

Optimising Multimedia Technologies for Teaching and Learning in the New Normal: The Perspectives of Nigerian Library and Information Science Academics

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Abstract

This study took into account academic' perspectives on optimizing Multimedia technologies for teaching and learning in Nigerian library schools. The study included 98 Nigerian Library School academics through distributed questionnaires via online platforms (Google form). The findings revealed that the majority of participants are quite aware of the presence and importance of Multimedia technologies for virtual research presentations, and their attitude toward the usage of Multimedia technologies for teaching and learning is very positive. The majority of participants describe Multimedia technologies as very interesting and highly satisfactory platforms for collaborations; they also note that using Multimedia technologies is much more convenient and cost-effective than a face-to-face presentation, especially when the research work is to be presented outside of the presenter's geographical location. The study noted technical difficulties, network issues, the cost of data subscription, a lack of ICT understanding, and a lack of training as challenges. The study, therefore, concluded that Nigerian LIS academics have a positive perception towards the use of multimedia technologies for teaching and learning in the new normal and because its impacts cannot be underestimated the study, therefore, recommends that government, through the ministry of education, should increase funding for academics to facilitate dependable infrastructures to maximise the use of multimedia technologies for teaching and learning in the new normal.

Keywords: Multimedia, Technologies, Teaching and Learning, Library and Information Science, LIS academics, Nigeria.

Introduction

COVID-19 pandemic has created a new normal in the world. It has changed the pattern of existence in almost all spheres of life, causing fear and uncertainty. This crisis has affected the library, the librarians, and lecturers in Library school, as well as the way information, is delivered to the end users including students of higher institutions of learning. During the high point of the pandemic, members of the public were advised to take certain protective measures such as; the use of face masks, washing hands regularly, keeping physical distance and most importantly reducing as much as possible physical contact so as not to be infected with this virus. This crisis necessitated the closure of schools and triggered an unprecedented demand for technological solutions for teaching and learning. The adoption of multimedia technologies for virtual teaching and learning became an inevitable option. Unquestionably, multimedia technologies have contributed to a new era of globalisation and have emerged as crucial technologies for communication in the age of the new normal.

Recently, we now face a new paradigm and challenge in the field of education as a result of this progress. Academics are required to adjust to a new approach to teaching and learning if we want to better educate future generations, such as those who are living in the Covid-19 era. The educational system changed as a result of the rapid development of multiple learning technologies in the second half of the 20th century, according to academics. This is because these technologies may provide a proactive, useful, and comprehensive teaching and learning environment. To improve the use of cutting-edge technologies in teaching and learning processes globally, the Ministry of Education today offers a variety of facilities and training programmes. To give instructors the multimedia technologies they need to strengthen the educational system, a sizeable amount has been set aside. Despite their greatest efforts, academics in the majority of countries still fail to fully utilise the resources at their disposal (Suleiman, 2019).

Regarding many academic events that are held all around the world in academic settings and other industries like medicine, finance, agriculture, government parastatals, etc. The use of multimedia technologies for online interaction has become completely indispensable in all spheres of life. By incorporating several technologies into teaching-learning activities in the university system, the teacher can use a variety of instructional delivery modalities (media) with the flexibility of time and place (Fong et al., 2010). One solution to the current problem of how the educational system has to adapt to this new normal could be this method. One of the new, creative techniques of instruction that academics are now exploring is teaching and learning (Saha, Pranty, Rana, Islam, and Hossain, 2022). Despite the restrictions of Covid-19, academics were urged to use multimedia technologies for a variety of academic activities like research, learning, partnerships and networking which led to all countries of the world conforming to the new standard. To reproduce the best experience, multimedia technologies must be highly well-designed and intelligent. The best design principles must be integrated with the different components of cognitive processes (Dorfman, 2022).

