UTILIZATION OF E-LEARNING: A TOOL, FOR SOCIAL AND COLLABORATIVE TEACHING AND LEARNING IN THE ERA OF PANDEMIC

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Abstract

Covid-19 pandemic has truncated or even brought to halt socio-economic and cultural activities around the world. The worst hit is the educational sector especially in Nigeria where all educational institutions were closed down for almost a year. Educational institutions around the world have therefore adopted the use of information and communication technology (ICT) at various levels ranges from communication, commerce and even human resource management. This paper explores the use of e-learning as a tool for social and collaborative teaching and learning in pandemic era. The paper is descriptive in nature where tools and technologies for creating e-learning platforms are discussed. The Unified Modelling Language (UML) techniques of Use Case and Activity diagrams were used. The models show the interactions based on email interactions, social media network, and learning management system (LMS) were identified and described as tools for social and collaborative teaching and learning models. The paper suggests that e-learning platforms should be used at various levels of educational institutions in Nigeria, stakeholders in education sector should come up with a policy framework that will enforce the adoption of e-learning in addition to conventional teaching and learning models in Nigeria, library and information services should be digitalized with cutting edge digital infrastructure in order to partake in the information sharing networks, teachers and students should be encouraged to acquire proficiency in ICT skills, and finally, teachers should endeavour to share learning materials via electronic portals and tasks the students to using them.

Keywords: E-learning, E-learning tool, Social and Collaborative, Teaching and Learning, Pandemic Era.

Introduction

Covid-19 pandemic has truncated or even brought to halt socio-economic and cultural activities around the world. The worst hit is the educational sector especially in Nigeria where all educational institutions were closed down for almost a year. Educational institutions around the world have therefore adopted the use of information and communication technology (ICT) at various levels ranges from communication, commerce and even human resource management.

Students could not go to school as a result of COVID-19 pandemic. This has led to over 50 million scholars remaining at home Onuora (2020). With an education system already burdened with low participation and learning achievements, the closure increases the challenge in access to education by scholars and has the potential to set back the academic performances if adequate action is not taken. In its response to COVID-19, the Federal Ministry of Education sought to mitigate the immediate impact of the pandemic by using online and offline platforms and television to keep the learning.

In support of federal of government's efforts, UNICEF and HITCH have collaborated to provide a much-needed boost to education during the COVID-19 pandemic through a dynamic online/offline educational and vocational video platform designed especially for Nigeria. HITCH's e-learning tool has been customized for the Nigerian curriculum and has the potential to transform teaching and learning, and make classroom learning a dynamic experience at home.

This collaboration is an excellent opportunity to ensure teaching and learning continues during and beyond the pandemic. The learning was packaged to ensure that students can access online fit-for-purpose resources. The package can also equip the teachers to be collaborators and facilitators of learning rather than just remote instructors. This is a much-needed support for the education

system and for teachers themselves. As COVID-19 has clearly shown, to move Nigerian education forward, we need to be flexible and open to new ways of both learning and teaching. This e-learning tool will not only ensure Nigerian students do not miss out on their education during the lockdown, but also create a system for lifelong, quality learning for years to come.

The Concept E-learning

E-learning is the application of information technology such as Internet, mobile and other computer aided systems in the teaching and learning process, either asynchronously or synchronously. Asynchronous E-learning is used mainly for content management system where users access information at different times without real time collaborations (Jama madar and Willis, 2014). Synchronous E-learning (or pedagogy) is designed for online users who collaborate at the same time (Pauline Roberts, 2012). In both case, content management system for E-learning acts as archives for learning materials availed on the web.

E-learning demands different institutional requirements, but in all cases, an institution that deserves to use E-learning must ensure that the system is properly established and maintained. E-learning is a computer based educational tool or system that enables you to learn anywhere and at any time. Today e-learning is mostly delivered though the internet, although in the past it was delivered using a blend of computer-based methods like CD-ROM (Epignosis, 2014). Meanwhile, e-learning is also known as online learning or virtual learning because it involves the use of an internet-enabled device (smartphone, tablet, laptop, or desktop computer) to connect to online resources from virtually anywhere an internet connection is accessible.

E-learning Approaches

There are two general approaches to e-learning: self-paced and facilitated/instructor-led. Self-paced learners are alone and completely independent, while facilitated and instructor-led e-

learning courses provide different levels of support from tutors and instructors and collaboration among learners (Adeola, Adewale & Alese, 2013). Often, e-learning courses combine both approaches, but for simplicity it is easy to consider the two separately.

1. Self-paced e-learning

Here E-learning content is developed according to a set of learning objectives and is delivered using different media elements, such as text, graphics, audio and video. It must provide as much learning support as possible (through explanations, examples; interactivity, feedback, glossaries, etc.), in order to make learners self-sufficient. Learners are offered e-learning courseware (also called Web-based training (WBT)), which can be complemented by supplemental resources and assessments. Courseware is usually housed on a Web server, and learners can access it from an online learning platform or on CD-ROM. Learners are free to learn at their own pace and to define personal learning paths based on their individual needs and interests. E-learning providers do not have to schedule, manage or track learners through a process. However, some kind of support, such as e-mail-based technical support or e-tutoring, is normally offered to learners.

2. Instructor-led and facilitated e-learning

In this model, a linear curriculum is developed that integrates several content elements and activities into a chronological course or syllabus. The course is scheduled and led by an instructor and/or facilitator through an online learning platform. E-learning content for individual study can be integrated with instructor's lectures, individual assignments and collaborative activities among learners. Learners, facilitators and instructors can use communication tools such as e-mails, discussion forums, chats, polls, whiteboards, application sharing, audio and video conferencing to communicate and work together. At the end, learners can be subjected to an exercise or assessment to measure learning.

E-learning components

E-learning approaches can combine different types of e-learning components. There are four components of e-learning as identified by include the following:

 i.   E-learning content

 ii.   E-tutoring, e-coaching, e-mentoring

 iii.   Collaborative learning

 iv.   Virtual classroom.

i. E-learning content include the following resources:

- Simple learning resources; simple learning resources are non-interactive resources such as documents, PowerPoint presentations, videos or audio files. These materials are non-interactive in the sense that learners can only read or watch content without performing any other action.

- Interactive e-lessons; the most common approach for self-paced e-learning is Web-based training consisting of a set of interactive e-lessons. An e-lesson is a linear sequence of screens which can include text, graphics, animations, audio, video and interactivity in the form of questions and feedback. E-lessons can also include recommended reading and links to online resources, as well as additional information on specific topics.

