# EXPLORING VIRTUAL TEACHING SKILLS AMONG LIBRARY AND INFORMATION SCIENCE EDUCATORS: A CROSS-SECTIONAL ANALYSIS OF MODIBBO ADAMA UNIVERSITY AND TARABA STATE UNIVERSITY

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## Abstract

*This study examines the virtual teaching skills of Library and Information Science (LIS) educators at Modibbo Adama University, Yola, and Taraba State University. The objectives of the study is to assess the platforms utilized for teaching by LIS educators at Moddibo Adama University and Taraba State University, to determine the levels of virtual teaching skills of LIS educators at Moddibo Adama University and Taraba State University, to assess the benefits of virtual teaching skills in enhancing teaching by LIS educators at Moddibo Adama University and Taraba State University, to ascertain the challenges facing the application of virtual teaching by LIS educators at Moddibo Adama University and Taraba State University and to explore the strategies used in combating the challenges faced by LIS educators at Moddibo Adama University and Taraba State University. The researcher used a quantitative research methodology and a cross-sectional research design focusing on 36 LIS educators sampled using census sampling technique from the Departments of Library and Information Science in Moddibo Adama University and Taraba State University. The findings on the digital platforms utilized indicated a strong preference for Zoom and WhatsApp among LIS educators, with Google Classroom also being a significant tool. Also, the educators demonstrate high level of virtual teaching skills and confidence in their virtual teaching abilities, with all respondents either strongly agreeing or agreeing on their effectiveness. The study reveals the inclusivity and accessibility benefits of virtual teaching, highlighting its ability to reach distant students and enhance digital literacy. However, significant challenges include poor funding, limited internet access, and insufficient commitment from educators and students. Specific difficulties for visually impaired learners and a lack of indigenous technology also hinder virtual teaching effectiveness. The researcher concludes that virtual teaching in*

*academic institutions will lead to a transformative educational approach despite some substantial challenges such as inadequate funding, internet connectivity issues, accessibility issues for visually impaired learners and the need for more indigenous technology solutions. Therefore, to address these challenges, the study recommends increased funding for virtual education, improved internet access and stable electricity, development of assistive technologies for visually impaired learners, continuous digital development programs for educators and students and investment in local technological solutions, and fostering a culture of commitment to virtual learning. These strategies aim to enhance the quality, inclusivity, and accessibility of virtual education in these institutions.*

**Keywords:** Cross-Sectional Analysis, LIS Educators, Virtual Teaching, Skills

## Introduction

All over the world, education is regarded as the bedrock of meaningful development in any society. It is seen as an aspect of socialization that involves the acquisition of knowledge and learning of skills capable of shaping beliefs and moral values. Education, therefore, could be seen as the process by which every society attempts to preserve and upgrade the accumulated knowledge, skills, and attitudes in its cultural setting and heritage to continuously foster the well-being of mankind and guarantee its survival against the unpredictable (Owo, 2020).

The current developments and deployments of virtual teaching and learning by many institutions are reinforced by the desire to solve authentic learning, teaching, and performance problems. The virtual delivery systems have further transformed educational technology and provide easy access to academic and training services for many, who hitherto could not have gone to school before the revolution, facilitating meaningful learning activities (Bali, 2017).

Several terms have been used interchangeably to refer virtual learning and virtual teaching skills such as e-Learning skill, virtual learning skill, blended learning, distance learning, online learning and online courses (Andrews & Tynan, 2012; Singh & Thurman, 2019). For the purposes of this paper, virtual teaching skills are referred to as a type of teaching and learning skills that enables an educator to deliver his instruction or lectures in an online environment through the use of the Internet and involves a geographical separation between students and teachers and the utilisation of some forms of digital technologies for interaction between learners and tutors/instructors and between learners and learners (Anderson, 2011; Rapanta et al., 2020; Singh & Thurman, 2019; Yang & Tsai, 2017). However, Basilotta-Gómez-Pablos et al. (2022) contend that there is still a deficiency of data on university teachers' digital competencies, particularly in underdeveloped

nations like Nigeria. This enquiry fill this deficiency by probing the level of digital competencies and the 21st century skills of university teachers in Nigeria.