Multimedia technologies are used successfully by several institutions to carry out their academic duties. The benefits of employing the technologies for online interaction for academics have also considerably increased. According to Lobe, Morgan, and Hoffman (2019), the convenience and affordability of face-to-face interaction cannot be compared to teaching and learning, particularly when the research work is to be presented before a large geographic audience with the understanding that online methods can be used to complement, replicate, and improve the traditional method. Multimedia technologies, such as photo-sharing, video-publishing, and map-making programmes, can also be used by students to allow them to demonstrate their understanding of a concept and concurrently improve their reading abilities by having them create their content. Nearly all universities nowadays assert to have a plan in place for utilising the opportunities offered by the internet or other multimedia technologies to develop and broaden traditional education.

Only a small number of research in Nigeria have focused on the use of multimedia technologies for teaching and learning in the context of Nigerian LIS academics. In contrast, several studies have looked at the use of ICTs for creating virtual partnerships, such as (Mercieca, 2021, Lo laconic, Symonds, & Brown, 2016; Vinagre, 2016). Additionally, even though the majority of Nigerian academics are aware of various ICTs, they are not completely

aware of their enormous potential as useful tools for teaching and learning. This could lead to the underappreciation and underuse of the technologies. Furthermore, there are still just a few studies on the use of multimedia technologies in Nigeria, which necessitates further research into an empirical examination of the most effective ways to use these technologies for online interaction.

Objectives of the Study

The study investigated academics' experience using multimedia technologies for teaching and learning in the era of the new normal in Nigerian library schools

1. investigate the perception of Nigerian LIS academics' in using multimedia technologies for teaching and learning in the new normal;
2. investigate the perception of Nigerian LIS academics on the impact of using multimedia technologies for teaching and learning in the new normal;
3. determine the perception of academics on the envisaged challenges associated with using multimedia technologies for teaching and learning in the new normal.

Literature Review

A growing number of people are employing various multimedia technologies for professional and academic reasons as a result of the emergence of the Covid-19 pandemic. Academics in library and information science have been compelled by this phenomenon to re-evaluate and examine the use of these technologies, particularly for research and academic purposes, including Google Meets, Skype, Microsoft Team, Go to Meeting, Webex by Cisco, Adobe Connect, Teamviewer Meeting, TrueConf, Slack, and UberConference (Lata & Sonkar, 2020). One of the most significant variables influencing academic improvement is frequently listed as technological advancements. Technology-driven can take many different forms. For example, it might involve using advanced big-data analytics to find hidden statistical patterns and utilising virtual capacity techniques to retool information search, collection, organisation, and knowledge dissemination, to name a few. It might also involve leveraging mobile capabilities to increase data acquisition accuracy. Bottom line: Multimedia technologies are now used in a variety of fields to continue making an influence in the academic field (Stojan, Haas, Thammasitboon, Lander, Evans, Pawlik & Daniel, 2022).

Due to how drastically the Covid-19 pandemic has changed the world, millions of individuals are now using numerous multimedia technologies for virtual engagements. A faster, simpler, and more entertaining way to stay involved than ever before, according to Ryn and Sandaran (2020). It enables people to develop and sustain connections with others by allowing group members to share information content and make themselves visible and vocal to others. These are web-based services that allow teams of professionals to create a semi-public profile within a constrained system, list the individuals they are connected to, and read and navigate both their own and other users' lists of connections (Dhar, Bose & Khan, 2021). The majority of uses for this application are academic and professional, including online instruction, distance learning, and scholarly presentations. The Covid-19 outbreak-induced economic depression that organisations are currently experiencing has driven several institutions to aggressively pursue cost-cutting strategies like streaming the majority of meetings and academic activities online.

The amount of time spent online in Nigeria is rising quickly every day. Statistics from December 2013 show that 67 million people in Nigeria access the Internet, with 6.6 million people using multimedia technologies (Internet World Stats, 2014). All age groups are adopting multimedia technologies at an increasing rate (Cerezo, Ramirez, O'Shaughnessy, Sanchez, Mattis & Ross, 2021). Internet usage is particularly high among academics and professionals, and 70% of them utilise multimedia technologies (Harrigan, Daly, Coussement, Lee, Soutar, & Evers, 2021). The "multimedia technologies" was established as a result of the Covid-19 pandemic, according to Tan, Shahrill, Ali, Daud, and Naing's 2017 explanation. Furthermore, many academics spend time online with their colleagues to solve all types of academic issues and share all possible academic problems due to the benefits that come with these technologies, these include; allowing people to communicate and building an online community and facilitating easy and real-time learning. Through teaching and learning, multimedia technologies have enabled academics to share professional ideas, increase research productivity and make collaboration easier and more agile.