- Electronic simulations; the term "simulation" basically means creating a learning environment that "simulates" the real world, allowing the learner to learn by doing. Simulations are a specific form of Web-based training that immerse the learner in a real worlds' situation and respond in a dynamic way to his/her behaviour.

ii. E-tutoring, e-coaching, e-mentoring; e-tutoring, e-coaching and e-mentoring provide individual support and feedback to learners through online tools and facilitation techniques.

iii. Collaborative learning; collaborative activities range from discussions and knowledge-sharing to working together on a common project.

Social software, such as chats, discussion forums and blogs, are used for online collaboration among learners.

iv. Virtual classroom; a virtual classroom is an e- learning event where an instructor teaches remotely and in real time to a group of learners using a combination of materials (e.g. PowerPoint slides, audio or video materials). It is also called synchronous learning.

Benefits of E-learning

Institutions are using e-learning because it can be as effective as traditional training at a lower cost. Although developing e-learning can be more expensive than preparing classroom materials and training the trainers, especially when multimedia or highly interactive methods are going to be used. However, delivery costs for e-learning (including costs of web servers and technical support) are considerably lower than those for classroom facilities, instructor time, participants' travel and job time lost to attend classroom sessions.

E-learning as a tool for social and collaborative teaching and learning provide the following benefits:

i. Saves time and money: eliminates the need to build classrooms and the cost of commuting.

ii. Capacity Building and Consistency: using e-learning platforms allow educators to build capacity to deliver training to a large number of learners with ease. It also allows for consistency.

iii. Learning Retention: student has the opportunity to go over training as often as needed leading to higher retention rate.

iv.   Measurable: e-learning makes tracking learner progress becomes very easy.

v.   Reduces Printing Cost: eliminate the cost of printing as nothing needs to be paper-based.

vi.   Flexibility: using e-learning offers both students and teachers the freedom to learn at their convenience and pace.

Models of E-learning Practices in Educational Institutions

There are various e-learning models being practiced in educational institutions. The models presented below are based on Unified Modeling language (UML) of Use Case and Activities (UCA).

- **Learning Management System (LMS)**

Learning Management System (LMS) is a global term for a computer system specifically developed for managing online courses, distributing course materials and allowing collaboration between students and teachers. A LMS allow every aspect of a course to be managed. That is, from the registration of students to the storing of test results. It also allows the students to accept assignments digitally and keep in touch with one another. In essence, the LMS is the backbone of most e-learning activities (Epignosis, 2014). LMSs are built on various platforms, commonly PHP, .Net or Java and they will hook up to a database such as PostgreSQL, MySQL or SQL Server. There are many LMSs out there, both commercial and open source.
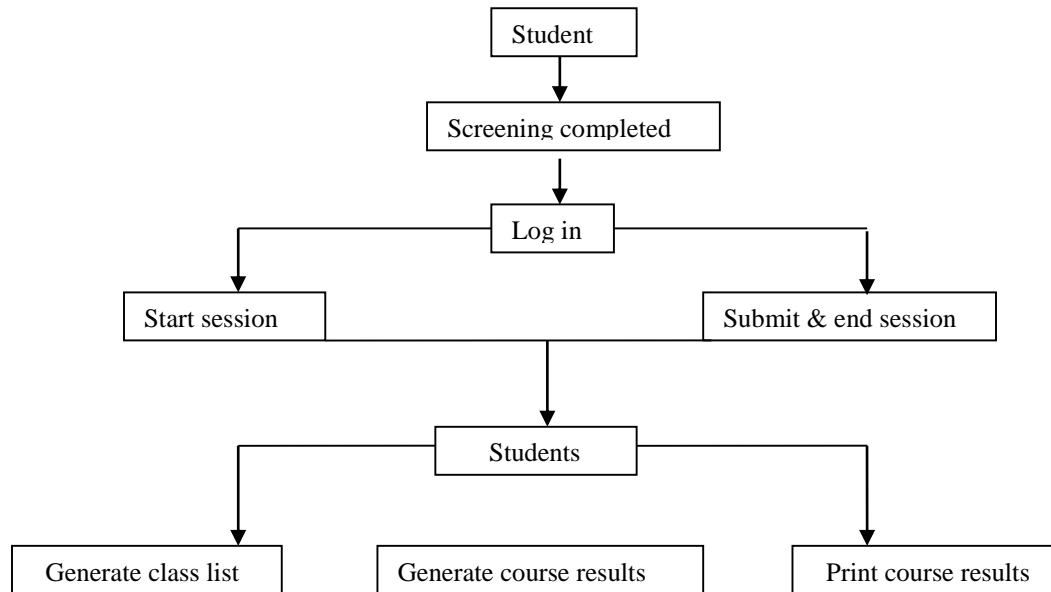
Fig. 1 Diagram showing the beginning of activity, the entire activity and the final stage in LMS platform.

- **Email Interactions**

Email can assist students with literacy and language learning using email exchanges and online writing exercises. The authentic learning provided by collaboration with peers gets students excited about school. The advantages of using email for teaching and learning as identified by Barnes, (2020) and are listed below:

- Increase motivation through self-directed and collaborative learning.

- Improve literacy with writing activities geared to authentic audiences.

- Gain comfort with tools and skills essential for today's workplace.

- Cultivate knowledge and cultural understanding through real-world email exchanges.

- Increased access to technology, providing new opportunities for students without home-based access.

- Engage in "anywhere, anytime learning" with access from school, library and home.
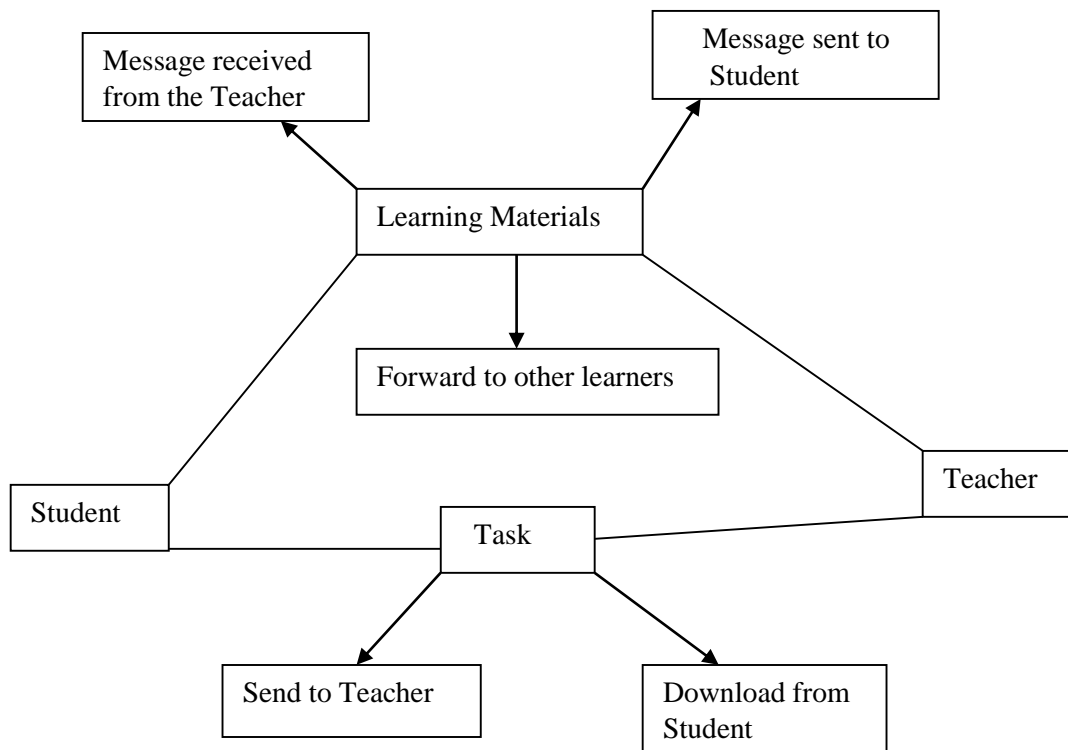
Fig. 2 Diagram showing Email interactions between the teacher and students