Library and Information Science (LIS) on the other hand, is an interdisciplinary field of study that centers on the documentation that records our stories, memory, history, and knowledge. It is a multidisciplinary field concerned with the identification, selection, acquisition, organization, preservation, and dissemination of information. It combines principles from library science, information technology, management, and communication to facilitate access to information in various forms and formats (Rubin, 2010; IOWA, 2024). The term according to Bawden and Robinson (2012) encompasses two core concepts: library science which focuses on the curation, cataloging, and classification of physical and digital collections and information science which involves the study of information processes, including its creation, storage, retrieval, and use. Therefore, it involves knowing what information is needed, how to seek and evaluate it, and how to use it to meet the needs of users. And this task rest on the shoulders of LIS professionals who play a crucial role in facilitating the flow of information, adapting to the changing social and economic environments, and developing problem-solving and decision-making skills in the workplace (Higgins, 2017). LIS professionals work not only within traditional library settings but also in digital and information management roles across diverse sectors such as the academic sector serving as educators and tutors. Which they aim to bridge the information needs and technological advancements, making information accessible and useful for knowledge creation and decision-making. Therefore, LIS educators and LIS itself plays a vital role in education, research, business, and community development, with practitioners adapting to rapidly changing information landscapes (Nazim & Mukherjee, 2016).

Moreover, the demanding nature of the job of university lecturers, makes it necessary for them to be more flexible, intelligent, unassuming, resourceful, and digitally competent to render their services diligently and effectively as quality University teaching and learning is controlled by competent lecturers leading to the production of competent graduates. Sadly, face-to-face instruction is still the predominant modality of instruction at among most Nigerian university educators. However, the COVID-19 epidemic has forced them to adapt their educational procedures rapidly and urgently to stay skilled and current with those of the 21st century. In this vein, it is worth noting, therefore, that when university teachers are well-grounded in their various areas of specialization, adopt appropriate modes of instruction and knowledge in the usage of

modern educational technology tools for instructional delivery as well as take part in continuous professional development for career advancement and embarking on quality research, they will be well-positioned to deliver effective lessons to students capable of creating a positive impact using flexible modes of instruction, such as virtual teaching, and open-distance learning among others. Therefore university LIS educators must develop their virtual teaching abilities to function effectively in the digital world and become engaged users of digital technologies (David-West, 2022). They need to develop their digital literacy skills to consider themselves competent to use adequate technologies in teaching on various platforms like Whova, Google Meet, learning management systems, zoom, WhatsApp, etc. to stay current with practices that optimize students learning. As stated in a study by Kennedy, (2023) that, there is a potential compromise between the quality of education and the effective integration of technology into the curriculum. This compromise could result in diverse learning experiences, therefore virtual skills will enable Universities to cultivate accomplished scholars and instructors capable of achieving global recognition for the University. This makes this study be of high importance in modern education. In this respect the study assessed the virtual teaching skills of LIS educators and its application in the virtual teaching at the three Universities under study.

However, there is variability, with some lecturers having lower levels, thus indicating individual differences in the self-assessment of virtual competencies (Kennedy, 2024). Based on researcher's observation and media reports, it was observed that lecturers in public Universities have moderate technological and pedagogical knowledge where the results indicated that while lecturers possess general knowledge of virtual teaching, they were not able to use technology for instruction through online courses to some extent. The scores are rather variable, indicating both proficiency and areas for growth, (Dobi, Divjak, & Kirinić, 2019).

This study is considered novel by the researcher as it focuses on examining educators' virtual skills and their conceptions of teaching in fully online courses, which would enrich the literature by adding insights into a substantial yet under-researched area in higher education. Moreover, the gap in the literature addressed by this study is that of the dearth of research into virtual skills assessment in the study area.