Singh, Singh, Abdullah, Moneyam, Ismail, Tek and Singh (2020) emphasized that multimedia technologies are useful technologies for teaching and learning but sometimes they can be intimidating if it has never been used before. Thus academics who wish to make their research presentation online using Multimedia technologies should be familiar with the functionalities of the tool. Other concerns raised by the McMaster Research Ethics Board (2020) about Zoom use include the possibility of having uninvited guests as part of a meeting without the knowledge of meeting hosts; recordings made by Zoom can be stored on a publicly accessible cloud without the knowledge of meeting hosts; and non-encryption of information on the Zoom server. Despite these challenges, adopting Multimedia technologies for teaching and learning has numerous advantages over physical engagement in terms of use and efficiency (Pandey, Ogunmola, Enbeyle, Abdullahi, Pandey & Pramanik, 2021).

Ramsook and Thomas (2019) conducted another study on prospective teachers on Zoom as a transformative teaching methodology. The study centred on the perspectives of teachers whose classes were held using Zoom web conferencing. According to the findings, many features, such as creating and managing break-outrooms, which could optimize learning, were not used by instructors. Participants expressed disappointment that they had not reaped the full benefits and experiences from the virtual meetings. This influenced their preference for in-person classes. The findings from the study discovered that survey participants preferred Zoom over Skype by reporting deficiencies in the platform. As many features such as creating and managing break-out rooms that could optimize learning and research, do not come with the platform.

Archibald, Ambagtsheer, Casey, and Lawless (2019) conducted a study on the perception and experience of academics and participants using Zoom video-conferencing for qualitative data collection. They investigated the use of information and communication technologies in research. The findings show that academics encountered significant difficulties in establishing call connections with participants. Although the difficulties had no long-term impact on academics' and participants' satisfaction with the technical quality of the call, as indicated by ratings of sound quality, video quality, and lags in the live feed. Rather, academics discovered

that the extended cooperative problem-solving process involved in the technical challenges sometimes resulted in unforeseen benefits in terms of creating rapport.

The adoption of Multimedia technologies for virtual research presentations has gained popularity amongst academics in the field of Library and Information Science (LIS) and other professional backgrounds across the globe (Amin & Sundari, 2020). Perhaps, due to the advancement in the use of ICT technologies and the behaviour of academics, the effectiveness of delivering virtual research presentations is lethargic (Rui & Stefanone, 2013; Bisht, Jasola & Bisht, 2020). Regardless of Multimedia technologies' acceptability, adapting to the technologies requires a certain level of skill, and most users are constrained by a variety of factors in their quest for effective tool use. In a study conducted by Purwanto, Pramono, Asbari, Hyun, Wijayanti and Putri, (2020), some of the challenges include not being familiar with the platforms, limited opportunity for use, low skills, negative attitude, lack of needed facilities and low level of virtual learning readiness of academics.

According to Puncreobutr (2016) in this new social era, learning and innovation skills are vital. Academics must seek and accept training and development to enhance academic excellence. Using Multimedia technologies for teaching and learning prepares learners for their future careers (Charbonneau-Gowdy & Cechova, 2020). Nonetheless, Rashid and Asghar (2016) demonstrated the effectiveness of digital technologies in increasing engagement and self-directed learning in their studies; however, they found no significant effect of digital technologies on students' learning performance. While Multimedia technologies have altered the dynamics of virtual learning, the debate is whether incorporating Multimedia technologies into the teaching and learning process has a significant impact on teaching and learning quality and/or improves learners' performance and experience. Their study also highlighted the significance of academics in delivering structured and organised e-learning that can boost learners' motivation, personal competency, and learning satisfaction.