- **Social Media Networks**

In the fast changing world of technology it is acknowledge that e-teaching and learning can take place via complex social platforms. This is can be carried out through use case activities to optimize learning by using social networks in eLearning courses. Among many examples identified by Wilson (2016) are:

- Facebook as the world's most popular service was born in 2004 to serve as an academic social network. Students logged onto Facebook from university network and used their academic e-mail address to receive announcements about the schedule of classes, academic plans and access educational materials.

- Twitter can be used share audio-visual reports of scientific conferences, symposiums, references to scientific works from teachers to students and among the students.

- YouTube social network can provide students with services of storage, delivery and demonstration of video. Users can download, view, rate, comment on, send messages and share their video clips.

- Sharing Audio Through iTalk: this makes capturing, editing, and distributing vocal audio even easier than it may seem with nowadays advancements. It allows a speaker to quote on every word.

- Hosting Complex Folder Trees with Wunderlist: this web app will help students to organize all the material needed to be processed such as folders, deadlines, commenting, reminders and check lists.

- Sharing Photos and Images Via Instagram: students can avail themselves of posting photocopies of learning materials on Instagram. It can make organized collections of photos to be easy manage and share. A student can use a unique hashtag(♯) to help the fellow students find the needed photos and pictures.

- Collaborating In Google Docs: allows easier multiple access to text documents with traceable edit history and commenting.

- Taking Notes and Scheduling in Evernote: is a very useful tool for writers. It serves as a digital draft book that can pop up on the laptop or mobile device any time when it is stimulated.

- Bookmarking With Pocket: helps to organize, store and make ready a lot of links in the Pocket. It takes bookmarking links to the shared bookmark folders for collaborative editing and organization.

- Sharing Vids With Vine: is used for giving highlights of interesting lectures including long videos. It allow students to go through an hour long video in few seconds.

- Structuring Tasks with Trello: consists advance scheduling and file hosting features that make it an ultimate platform for collaboration that will introduce real time project management to students.

Communicating via Snapchat: is an application that allows real time collaboration during the learning sessions. It can be integrated into the classroom by a teacher so that students can do centralized commenting, image/link sharing and texting
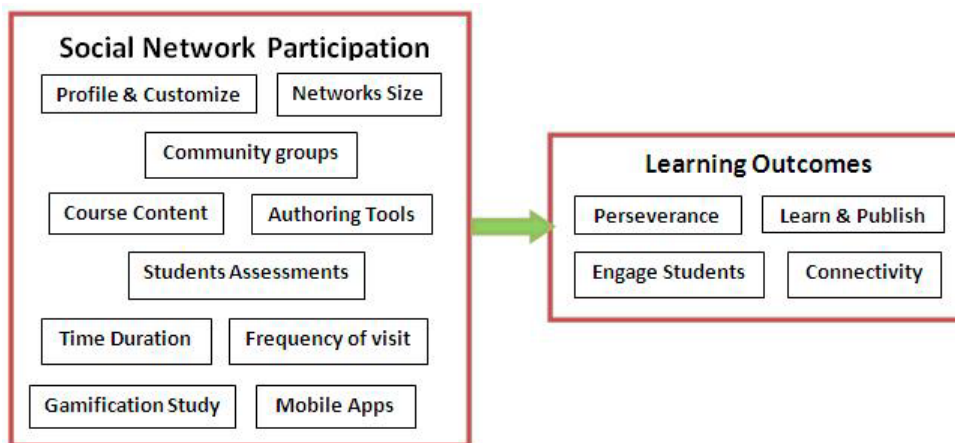
Source: International Journal of Electrical and Computer Engineering-June 2014

Fig. 3 Teaching and learning interactions using social networking platforms

Social and Collaborative Learning

Collaborative learning is an e-learning approach where students socially interact among themselves including the instructors. In essence, learners work together in order to expand their knowledge of a particular subject or skill. In e-learning environments, this is typically done through live chats, message boards, or instant messaging. The principles of collaborative learning are that students can enrich their learning experiences by interacting and benefiting from one another's strengths (Guri-Rosenblit, 2018). Team work is encouraged with collaborative learning because students are responsible for one another's actions and tasks.

This learning method can be conducted either offline or on the web, and can be done asynchronously or synchronously. Meanwhile, Andrade (2015) remarked that collaborative learning allows students to learn from the ideas, skill sets, and experience of others enrolled in the course. Students learn variety of skills such as group analysis and collaborative teamwork building skills engaging in a shared task be it a project or lesson. This also offers an opportunity to students who are unable to attend a live event online to participate in collaborative learning through online forums, message boards, and other various posting sites that don't rely on real-time interaction.

State of E-learning use for Teaching and Learning in Nigeria

E-learning in Nigerian schools is not as popular as it is in Europe. This is because of one strong factor that facilitates virtual learning; having accessibility to the strong Internet. The Nigeria university system for instance, is still far from ICT compliance. It looks incredible that many universities are still using traditional white-board and marker teaching method in Nigeria. The closest to e-learning is the case of Nigeria Open University. The Nigeria Open University combined traditional learning paradigm with visual assisted tools and teaching materials in form of video and projectors. These complimented with web-based instruction materials. This mode of learning ensures the students obtain maximum knowledge from the facilitators. The conventional universities in Nigeria are still far behind in taking advantage of huge opportunities in e-learning. Most of the Universities in Nigeria are still lagging behind in taking advantage of the recent revolution in Information and Communicating Technology. Also the libraries are not computerized. In most cases when they are computerized, it is only restricted to searching of materials on the shelf (Onuora, 2020).