**Statement of the Problem**

Library and information science educators need to be digitally literate to navigate the online platforms effectively for teaching. Educators must stay current with practices that optimize student

learning. For instance, during the COVID-19 pandemic, some Universities offer virtual learning to avoid large gatherings of students during lectures, in obedience to social distancing. The question is how many lecturers were able to utilize the online platforms independently and effectively for teaching. Digital literacy skills are vital skills that educators should acquire to function effectively in teaching on online platforms. There will be a potential compromise between the quality of education and the effective integration of technology into the curriculum because virtual teaching provides more flexibility in time and place compared to on-campus education (Anderson, 2011; Andrews & Tynan, 2012). Similarly, the necessity of examining teachers' virtual skills among Library and Information Science educators and their conceptions of virtual teaching has been stressed more than ever as online education has increasingly gained its popularity especially after the Covid-19 health crisis (Bridges et al., 2023). This compromise could result in a reduction in learning experiences while virtual skills if properly harnessed will enable Universities cultivate accomplished scholars and instructors capable of achieving global recognition for the University. Digital technology adoption and utilization in teaching and learning practices depend on teachers' digital competency; lecturers should therefore redefine and revise their professional roles to thrive in a changing environment and be successful in unpredictable circumstances (Amin, 2016). However, Basilotta-Gómez-Pablos et al. (2022) contend that there is still a deficiency of data on university teachers' digital competencies, particularly in underdeveloped nations like Nigeria. This enquiry fill this deficiency by probing the level of digital competencies and the 21st century skills of university teachers in Nigeria. The work also seeks to proffer answers to the research questions, as follows:

Despite all efforts by institutions and the government to deploy virtual teaching facilities in tertiary institutions, there is low utilization of these online platforms for teaching. Many educators still prefer the traditional mode of teaching. It is against this backdrop this study attempts to assess the virtual teaching skills among LIS educators at Moddibo Adama University and Taraba State University.

**Research Questions**

1. What platforms are utilized for teaching by LIS educators at Moddibo Adama University and Taraba State University?
2. What are the levels of virtual teaching skills of LIS educators at Moddibo Adama University and Taraba State University?

3. What are the benefits of virtual teaching skills in enhancing teaching by LIS educators at Moddibo Adama University and Taraba State University?
4. What are the challenges facing the application of virtual teaching by LIS educators at Moddibo Adama University and Taraba State University?
5. What are the strategies used in combating the challenges faced by LIS educators at Moddibo Adama University and Taraba State University?

## Literature Review

### Concept of Virtual Teaching

It is imperative to conceptualize the key construct(s) because it helps delineate the parameters of their applicability in a study and offers a clear framework for any research study. Virtual teaching is often used synonymously with such terms as e-learning, online learning, computer-assisted learning, computer-based training, and computer-mediated communication systems for instructional delivery (Lawn, Zhi & Morello, 2017). Virtual teaching according to Agbele and Oyelade (2020) is the process of using online classroom environments to deliver and disseminate information to learners. According to Owo and Ajie (2020), virtual learning refers to the act of transmitting and receiving educational instructions by students for knowledge accumulation via electronic media aimed at providing a platform for quality educational contributions that can advance academic pursuits. In this paper, virtual teaching refers to the application of digital technologies or ICTs, including the Internet, the Web, mobile phones, tablets, computers, compact discs (CD), digital video discs (DVD), and social media, to facilitate teaching and learning inside (traditional learning classroom environments) and outside of the conventional classroom setting, whether it is asynchronous or synchronous, or both.

### Platforms Used for Virtual Teaching and Learning

Diverse approaches and platforms could be used to deliver e-teaching instructions such as YouTube, videotapes, video blogging (vlogging), podcasts, YouTube, Flicker, Twitter, WhatsApp, Facebook, etc. (David-West, 2022). It also involves multimedia sharing platforms: Skype, audio/video conferencing tools, zoom technology, Adobe Connect, and webinars (Owo & Udoka, 2021). Google Classroom is a free application that connects teachers and students that enables learning to be paperless. Mafa (2018) found out that Google Classroom is fascinating in educating and learning students taught indicated satisfaction towards the learning activities in Google Classroom. By using the applications and platforms above, teaching and learning occur in diverse

modes, ranging from face-to-face interactions with teacher presence (synchronous learning) to online/offline presentations with teacher presence (hybrid synchronous learning) or without teacher presence asynchronous learning (Littlefield, 2018).