Romadhoni, Kiristiasuti, Nurlaela, Sutiadiningsih, Astuti, Pangesthi and Bahar (2020) surveyed the acceptability of various forms of virtual learning by students during the pandemic Covid-19. The study's findings show that there are differences in student acceptance of virtual learning. Multimedia technologies have the advantage of incorporating the system into academic services for students, while some virtual platforms have quick and easy network access. According to the findings of the study, the use of various online platforms has an impact on a lecture on new forms of interaction.

In recent times, the impact of modern ICT is growing rapidly. It has become an integral part of the educational system, particularly in the educational process. Academic success has been deeply rooted in the use of new innovative ICT, and the new trend is the design of online exposure to virtual activities. Adeyeye, Ojih, Bello, Adesina, Yartey, Ben-Enukora and Adeyeye (2022) noted that academics and institutes of higher learning have diversified their system of operation operations in recent months through ICT systems such as Google-classroom, Microsoft Team, and Moodle, as well as a combination of traditional, face-to-face lectures and tutoring the Multimedia technologies. Most institution of higher learning in Nigeria has hugely invested in these ICT resources and technologies to provide support for academics and students. The use of Multimedia technologies for teaching and learning is

becoming more common, and it is a growing tool that is now being used across all industries around the world. Amid the Covid-19 crisis and the need for social isolation, Multimedia technologies have significantly innovated and reshaped how lecturers engage with their students. It has also allowed academics to maintain a sense of community gathering and promote wellness in a time when isolation has become a normal part of life. Multimedia technologies have the potential to be very useful in virtual learning.

Sayem, Taylor, Mcclanachan and Mumtahina (2017) discovered that due to advancements in ICT and the convenience of learning opportunities. Students prefer distance learning over face-to-face learning since it allows them to balance work and family life obligations. The study also concluded that online support technologies like Skype, Zoom, Microsoft Team and Google Meet enable students and academics to connect via teaching and learnings from any convenient location, which is an effective use of technology to improve students' engagement and success rates while minimizing the inconvenience of after-hours commitment for academics. Despite the numerous advantages of employing Multimedia technologies, research indicates that there are challenges to their successful deployment and use. Bingimlas (2008) identified two types of impediments to using ICT in teaching and learning: teacher-level barriers and school-level barriers. Teacher-level hurdles include issues such as a lack of confidence in using ICT, a lack of competency, resistance to change, and negative attitudes about ICT use. While concerns such as lack of time, lack of appropriate training, lack of accessibility, and lack of technical assistance are reported to influence school-level ICT utilisation.

Fabry and Higgs (1997) believe that a lack of time would make it difficult for instructors to study and prepare ICT resources for their courses, leaving them unable to fully utilise and integrate ICT into their lessons. Botner (2018) noted that the innovative use of Multimedia technologies has proven to be a promising tool for increasing social engagement and providing social and academic support for teachers. The results of a programme called the Virtual Senior Centre developed by Self-help Community Services revealed that online interactive classes reduced students' feelings of isolation and disconnection while increasing self-reported health status and feelings of being very connected (Scheitler, 2015). Despite the enormous benefit and promising future of ICT in improving virtual teaching and learning by altering how students experience their studies, the nature of teaching, particularly in institutions of higher learning, has not been effectively transformed by Multimedia technologies (Henderson, Selwyn & Aston, 2017). Bower, Lee, and Dalgarno (2017) opined that Teaching and learnings are more effective when there is an efficient interaction between humans and computers, such as combining face-to-face learning and online learning in a collaborative blended and flexible manner. As a result, the rate of discussion on current digital innovation is unprecedented and occurs at a faster rate than in previous decades (Curley & Salmelin, 2017).

Many higher education institutions, particularly in Africa, are struggling to keep up with the rapid pace of digital innovation. With the lack of consistency in Multimedia technologies for the teaching and learning process, there is little evidence for the possibility of virtual learning in the education sector (Oke & Fernandes, 2020). In a study conducted by Huang, Backman, and Backman, (2010) on a student's attitude toward virtual learning in second life. The result indicated that dyslexic students experience several challenges associated with virtual learning

use, including information overload, imperfect word processing technologies, inadequate search functions, and having to relate to more than one system at a time.