There is a huge advantage in online learning which is believed to have the potential of providing opportunities to provide reflective thought and deep learning through realistically

integrating and apply the principle to learn. However, despite all these advantages some factors have been identified as potential disadvantages of e-learning. These include but not limited to learner isolation. Also, the need for greater discipline in writing skills, self motivation and time commitment to learning are considered as drawbacks to effective online teaching and learning in Nigerian universities. In view of all these disadvantages a blended learning approach was devised. This is achieved by combining traditional classroom environment with online learning paradigm. Sometimes, students are required to complete online test prior to taking a class in order to ensure that they share common foundation of knowledge and most recently the use of zoom platform.

Conclusion

Educational systems in Nigerian should learn from the experience of developed countries on e-learning to ensure continuity and stability in education systems even in the face of unexpected such as pandemic. Internet, bandwidth, electricity, awareness/training and motivation are the major driver of ICT in education and also the major issue in the deployment of e-learning. Policies and programs of e-learning in Nigerian education systems should be financially supported by substantial public funding by yielding to the recommendation of the UNESCO which prescribe 26% of the annual budget for education.

Suggestions

The paper suggests that:

i.   E-learning platforms should be used at various levels of educational institutions in Nigeria;

ii.   Stakeholders in education sector should come up with a policy framework that will enforce the adoption of e-learning in addition to conventional teaching and learning models in Nigeria;

iii.   Library and information services should be digitalized with cutting edge digital infrastructure in order to partake in the information sharing networks;

iv.   Teachers and students should be encouraged to acquire proficiency in ICT skills; and

v.   Teachers should endeavour to share learning materials via electronic portals and tasks the students to using them.

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Adoption of Electronic Platforms for Teaching and Learning in some Universities in Nigeria.

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Abstract

The study investigated the use of online platforms in teaching / learning during the COVID-19 era in Nigeria. The study used online questionnaire to collect data from students in the department of Library and Information Science in two universities in Nigeria. The two universities are Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State. To supplement the data from the questionnaire, some LIS lecturers were engaged in an interview. The study found that LIS Lecturers in the two universities used online platforms such as WhatsApp, telegram, and Zoom to deliver lectures to their students during the period of lockdown due to the COVID-19 pandemic in Nigeria. Lecturers are always available, opportunity to store lectures and files for re-use at convenience, allows for collaborative learning, sharing learning materials, freedom in asking lecturer questions, and conducive learning at home were mentioned as some of the benefits of receiving online lecture. Not having smartphone or android phone, making huge amount of learning materials available, too many messages coming during the lecture, buying airtime for each lecture is expensive, time consuming, eye straining, and network failure were indicated as some challenges associated with receiving lectures through online platforms. Using technology to facilitate learning in universities and other higher education institutions has become common practice due to its ability to reduce barriers related to time and space in traditional learning environments.

Keyword – e-teaching/learning, social media, online platforms, universities, LIS, Nigeria.

Introduction

The advancement in technological innovation are increasingly influencing the way information is communicated through diverse channels particularly the social media and these changes are also shaping the teaching-learning process in the educational system. The term e-learning has different meanings in various contexts. In the higher education arena, it refers to the case where learning is performed through internet-based delivery of information, contents and programs (Ghasia, et al., 2020). E-learning has generated a lot of new opportunities in education by extending the potential to reach the new learners to deliver education. Universities in Nigeria like other universities in developed countries are switching to adopt ICT for the better, efficient, effective and flexible learning. With the help of various online tools along with social media, modern educators are able to attract students through distance learning programs. Soon, this will be an inseparable part of our modern education system. Today, hosting live lectures via Skype or webinars via WebinarJam is the way forward to allowing students who live in remote areas of the world to access education (Willbold, 2019).

Social networks platforms are now becoming prevalent and used as e-learning platforms due to their nature and facilities. Social media platforms have gradually emerged as a new avenue of communication between teachers and students in higher education, and they are becoming important communicative tools (Akcaoglu & Bowman, 2016). They are great tools when it comes to interacting with students since it's something they are so familiar with, using these sites frequently throughout daily life (Segaren, 2019). Several social media platforms are being increasingly adopted in formal learning settings even though they have not been conceived specifically for education. In a university setting, social media can be incredibly useful when it comes to reaching out and engaging with students (Segaren, 2019). It's a less formal way for

lecturers to communicate, showing students a more personal side while improving the teacher-student relationship. The social network tools especially WhatsApp Messenger, Facebook, and Viber, telegram, Skype, Zoom, and others have become dominant factor in today's digital world and are affecting how users communicate and businesses operate (Yeboah, Horsu & Abdulai, 2014). The social media by their nature have the capabilities of educating, informing, entertaining and inflaming the audience, of which are also the basic function of the mass media. Above all, they possess a contagious and outreaching influence which the conventional media lack (Segaren, 2019). This potential is most likely what Osahenye (2011) referred to as "unstoppable power of the social media".

The use of electronic platforms, especially social media, for the purpose of teaching and learning has been criticized by various researchers (Dietrich, Whyte & Mitrovic, 2011; See Yin Lim, et al., 2014). For example, a random sample of lecturers at a South African Further Education and Training (FET) college indicated that most of the students from non-IT departments were against the idea of using electronic platforms, especially social media, for the purpose of knowledge dissemination amongst students and lecturers. These lecturers argued that electronic platforms like Facebook are disruptive and destructive (Dietrich, Whyte & Mitrovic, 2011). Evidence is also now emerging that there are cultural differences in use of these technologies (Kennedy, Dalgarno and Waycott, 2010). It would be a mistake, in any technology policy implementation context to not recognize the variation in technology skills of learners and staff, and it cannot simply be assumed all learners are skilled 'digital natives and all academics are skilled technology users or that institutions are supporting these trends (See Yin Lim, et al., 2014). The use of social networks provides the opportunity for teachers and students to be in continuous contact transcending the conventional classroom and creating new teaching and learning spaces (Ean & Lee, 2016).

Several studies have explored use of different social media platforms in Nigeria (Agbo et al., 2020; Baro, Ikolo & Atanda, 2015) and yet, only a limited number of studies have focused on using these platforms that are popular among young learners for teaching and learning purposes. Online learning breaks the limitation of time and space and is widely used in the fields of elementary education and higher education (Allen & Seaman 2011). At the same time, a variety of social networking sites and software make it possible for learners from all over the world to have real-time interaction. Most of the learners are in the "always online" state (Wang, Han & Chen 2016). It is assumed that Teacher/students relationship can be improved significantly with use of online platforms for teaching and learning. Therefore, this study aims to investigate the use of social media platforms in the teaching/learning process of Library and Information Science (LIS) in universities in Nigeria during the period of general lockdown caused by the COVID-19 pandemic.