**Benefits of Integrating E-Learning into Tertiary Institutions**

Virtual teaching and learning offer countless benefits and advantages to education, particularly in the higher education sub-sector of developing countries. Although we cannot rule out the need for traditional education in higher education, e-learning has numerous benefits among others includes, continuous learning outside the school campus, sharing of academic experiences from peers and colleagues, easy access to important educational information at any point in time, and quality research.

According to Owo and Ajie (2020), e-learning reduces travel time and the cost of infrastructural development in terms of buildings. While Akpomie, et al, (2020) posited that the cost-benefit of e-learning in training students is lesser than that of physical (face-to-face) contact after carefully considering some factors, such as the number of students trained, distance to be travelled, and time of training among other factors.

Omiles et al, (2019), commented that e-learning usage tends to solve educational challenges, especially at a time such as the COVID-19 pandemic era when no physical contact is permitted among teachers (lecturers) and students (learners). It is one innovative mechanism by which the 'education for all' goal and inclusive education can be achieved because it has the power to widen access to educational services and at the same time break down other barriers like disabilities (physical impairments), distance and finance. Anybody can learn from anywhere, irrespective of time and distance.

**Challenges Integrating E-Learning into Tertiary Institutions**

Eze, Chinedu-Eze, and Bello (2018) submit that, despite the noticeable benefits the integration of e-learning offers to developing countries, its adoption has been somewhat low chiefly due to low literacy rates and the meager funding education receives from governments at all levels. While available literature indicates that e-learning in Africa is still in its infancy stages and has not taken firm root in African universities today (Kyari, et al 2018). Owo and Ajie (2020) posited that one major constraint to quality e-learning education in Nigeria is the lack of adequate ICT skills acquisition by university lecturers and students. Lecturers need ICT skills to assist learners in developing proficiency in using e-learning platforms for quality learning.

The challenges of implementing e-learning in Nigerian universities, inclusive of NOUN as catalogued by Eze, Chinedu-Eze, & Bello, (2018) researchers are the inability of teachers to assist learners build up capacity; lack of finance; irregular power supply; inadequate trained human resources; insufficient instructional technologies; inadequate critical infrastructure such as telecommunication infrastructure, especially high-speed Internet Broadband; unsatisfactory student-computer ratio; inadequate e-learning facilities; high cost of software; and the high cost of Internet broadband. Still, others include the high cost of implementation; poor community literacy; technophobia, and system failure. He added that all students and learners are not the same, there are variations in their level of confidence, capabilities as well as understanding (Agbele, Oyelade, & Oluwatuyi 2020).

**Strategies for combating the challenges facing the application of virtual teaching**

Scholars such as Agbele and Oyelade (2020) suggested some strategies such as improved funding to the educational sector that there is an urgent need to increase funding of the education sector of the economy in other to improve the educational quality and opportunities of the nation. Starting from the federal government to the state government and down to the local government, there is a need for an increase in funding that will enable schools at all levels to be able to acquire technological tools such as laptops, iPads, internet-enhanced mobile phones, and data expenses, etc. for effective teaching and learning. They added that Nigeria's budgetary allocation to the education sector has consistently fallen short of the United Nations Educational Scientific and Cultural Organization (UNESCO) recommendation of at least 15%. Writing on the challenge of electricity and internet connectivity (Almaiah, Al-Khasawneh & Althunibat, 2020). Daniel, 2020 suggested an increase in electricity and internet connectivity because there is a need to prioritize energy development issues in Nigeria. After all, it has implications for every sector of the economy including education. Improved electricity access and a stronger bandwidth connection in Nigeria will enhance the practicability of virtual teaching and learning in the country. Similarly, it was observed by Noskova, Golukhova and Kuzmina, (2021) that Nigerian educators are generally inexperienced and lack proper training on the pedagogical approach to virtual learning. The traditional approach is still what is widely practiced in the country, hence, a re-orientation, computer and internet training and a review of teaching practices are required to bring teachers up to speed on virtual learning.