Similarly, Meyer and Gent (2016) discovered in their study that, despite the use of smart devices and social media, teaching and learning remained virtually static, particularly in South Africa. Although the use of Multimedia technologies to promote virtual learning has been limited to digitization. Many technological breakthroughs lack exclusive and exclusive rights, meaning that their usage by academic institutions is unregulated (Talebian, Mohammadi & Rezvanfar, 2014). On that note, the use of multimedia technologies for teaching and learning is critical. As a result, studying the experience of ICT use in teaching and learning can help academics overcome obstacles and become successful technology users.

Methodology

Design

The study used a descriptive survey design. This method is commonly used in Information system research to collect self-report data from the study participants. A survey may seek information about individuals or the opinion of survey participants. A survey design was chosen for this study because it allows the academics to reach a large number of participants (lecturers/academics) in the universities studied and allows for the generalisation of the study's findings. Population and

Population and Sample

The study's population included academics from all of Nigeria's Federal Universities across the country's six geopolitical zones. Nigeria currently has 49 federal universities (NUC, 2020). Each of Nigeria's six geopolitical zones was represented by one Federal university, and the library schools at these universities were chosen. This brings the total number of library schools involved in the study to six. The sample was drawn using total enumeration, which included all of the participants in the study population.

Instrument

The questionnaire used as the data collection instrument was adapted from Salawu and Ajani (2022) and was entitled "Optimizing Zoom Application for Virtual Research Presentation Questionnaire" (OZAVRPQ). The academics created a questionnaire with items related to the study's four objectives. The questionnaire was divided into two sections. A and B sections. Section A required participants' demographic information while Section B features the items. Section B was divided into three parts. Each part concentrated on the study's objectives.

Administration Procedure

Due to the Covid-19 outbreak, face-to-face administration of the questionnaire and interview was not possible. Therefore, an online survey was created, reviewed by LIS experts and scholars, and piloted with a sample of the target audience before being implemented. Pre-survey e-mail invitations and survey confirmations were sent to approximately 98 per cent of academics through Google-form from the six library schools chosen for the study. The survey was available on the Internet for four weeks for participants to complete and return their

responses. At the end of the four weeks, 82 copies of the questionnaire had been properly filled out and returned. the study's scope was limited to academics at the six selected library schools.

Data Analysis

Data was gathered in both quantitative and qualitative formats. The qualitative data was thematically analysed while the quantitative data was analysed using percentage and frequency counts then the results were represented in Table 1.

Results

Table 1: Response Rate

S/N	Federal Universities	States	Zones	Population	Response Rate
1.	UAL	Bornu	North-East	18	12
2.	UBL	Kwara	North-Central	14	13
3.	UCL	Kaduna	North-West	20	12
4.	UDL	Oyo	South-West	18	18
5.	UEL	Enugu	South-East	14	14
6.	UFL	Cross-River	South-South	14	13
7.	Total	6	6	98	82

Source: Field Survey (2022)

Objective 1: Perception of Nigerian LIS academics' in using multimedia technologies for teaching and learnings in the new normal;

The purpose was to investigate participants' perceptions of optimizing multimedia technologies for teaching and learning in the new normal. However, participants were asked to indicate their level of agreement and disagreement with the research questions. achieve the goal.

i. Are you aware of the use of multimedia technologies for teaching and learning in the new normal: Participants were expected to express their position of agreement and disagreement with this statement.

83.7% of participants stated that they were aware that multimedia technologies are commonly used for teaching and learnings around the world most especially during and after the Covid-19 pandemic.

Responses obtained from Participants in UAL, UBL, UDL, and UEL are summarised thus:

During the Covid-19 pandemic, most institutions of higher learning practically switched to virtual teaching and learning for them to be able to meet the mandate they set out to achieve. However, multimedia technologies such as Zoom, Microsoft Teams, Google Meet, Webinar, Whatsapp and many more are utilised for teaching students and setting up meetings among academics. Therefore, even after the curb of the Covid-19 pandemic, these teaching and learning via multimedia tools have come to stay.

According to a Participant from UAL:

The covid-19 pandemic is a curse at the same time it has brought so much opportunity to the realms of teaching and learning. Multimedia technology has recently gained so much

popularity in many organisations. Many stakeholders now prefer to hold meetings online rather than to travel a long distance to fulfil their aims.