Research questions

RQ1. What online platforms are Library and Information Science students receiving lectures in Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State?

RQ2. What are some of the benefits to the students and teachers using online platforms in teaching and learning in Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State?

RQ3. What are the challenges the Library and Information Science students and teachers encounter in the e-teaching and learning process in Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State?

Literature review

Use of online platforms in education

In the higher education sector, research has often examined how social media and networked technologies impact scholarly and pedagogical practices. These studies typically focus on faculty utilization and integration of social media platforms, such as Facebook, Twitter, or blogs,

WhatsApp for instructional design, curriculum support, or classroom practice (Gikas & Grant, 2013; Tess, 2013), or on student perceptions and uses of social media platforms for out-of-class engagement and learning (DeAndrea, et al, 2012; Ford, Veletsianos, & Resta, 2014). Higher education administrators increasingly value online education as a critical component of long term strategic plans for their institutions (Allen & Seaman, 2013). Advocates suggest that online learning might not only provide more cost-effective instruction but also increase access to learning opportunities and college completion for students (Shea & Bidjerano, 2014). Margaryan, Littlejohn and Vojt (2011) investigated the extent and nature of university students' use of digital technologies for learning and socializing. The findings show that students use a limited range of mainly established technologies. Use of collaborative knowledge creation tools, virtual worlds, and social networking sites was low among the students. Social media promote learning by offering support with sharing documents as well such as via Google Drive Box, Google Docs (Willbold, 2019).

The study by Hershkovitz and Forkosh-Baruch, (2013) found that students rely on social media for educational purposes like social networking, chatting, and knowledge sharing, generating diverse questions about teacher-student communication through social networks and their impact on the teaching-learning process. Aside from the benefits reported, the study by See Yin Lim, et al., (2014) found that students also listed Social Media Technologies as the main detractor that causes distraction and loss of focus in their studies (66.7%). They also identified blocking of some Social Media Technologies applications by the university or colleges (81.48%) as the main restrictions that hinder them from using Social Media Technologies to support their studies. Almost 55% of the respondents claimed that they are not sure whether there is any Social Media Policy within their institution of study. Thus, there is a consensus that teacher-student

communication on social networks should be professional, mainly focused on issues related to the academic field (Ean & Lee, 2016; Chromey et al., 2016). The inappropriate and irresponsible use of social networks as a communication tool between teachers and students may be detrimental to the teacher-student relationship (Manasijevic, et al, 2016). According to Froment, Garcia-Gonzalez and Bohorquez (2017), inappropriate or irresponsible use by both teachers and students of social networks can negatively affect the teacher-student relationship, especially in terms of teacher authority and status as well as student motivation and academic performance. Therefore, in order to improve the teaching-learning processes, teachers should make a responsible use of social networks when interacting with their students and avoiding an inappropriate use of them in order to not damage the teaching-learning processes.

Studies confirm that more and more university lecturers are using social networks in their teaching as a means of communication with their students (Froment, Garcia-Gonzalez, Bohorquez, 2017; Agbo, et al, 2020). Froment, Garcia-Gonzalez, Bohorquez (2017) analyzed the use of social networks as a communication tool between teachers and found that they primarily communicate through social networks for academic reasons. The study revealed that teachers found Facebook and WhatsApp to be the most effective social media tools due to the popularity and versatility of Facebook, and the easy-to-use communicative abilities of WhatsApp. For students taking distance learning courses or for lectures with large class sizes, teachers can make themselves more accessible to students via social media. They can hold 'virtual office hours' through Skype or get them to use Facebook, Twitter or WhatsApp to raise questions they didn't get the chance to in class (Froment, Garcia-Gonzalez, Bohorquez, 2017).

Fauzi (2019) conducted a study on the development of WhatsApp group discussion to solve the limitation of lecturer-students' interaction at class in Universitas Nahdlatul Ulama Blitar (UNU),

Indonesia. The research based on the idea of overcoming problems about the limited interaction between teachers and students in the classroom, and responding to technological developments that enter education. The study produced a WhatsApp Group Discussion product that can be used in lectures. The results of the study showed that in combination, the product developed have met the criteria sufficiently valid. This indicates that in terms of learning and technology, the product (WhatsApp Group Discussion) is feasible and can be used in lectures. This product can be used to overcome the problem of limited interaction between the lecturers and the students of UNU Blitar in the lecture class (Fauzi, 2019). Agbo, et al (2020) investigated students' perceptions and opinions regarding the use of WhatsApp social media group for learning computing education in the Nigerian context. The study explores how social media usage by students influences their perceived learning outcomes. The study found a positive relationship between social media usage for computing education and perceived learning outcomes. In addition, the study found a linear relationship between communication in group and perceived learning outcomes.

Similarly, Cetinkaya, (2017) explored the effects of WhatsApp use for education and determine the opinions of students towards the process. The analysis indicated that both learning environments have different effects on the success of students and that supporting the traditional environment by using WhatsApp is more effective. The qualitative analysis showed that students developed positive opinions towards the use of WhatsApp in their courses. Respondents reported that learning could also take place unconsciously and the messages with images were more effective for their learning. Recently, some schools have recognized the use of WhatsApp as a medium wherein students are allowed to engage in group discussion (assignments and group tasks) with each other and their teachers (Agbo, et al 2020). With the use of social media platforms, students can co-create knowledge, share experiences, work, and learn collaboratively (Popescu,

2013). According to Eason (2019) the use of video communications has the potential to increase productivity and efficiency by reducing unproductive travel time, allowing more students to complete courses in a shorter period of time, reaching more students in a variety of areas, and lowering costs.

Benefits of using social media in Education

It should be noted that whilst the traditional medium of face-to-face interaction offers numerous advantages for teaching and learning, it is controlled by time and space. In that respect it becomes crucial to embrace new technologies to supplement the current traditional ones in the teaching and learning of college and university students. With electronic media, the world becomes the classroom, available 24/7, and not confined to Mondays to Fridays. Using social media such as Facebook, WhatsApp, Instagram and so on provides free access to online communication and information (Willbold, 2019). According to Bouhnik and Deshen, (2014) WhatsApp is seen as a relatively new tool in education with similar positive characteristics as previous technological tools that are implemented, but it seems that WhatsApp has some up-to-date features that encourage teacher and students to use it in order to enhance understanding WhatsApp also includes a variety of functions, such as text messages, attached images, audio files, video files, and links to web addresses. The study by Gon and Rawekar (2017) found that Interaction between students, sharing learning materials, easy accessibility to learning material, high Interaction with facilitator and doubts immediately cleared were the other educational advantages of WhatsApp teaching/learning activity with more than 70% students agreeing to it.

