wi-Fi access, which were exacerbated by the cost of network connectivity, data, and slow internet connections. These problems were equally encountered by LIS faculty and students teaching and learning online during COVID-19. For online learning to be inclusive, all students must be provided with compatible devices and data for connection to live classes. The government must also improve network infrastructure in rural areas to enable participation. This study is pioneering in focusing specifically on the inclusivity of online learning for LIS students during the pandemic.

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Appendix I

Questionnaire on the Perception of Library and Information Science Undergraduates on Inclusivity of Online Instruction during the COVID-19 Pandemic

Dear Respondent,

This survey is carried out, to find out your perception of the inclusivity of the online instructions you received during COVID-19. Please, you are kindly required to complete the questionnaire which is purely for research activity. Be assured that our responses is promised to be treated confidential and used for this research purpose alone. The researcher will be glad if you will spare some minutes of your time to assist in filling the questionnaire. You are to respond to the items by ticking the options applicable to you. You also expected to express your opinion where applicable.

Thanks in anticipation of your cooperation.

SECTION A: BIO-DATA INFORMATION

In this section please tick (√) the option that you feel best answers the questions.

Institution…….

Faculty…….

.

Years of study: Year 3 ☐

Year 2 ☐ Year 4 ☐

Gender: Male ☐ Female ☐

Age: 16- 20 years ☐ 21-25 years ☐

26-30 years ☐ 31-35 years ☐

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Your University……

SECTION B (Inclusivity Online Teaching and Learning)**:**

I. Level of Inclusivity Online Teaching and Learning

Please, indicate the level of inclusivity of online learning during the pandemic	**YES**	**NO**
Totally inclusive		
Partially inclusive		
Not Inclusive		

II. Provision for equitable and inclusive access to learning conditions

Please, indicate whether or not there was a provision for equitable and inclusive access to learning conditions during the pandemic……..

…….

…….

…….

III. Platforms used for teaching and learning during the pandemic

Please, list the Teaching/Learning Platforms used for teaching and learning during the pandemic:

i……

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IV. Social Media Platforms for Complementing Teaching and Learning at Lockdown

Please, indicate the social media platforms used to complement online learning platforms during the pandemic.	**YES**	**NO**
Blog		
Telegram		
Whatsap		
Email		
Facebook		
Others		

V. Access to Materials Sent by the Lecturers

Please, indicate whether or not you are able to download materials sent by our lecturers during the pandemic	
Yes	
No	

VI. Challenges of Learning Online by LIS Students During COVID-19 Pandemic

Please, indicate

Challenges	**YES**	**NO**
Slow internet connection		
Cost of data		
Compatibility of devices with the teaching platforms		
Lack of connectivity by the students living in rural areas equitable access		
Inadequate skills to teach online		

Others, please, indicate……..

……..

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