Another group of participants mentioned that:

Multimedia technologies were commonly employed in academics during the Covid-19 pandemic. Currently, it has become a new normal phenomenon where these technologies are primarily utilised for virtual collaborations and presentations at seminars, and workshops, and, most critically, they are used for holding conference meetings among like-minded scholars.

Groups of a few participants also mentioned that:

They are aware of Multimedia technologies are utilised to organise meetings among groups of family members to express their ambitions and to stream live events.

ii. What is your perception of using multimedia technologies for Teaching and Learning in the new normal: Participants were asked to indicate how they perceive the adoption of multimedia technologies in the new normal. The results reveal that the perceptions of Nigerian LIS academics on the use of multimedia technology are somewhat positive.

68 out of 82 participants noted that:

Multimedia technologies are formidable; They have practically changed the face of teaching and learning in academics. Most especially, the majority of participants noted that multimedia technologies allow collaboration with other professional colleagues, and they commented that they feel at ease whenever they are using it for research collaboration because it saves cost and reduces the risk of moving from one place to another. In other words, it is a technology that has already taken the phase of all works of life due to its robustness and adaptability. To buttress these points

A few participants from UCL and UFL noted that:

We receive training opportunities from my workplace via multimedia technologies and I feel very comfortable using them because it has practically reduced the risk of travelling around to get professionally engaged with colleagues. But the consequence of using these technologies is that it allows academics to be physically lazy to engage students beyond the walls of the virtual world.

Participants from UDL also added this:

Multimedia technologies such as Microsoft Team and Google-classroom are among the best technologies ushered in by the Covid-19 pandemic in academic settings. As a result, it alleviates and breaks the barriers of distance and the stress of commuting to the meeting location.

Another participant from UBL specifically noted that:

I do not need to visit the conference location or meet my students in the classroom before I could get knowledge impacted during and after the Covid-19 pandemic. Even after the pandemic, using multimedia technologies has become the new normal phenomenon where everyone gets engaged with their colleagues, research team, students and fellow academics to

share the academic experience. As a result, adopting multimedia technologies will enhance teaching and learning and strengthen collaborations among colleagues and academics in the new normal.

A few participants from UCL and UFL also noted that:

They preferred using multimedia technologies for teaching and learning to physical engagements why because it's a new phenomenon that everyone is keying into. They further buttress that: No doubt, the Covid-19 pandemic made it very popular but now we have seen the capabilities and opportunities these technologies offer beyond just communicating and all of the sectors and industries are already keying into using it. Therefore, I don't see reasons why I should not also take part in engaging myself in using it. The possibilities of these technologies brought have grown beyond the capacity of what is ordinarily built for. It is now used to establish online classrooms where learning materials, videos and audio can be uploaded for students to have access to them.

A participant noted that:

The only threat I see about the usage of multimedia technologies is that they invalidate the traditional academic system. What I'm trying to say is that there is this affectivity and feelings of belonging when you physically get engaged with your colleagues or mentees, now that the world is keying into using this technology we all don't have a choice other than to get adapted to its environment. But, for me, using multimedia technologies poses a great threat to humanity and survival as a result of the physical disconnection it brings which might have a great significant effect on the poor students in the classroom especially when it comes to when instructors need to demonstrate practical to the students in the classroom.

Based on the participant's perception; the result implies that participants have mixed perceptions on optimising multimedia technologies for teaching and learning while some participants were indicating the opportunities that can be leveraged through these technologies few participants also indicated the challenges that might come with it. This result is in line with Sayem, Taylor, Mcclanachan and Mumtahina (2017) who discovered that due to advancements in ICT and the convenience of learning opportunities. Students prefer distance learning over face-to-face learning since it allows them to balance work and family life obligations. The study also indicated that online support technologies like Skype, Zoom, Microsoft Team and Google Meet enable students and academics to connect via teaching and learnings from any convenient location, which is an effective use of technology to improve students' engagement and success rates while minimizing the inconvenience of after-hours commitment for academics.