Many authors consider social media as powerful drivers of change through which to accommodate learning needs into more social and open contexts, disrupting the traditional boundaries of teaching settings (Krutka & Carpenter 2016). With reference to e-learning, a meta-synthesis of studies

pointed out that social media could facilitate deep learning and the creation of knowledge in e-learning at higher education institutions (Mnkandla & Minnaar, 2018). When examining students' utilization preferences and their views on incorporating social media in higher education, for instance, Instagram is ranked higher than Facebook, Twitter and YouTube (Al-Bahrani, Patel, & Sheridan 2015). In recent times, social media such as Telegram, WhatsApp, Zoom, and Facebook have been used for collaborative learning and create engagement among a network of students, thus making these integral media part of students' social and academic life (Agbo, et al 2020). The social media by their nature have the capabilities of educating, informing, entertaining and inflaming the audience, of which are also the basic function of the mass media. Above all, they possess a contagious and outreaching influence which the conventional media lack (Agbo, et al 2020). This potential is most likely what Osahenye (2011) referred to as "unstoppable power of the social media". The social media and social network tools especially WhatsApp Messenger, Facebook, and Viber, Skype, have become dominant factor in today's digital world and are affecting how users communicate and businesses operate (Yeboah, Horsu & Abdulai, 2014).

Social media has various uses in the classroom as well as to help market and promote schools and universities (West, 2019). West (2019) identified the following ways to use social media for education. First, social media provides a smoother, more direct communication tool between students, teachers and parents, who can check in and ask or respond to questions. Social media allows for more e-learning opportunities as well. As remote jobs and online classes are becoming more popular, training students to work from a distance is an important lesson, and social media can help with that. Research has shown that some social media platforms such as WhatsApp as benefits such as the ability to create, share, adapt and reuse content, engage in digital dialogue and collaborate, have peer-to-peer contact, social interaction with other users, its discoverability, and

continuous accessibility have attracted greater number of digital communication users using the platform (Yeboah, & Ewur, 2014). Gon and Rawekar (2017) assessed the effectiveness of social media like WhatsApp in delivering knowledge to 4th semester MBBS students and to compare the improvement of knowledge gain through e-learning and didactic lecture. The post test results revealed that the learners with WhatsApp as a learning tool scored in the range of 5-20 marks while those with didactic lecture scored in the range of 3-17.5 marks and had an average of 11.6 and 11.9 score respectively. Technical, educational and instructional advantages of teaching learning activity via WhatsApp out pars disadvantages

The extensive use of social media has encouraged teachers to adopt social media as an e-learning platform (Qi, 2019). According to West (2019) in a visual heavy class, students can use Instagram to present a series of photos or graphics in a visually appealing manner. Instagram allows students to practice digital storytelling in ways that other social media platforms may fall short. West (2019) added that students can create class-specific Instagram accounts and may delete them after the course is over if they so choose. The study by Agbo et al (2020) found that students in Nigerian higher institutions use WhatsApp to interact and collaborate effectively with their peers and teachers. The authors added that with WhatsApp, students who shy away from seeking face-to-face academic help from teachers and peers have the opportunity to interact remotely.

Kolog et al. (2018) found the use of electronic devices, in the academic environment, as tools for promoting social and collective learning. However, the researchers cautioned that electronic devices used in academic environments must be used under strict conditions that gear towards learning. There are various uses of social media but more people, particularly students, find it more productive when they use it to learn in groups (Fauzi, 2019). The study by Abbas, et al. (2019) reported that results from a Massive Open Online Courses (MOOCs) delivered through social

media showed improved performance of the students. Furthermore, it indicated that the involvement of social media and technology in learning programs did help in reducing the number of students who dropped out of the programs.

More importantly, unlike the traditional face-to-face medium of teaching which have some space and time restrictions, in electronic media, the world becomes the classroom, available 24/7, and not confined to Mondays to Fridays (Dzvapatsva, Mitrovic, & Dietrich, 2014). The notion of 24/7 in this context simply suggests that embracing social media enables students and lecturers to interact outside the formal learning time with more flexibility. Whether computer-based or mobile-based, Menkhoff et al. (2014) and Wheeler (2010) identified three usefulness of social media in a university classroom. First, social media supplements blended learning which helps students create positive contextual learning in relation to pedagogical objectives. Twitter for example, can be used to engage with students as learning happens during face-to-face classes and; it can also be used to communicate with students when they are at their homes (the period of distance learning). Second, social media affords students to engage in collaborative learning and finally, social media motivates students to post comments or questions to blogs or Twitter about their subject matter.

Challenges of using social media in the teaching/learning process.
Despite the benefits related to the use of social media in the teaching/learning process, some studies suggest that there are various challenges militating against successful integration of most social media in teaching and learning in university environments. For example, Dzvapatsva, et al. (2014) at the University of the Western Cape, South Africa, reported that some of the factors that militate against the use of social media include lack of technical skills that students experience when learning or using portals of social media, inadequate technological infrastructure and bandwidth which results in students abusing it. The study by Chawinga (2017) on the use of Twitter and blogs

in the teaching/learning process identified challenges faced such as cost of internet data bundles, inaccessible Wi-Fi, poor bandwidths and insufficient computers.

Barczyk and Duncan (2011) observe that critics of social media in academia often point out that social networking sites such as Twitter and Facebook are distracters to learning. Consequently, some instructors in higher institutions have been reluctant to adopt social media in their teaching and learning activities (Galagan, 2010). Abbas et al. (2019) warned that despite the overwhelming importance of social media in the everyday life of learners and instructors, users must ensure a healthy balance as it has been reported that social media has both positive and negative impacts on students' learning processes (van Zoonen, Verhoeven, & Vliegenthart, 2017; Obi, et al. 2017). Abbas et al (2019) investigated the relationship between positive and negative characteristics of social media, and the learning attitude of university students for sustainable education in Pakistan. The study revealed that the use of social media in Pakistan has a negative influence on students' behavior as compared to positive behavior. However, the authors pointed out that the result cannot be generalized beyond the specific context of the research and recommended further research.

Methodology

A mixed-method research methodology with a significant survey research component was employed for this research. Mixed-method research methodology is considered to be most appropriate for this study as it allows the researchers to gather multiple forms of data from diverse audiences such as educators and students. The survey adopted online method to collect data from the LIS students and interview to collect data from the educators. The online questionnaire was designed using SurveyMonkey. The link to the survey was forwarded to the students through the assistant of one of the lecturers during their online class. Sample of the questionnaire attached at the end as Appendix I. The data collection process of the online questionnaire was followed by

qualitative collection of data in which the voluntary lecturers were interviewed to better understand the type of online platform they use in delivering lecture during the general lockdown. In total, 674 students participated in the study. The respondents were selected using purposive sampling technique as only those who join the online class with smartphone or Android phone to receive the lectures were taken to respond. Data collection started June 2020 and ended October, 2020.