Objective 2: The impact of using multimedia technologies by in Nigerian LIS academics for teaching and learnings in the new normal

The objective was to look into the impact of using Multimedia technologies for teaching and learning. However, participants were asked to express their level of agreement or disagreement to achieve the goal. Table 4 displays the outcome.

Table 2: Impact of Optimizing Multimedia Technologies for Teaching and Learnings in the New Normal

S/N	Impact of multimedia technology on Teaching and Learning in the new normal	Agreed	Not Sure	Disagreed
1.	Using multimedia technologies for teaching and learning is cost-effective	78 (95.1%)	4 (4.8%)	0 (0%)
2.	Using Multimedia technologies for teaching and learning makes knowledge sharing so easy	80 (97.5%)	0 (0%)	2 (2.4%)
3.	Using Multimedia technologies for virtual collaboration stimulates research interest to teach	56 (68.3%)	14 (17.0%)	12 (14.6%)
4.	Using Multimedia technologies for virtual learning ensures better retention of knowledge	48 (58.%)	4 (4.8%)	30 (36.5%)
5.	I considered continuous usage of Multimedia technologies for teaching and learning in the new normal	52 (63.4%)	17 (20.7%)	12 (14.6%)
6.	Using Multimedia technologies for teaching and learning makes learning more viable	80 (97.5%)	2 (2.4%)	0 (0%)
7.	Using Multimedia technologies for teaching and learning is very expensive	62 (75.6%)	6 (7.3%)	14 (17.0%)
8.	Using Multimedia technologies for teaching and learning improves the relevance of research	38 (46.3%)	26 (31.7%)	18 (21.9%)
9.	Using Multimedia technologies for teaching and learning reduces rich to the poor digital divide	80 (97.5%)	2 (2.4%)	0 (0%)
10.	Using Multimedia technologies for teaching and learning gives voice to the voiceless	36 (43.1%)	4 (4.8%)	42 (51.2%)
11.	Using Multimedia technologies for teaching and learning improves social acceptability	78 (95.1%)	4 (4.8%)	0 (0%)
12.	Using Multimedia technologies for teaching and learning enhances the digital capacity	82 (100)	0 (0%)	0 (0%)

Source: Field Survey (2022)

The results in Table 4 reveal the perception of Nigerian academics on the impact of the usage of Multimedia technologies for teaching and learning by academics in Nigerian library schools. The findings from the study indicate that most of the academics with a response rate of (95.1 per cent) agreed that using Multimedia technologies for teaching and learning is cost-effective, (and 97.5 per cent) of the participants agreed that using Multimedia technologies for

teaching and learning makes knowledge sharing so easy, (97.5per cent) of the participants indicate that using Multimedia technologies for teaching and learnings makes learning to become more viable and (97.5per cent) of the agreed using Multimedia technologies for virtual research presentation reduces rich-poor digital divide. Also, (95.1per cent) of the participant agreed that using Multimedia technologies for teaching and learning improves social acceptability while (75.6per cent) of participants agreed that using Multimedia technologies for teaching and learning is very expensive and (56per cent) of participants also disagreed that Using Multimedia technologies for teaching and learning give voice to the voiceless. This result, however, implies that Multimedia technologies are enhanced social acceptability, improve digital capacity and are cost-effective compared to face-to-face presentation, particularly when the research work is to be presented outside the geographical location of the presenter.

Objective 3: What challenges do you envisage in optimizing multimedia technologies for teaching and learning in the new normal?

Participants were required to submit their perceptions based on the challenges that might hinder optimizing multimedia technologies. However, some similar ideas by the participants were categorized under the same responses. For instance, a few participants from UEL, UDL and UAL have this to say:

Nigerian academics in LIS schools will have to go the extra mile to continue to use multimedia technologies for teaching and learning in the new normal. The reason for this is that our issues are numerous. The first step is to provide academics with orientation training. Most academics in Nigeria have a negative attitude toward online involvement; they prefer physical presentations to teaching and learning. As a result, I believe one of their key issues in adapting to the virtual environment... "I would like to term it technophobia.

A few participants also share similar opinion explained that:

"One of the key obstacles associated with the usage of Multimedia technologies for virtual research presentation is that the expense of data subscription is overwhelming," which is compounded by the fact that the university internet connection is poor. Because the university internet service is so inadequate, many teachers grumble about having to utilise their money to subscribe for better internet access.

Another group of participants from UDL and UFL also noted that:

"I view a lack of ICT awareness and a limited power supply as critical challenges related to the use of Multimedia technologies". We have been hearing and reading about how many African academics at library schools are falling behind in their use of modern ICT because faculties do not provide ICT training for academics. However, power outages have been a serious impediment to the effective use of Multimedia technologies for teaching and learning. When I use Multimedia technologies on my laptop, the electricity is frequently interrupted, and the energy backup on most laptops may not last as long.

Specifically, one participant from UBL noted that:

Unfortunately, none of our library schools is equipped with a backup energy source, such as a generator or a solar inverter. "How can we sustain the use of Multimedia technologies for teaching and learning in Nigerian library schools if no alternate energy backups are available?"

This result shows that there are major problems involved with the use of Multimedia technologies for teaching and learning, as evidenced by the participants' reasoning and inferred in Table 5.

i. Table 5: Challenges Associated with optimizing multimedia technologies for Teaching and learning

S/N	ITEMS	Frequency	Per cent
1.	Technical Know-how difficulties	14	17.0
2.	Network Issues	14	17.0
3.	Cost of data subscription	16	19.5
4.	Technophobia	12	14.6
5.	Limited power supply	15	18.2
6.	Lack of training	11	13.4
Total		82	100

Source: Field Survey (2022)

Table 5 outlines the difficulties associated with using Multimedia technologies for teaching and learnings in Nigerian library schools. The findings show that there are numerous challenges. They are technical know-how difficulties, cost of data subscription, network issues and lack of training users on how to use multimedia technologies for teaching and learning in the new normal.

Discussion of Findings

According to previous studies on multimedia technologies, such as Archibald, et al. (2019), most academics at Nigerian library schools are aware of the prevalence and importance of multimedia technologies. The study found that participants recognized the importance of Multimedia technologies as an excellent and promising tool for teaching and learning in the new normal; nonetheless, the platform was not preferred over face-to-face mode. The findings of this study, which show that teaching and learning using Multimedia technologies is both convenient and cost-effective, are congruent with those of Lobe, Morgan and Hoffman (2020). The findings also show that the Multimedia technologies were innovative, pleasant, and extremely satisfying to the participants. Participants also agreed that as compared to face-to-face presentations, Multimedia technologies boost social acceptability and digital capacity. These findings are consistent with the findings of Lo Iacono et al. (2016), who got a similar reaction in their study. Although participants identified challenges such as the cost of data subscription, technical difficulties, network issues, low ICT knowledge, technical know-how difficulties, and a lack of training on the use of Multimedia technologies for teaching and learning, the cost of data subscription remains the most significant constraint to the use of Multimedia technologies. This result is consistent with the academics' observations during an online presentation of a research project by some graduating library school students that are not

addressed by this study. Some students did not finish certain courses because they could not afford to pay for a data subscription, which prevented them from taking exams through multimedia technologies. This is also one of the main reasons why some Nigerian higher education academics do not attend webinars. Furthermore, this study demonstrates that the benefits of adopting multimedia technologies for teaching and learning outweighed the drawbacks.

Conclusion

This study took into account academics' perspectives on optimizing multimedia technologies for teaching and learning in Nigerian library schools. The study, therefore, concluded that Nigerian LIS academics have a positive perception towards the use of multimedia technologies for teaching and learning in the new normal and because its impacts cannot be underestimated, the study, therefore, recommends that:

Recommendations

Training should be a major strategy for library schools in Nigeria to accommodate the teaching of the use of Multimedia technologies for teaching and learning in the new normal.

Government, through the Ministry of Education, should increase funding for academics to facilitate dependable infrastructures to maximise the use of multimedia technologies for teaching and learning in the new normal.

Technical difficulties associated with the use of multimedia technologies for teaching and learning should be addressed or reduced by providing written instructions before the teaching and learning session begins.

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