Interview with lecturers

Two LIS lecturers one each from the two universities taking online lecturing were selected using purposive sampling technique and contacted to seek their willingness to participate in the survey. They voluntarily agreed and interview date and time was scheduled with each of them separately. At the appropriate time they were engaged separately in an open ended interview using WhatsApp chat. The lecturers were identified with alphabets A and B for the purpose of anonymity.

The three interview questions are:

1. What online platform do you use in delivering lecture to the students?
2. What are the benefits you perceived from using the online platform?
3. What are the challenges associated with using the online platform in lecturing?

Data Analysis

The descriptive statistics were analyzed using simply percentages and results presented in tables. While the responses from the interview with the lecturers were jotted down and incorporated directly into the discussion section.

Results

Distribution of respondents

In this section, the two universities that responded, level of study, the number of respondents from each university and is given in Table 1. Those students who connected to participate in the online lectures in the different levels were used for the study.

The results in Table 1 shows that among the respondents, the highest number is from Delta State University, Abraka, followed by respondents from Ignatius Ajuru University of Education, Port-Harcourt. Breakdown by level shows that the highest respondents are second year (200 level) (109 29.5%), and 94 (30.8%) respondents in both universities.

Table 1: Distribution of the respondents from 100-400 levels that receives the online class

s/n	Universities	100 Level	200 Level	300 Level	400 Level	Total no of respondents
1	Delta State University, Abraka	90 (24.4%)	109 (29.5%)	88 (23.9%)	82 (22.2%)	369
2	Ignatius Ajuru University of Education, Port-Harcourt.	71 (23.3%)	94 (30.8%)	76 (24.9%)	64 (21.0%)	305
	Total	161	203	164	146	674

Social media platforms students received lectures in the two universities

In this section, students in Library and Information Science in the two universities were asked the social media platforms they received lecture during the period of general lockdown is given in Table 2.

Results in the table revealed that students of LIS in the two universities received lectures from online platforms such as WhatsApp audio, WhatsApp video, WhatsApp chat, WhatsApp file attachment. The only difference is that lecturers in Delta State University, Abraka also used

telegram, while at Ignatius Ajuru University of Education, Port-Harcourt, lecturers in the LIS department also used Zoom.

Table 2: Social media platforms students received lectures in the two universities

s/n	Universities	Social media platforms used for teaching and learning
1	Delta State University, Abraka	WhatsApp audio, WhatsApp video, WhatsApp chat, telegram. WhatsApp file attachment.
2	Ignatius Ajuru University of Education, Port-Harcourt.	WhatsApp audio, WhatsApp video, WhatsApp chat, WhatsApp file attachment, Zoom.

Benefits of receiving lectures through online platforms?

In this section, students were asked to agree or disagree to the statements on the benefits of receiving lectures through social media platforms in their university. Results are presented in Table 3. Results in Table 3 revealed that a majority (83.2%) of the respondents agree and strongly agree that lecturers are always available is one of the benefits in receiving lectures through online platform. Also, a majority (92.2%) of the respondents agree and strongly agree that online learning platform gives them opportunity to store lectures and files for re-use at convenience. The majority (92.6%) of the respondents agree and strongly agree that receiving lectures through online platform allows for collaborative learning. Almost all (93.4%) of the respondents agree and strongly agree that learning anytime anywhere is one major benefit of receiving lectures through online platforms. Also, a majority (88.5%) of the respondents agree and strongly agree that sharing learning materials is one benefits of receiving lectures through online platforms. The majority (92.2%) the respondents agree and strongly agree that receiving lectures through online platform gives them freedom in asking lecturers questions. A majority (85.2%) of the respondents also agree and strongly agree that receiving lectures through online platforms allows for conducive learning at home.

Table 3: Benefits of receiving lectures through online platforms?

Statements	A	SA	D	SD
Lecturers are always available	306 (45.4%)	255 (37.8%)	67 (10.0%)	46 (6.8%)
Opportunity to store lectures and files for re-use at convenience	412 (61.1%)	209 (31.1%)	50 (7.4%)	3 (0.4%)
Collaborative learning	368 (54.6%)	256 (38.0%)	40 (5.9%)	10 (1.5%)
Learning anytime anywhere	503 (74.6%)	127 (18.8%)	42 (9.3%)	2 (%)
Sharing learning materials	255 (37.9%)	341 (50.6%)	67 (9.9%)	11 (1.6%)
Freedom in asking lecturer questions.	409 (60.7%)	212 (31.5%)	49 (7.3%)	4 (0.6%)
Conducive learning at home	331 (49.1%)	243 (36.1%)	94 (13.9%)	6 (0.9%)

n = 674

Challenges associated with electronic learning.

In this section, students were asked to indicate the extent to which they agree or disagree with the statements regarding challenges associated with online learning. Responses are presented in table 4. Results in Table 4 shows the majority (84.7%) of the respondents agree and strongly agree that not having smartphone or android phone to be receiving lectures is a challenges to them. Almost all (93.9%) the respondents agree and strongly agree that making huge amount of learning materials available is confusing to them. Also, a majority (86.8%) indicated that they agree and strongly agree that too many messages coming during the lecture is confusing them when receiving online lecture. Almost all (98.4%) the respondents agree and strongly agree that buying airtime for each lecture is expensive. More than half (53.3%) of the respondents disagree and strongly disagree that receiving lectures through online platforms is time consuming. Almost all (83.8%) the respondents agree and strongly agree that eye straining is a challenge from receiving lectures

through online platforms. Most (84.5%) of the respondents indicated that they disagree and strongly disagree that lack of skills to use these tools is a challenge they face in receiving lectures through online platforms. A majority (90.8%) of the respondents indicated that network failure is a problem when receiving lectures through online platforms.

Table 4: Challenges associated with electronic learning.

Statements	A	SA	D	SD
No smartphone or android phone	267 (39.6%)	304 (45.1%)	88 (13.1%)	15 (2.2%)
Huge amount of learning materials making it confusing	412 (61.1%)	221 (32.8%)	41 (6.1%)	-
Too many messages	334 (49.6%)	251 (37.2%)	59 (8.8%)	30 (4.5%)
Buying airtime for each lecture is expensive	395 (58.6%)	268 (39.8%)	6 (0.9%)	5 (0.7%)
Time consuming	218 (32.3%)	97 (14.4%)	208 (30.9%)	151 (22.4%)
Eye straining	375 (55.6%)	190 (28.2%)	89 (13.2%)	20 (3.0%)
Lack of skills to use these apps.	127 (18.8%)	69 (10.3%)	411 (61.0%)	67 (9.9%)
Network problems	429 (63.6%)	199 (29.6%)	46 (6.8%)	-

n= 674

Discussion of Findings

Online platforms students in the two universities received lecturers.

The study revealed that students of LIS in the two universities received lectures from online platforms such as WhatsApp audio, WhatsApp video, WhatsApp chat, WhatsApp file attachment. The only difference is that lecturers in Delta State University, Abraka also used telegram, while at Ignatius Ajuru University of Education, Port-Harcourt, lecturers also used Zoom. The finding on the use of WhatsApp is consistent with findings of Cetinkaya, (2017) who explored the effects of WhatsApp use for education and determine the opinions of students towards the process and found

that using WhatsApp is more effective, and that the messages with images were more effective for their learning. There are also emerging evidence that these Apps have a significant potential to support the learning process and has major implications on pedagogies, allowing direct access to lots of online resources, more focus on student's creativity, autonomy, and responsibility on one's own learning (Shuler, 2012). Seufert et al. (2015) explored 234 WhatsApp group chats and found that they are used mainly for communication with specifically selected members who know each other. With regard to use of Zoom for educational purpose, Parson (2020) reported that the usability and the reliability of Zoom is what has led to this incredible adoption, combined with, honesty, the generosity of Eric and his willingness to open it up especially to the schools.

Benefits of using online platforms in teaching and learning

In Table 2, results revealed that a majority of the respondents agree and strongly agree that lecturers are always available, opportunity to store lectures and files for re-use at convenience, allows for collaborative learning, sharing learning materials, freedom in asking lecturer questions, and conducive learning at home are some the benefits of receiving lectures through online platforms. The findings on lecturers are always available and learning anytime anywhere is in line with previous studies as Gon and Rawekar (2017) found constant availability of facilitator and learning anytime anywhere has made WhatsApp a new and convenient tool for teaching - learning activity. The findings on the benefits of receiving lectures through online platforms such as 'sharing learning materials' and 'freedom in asking lecturer questions' are in line with the existing literature as Rambe and Chipunza (2013) also observed that WhatsApp supports knowledge sharing between students, and between students and teachers.

Challenges students and teachers encounter in the online teaching and learning

Results in Table 3 revealed that the majority of the LIS students agree and strongly agree that not having smartphone or android phone is a challenges to receive online lectures. This shows that not all students have opportunity to own a smartphone or Andriod phone to participate in online classes as phones are expensive. This may be why Bouhnik and Deshen (2014) reported that not all students have access to the application is temporary, since the number of students with smartphones increase daily. The majority of the LIS students agree and strongly agree that making huge amount of learning materials available is confusing to them. This shows that some lecturers send too many learning materials for students to read, this probably tend to confuse them. Majority of the LIS students agree and strongly agree that too many messages coming during the lecture is confusing them when receiving online lectures. The study also found that all the LIS students agree and strongly agree that buying airtime for each lecture is expensive. More than half of the respondents agree and strongly agree that receiving lectures through online platforms is time consuming. Almost all the respondents agree and strongly agree that receiving lectures through online platforms strain eyes. Almost all the respondents indicated that bad network is a challenge when receiving lecture from online platform. More than half of LIS students disagree and strongly disagree that lack of skills to use these apps is a challenge they face in receiving lectures through online platforms. This shows that the students are skilled in using social media apps. This finding is consistent with Baro, Ikolo and Atanda's (2015) report of students of LIS in Delta State University acquired the skills to use Web 2.0 tools mainly through self-practice. When it comes to social media and education, some parents and teachers view these platforms as distractions that negatively influence students. But in today's increasingly digital world, social media plays a meaningful role in higher education every day. In a university setting, social media is a valuable tool in terms of a healthy communication between lecturers and students. In the interview with LIS

lecturers on benefits of online teaching/learning, Lecturer A mentioned flexible time (timing/schedule of time is at anytime) and interactive nature of class. While, Lecturer B mentioned benefits such as able to control class effectively, fixing of time convenient to lecturer, and it is interactive. These findings are in-line with the literature as research has shown how beneficial social media can be in terms of learning (Froment, Garcia-Gonzalez, Bohorquez, 2017). With regard to the challenges encountered by the lecturers, Lecturer A mentioned cost of paying for data, network failure, laxity of students, and after lectures unable to deliver exams because it might encourage exam-malpractice at home. Lecturer A explained – o*ne major challenge I encounter is buying data bundle for the lecture, the university does not provide data or Wi-Fi for lecturers to carry out the lecturing work during this lockdown. Another challenge is no way to conduct exams even after lecturing the whole course outline, that means waiting until schools to resume. Because we don't want to encourage exam malpractice at home.* Lecturer B mentioned that cost of data, not all students participate because of lack of Andriod phone, unable to conduct exams for students, and frequent network failure. He added – *first and foremost, if you have a class of 90 students only 40 or 45 will have phones to participate which is a major challenge. Secondly, the university does not pay for data bundle/Wi-Fi for the lectures leaving the burden of buying data for the lecturer which is costly and network is very unreliable in my area.* The findings on cost of Internet data and network failure during lectures agree with the findings of Chawinga (2017) on the use of Twitter and blogs in the teaching/learning process which identified challenges faced such as cost of Internet data bundles, inaccessible Wi-Fi, poor bandwidths and insufficient computers.

Conclusion

Based on the findings, the study concludes that LIS Lecturers in the two universities used online platforms such as WhatsApp, telegram, and Zoom to deliver lectures to their students during the period of lockdown due to the COVID-19 pandemic in Nigeria. Lecturers are always available, opportunity to store lectures and files for re-use at convenience, allows for collaborative learning, sharing learning materials, freedom in asking lecturer questions, and conducive learning at home were mentioned as some of the benefits of receiving online lecture. Not having smartphone or android phone, making huge amount of learning materials available, too many messages coming during the lecture, buying airtime for each lecture is expensive, time consuming, eye straining, and network failure were indicated as some challenges associated with receiving lectures through online platforms.

Although Social Media and other electronic learning platforms offer opportunities, there is an increased need for training on how to use these technologies to improve and augment teaching and learning to support students and lecturers, with the ultimate objective of providing learning in the event of absent of physical contacts. However, if there are no clear policies on usage, the platforms can be abused by students. This research will contribute towards a better understanding of how online platforms such as WhatsApp, telegram, can be used to deliver lectures in universities in Nigeria even post COVID-19.

Recommendations

1. The management of Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State should provide data bundle to enable lecturers deliver lectures online.

2. Policies should be formulated in Delta State University, Abraka and Ignatius Ajuru University of Education, Port Harcourt, Rivers State to guide the use of online platforms for educational purpose.

3. The telecommunications regulatory body (NCC) in Nigeria should enforce provision of stable and strong network all over Nigeria by service providers to solve the challenge of bad network as many connect to participate using their mobile phone and line with internet services.

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