**Empirical Studies**

David-West's (2022), study of descriptive survey design on digital literacy skills among 26 library and information science (LIS) lecturers in universities in Rivers State, Nigeria, showed that LIS educators lack the knowledge and abilities to use online platforms for instruction without help. Sánchez-Caballé and Esteve-Mon (2022), findings indicated that the university teachers' degree of digital proficiency is intermediate. These studies show that teachers have low or in-between levels of digital proficiency and therefore require adequate training to update their digital skills.

Alamsyah (2017), conducted a study on digital literacy among Sniwijaya Universities, lecturers, 30 lecturers were randomly selected as a sample for the study. The study revealed that digital literacy competency among Sriwijaya University lecturers is in a very high position and proficiency in the use of the digital tools enhances online teaching effectiveness.

Noskova et al. (2021), used five focus groups with seven teachers each to study the digital proficiency of university teachers in Russian universities. The university lecturers possessed a high level of digital proficiency. Esteve-Mon et al. (2020), looked at the proficiency in digital teaching of university instructors at one Spanish and one Polish institution and discovered that the lecturers possess adequate technical proficiency. In another study, Kožuh et al. (2021), looked at the digital skills of science and technology teachers. The research showed that the teachers frequently applied digital tools while teaching. Omosekejimi, et al. (2018), investigated a study on ICT and digital literacy skills, a mechanism for efficient teaching in Nigerian colleges of education. The study comprises 500 lecturers in four colleges of education. The study revealed that they are proficient in the use of PowerPoint, Excel, and spreadsheets, but they cannot apply computers to solve real-life academic problems.

**Theoretical Framework**

This study adopts the Online Collaborative Learning (OCL) theory. Online collaborative learning (OCL) is a theory developed by Linda Harasim in 2012 from foundations in computer-mediated communication and networked learning that focuses on Internet facilities to provide learning environments that foster collaboration and knowledge building. Harasim describes OCL as a new theory that is grounded in and integrates cognitive development theories which is centered around conversational learning, deep learning conditions, academic knowledge advancement and knowledge construction. She proposed that for academic and conceptual development, discussions need to be well-organized by instructors and they need to provide the

necessary support, which allows students to achieve the advancement of ideas and construction of new knowledge (Bates, 2012). Therefore, is highly relevant to this study because it emphasizes the importance of collaboration, interaction, and knowledge construction in virtual learning environment. The theory is a valuable framework as it provides understanding on how educators can create engaging, interactive online learning experiences that enhances active participation and teamwork among students despite physical separation.

**Methodology**

The quantitative research methodology was used and a cross-sectional survey research design was used in the study. The population of the study consisted of all the thirty-six (36) LIS Educators of the Department of Library and Information Science in Moddibo Adama University, Yola and Taraba State University. The census sampling technique was used because the whole population was used for the study. The questionnaire was used as an instrument for data collection for this study. Thirty-six (36) copies of the questionnaire titled Exploring Virtual Teaching Skills among LIS Educators Questionnaire (EVTSOLE) were administered out of which twenty-seven (27) copies were returned duly completed and find worthy of analysis. Frequency and simple percentage were used in analyzing the data

**Data Analysis and Discussion of Findings**

This section consists of data presentation, analysis discussion of findings

**Table 1: LIS Educators and Institution**

| Universities | Frequency | Percentage |
|---|---|---|
| Moddibo Adama University, Yola | 15 | 55.6% |
| Taraba State University, Jalingo | 12 | 44.4% |
| **Total** | **27** | **100%** |

**Source:** Survey 2024

The demographic information of the respondents indicates the distribution of Library and Information Science (LIS) educators involved in the study. This distribution shows that there is a slight majority of the LIS educators participating in the study are from Moddibo Adama University, Yola with more than half of the respondents (55.6%), while the remaining 44.4% are from Taraba State University, Jalingo. This balanced representation allows for a cross-sectional analysis of virtual teaching skills among LIS educators from both universities, providing insights into the effectiveness and adoption of virtual teaching practices across different institutions.

**Table 2: Platforms Used for Virtual Teaching**

| Platforms | Frequency | Percentage |
|---|---|---|
| YouTube | 4 | 14.8% |
| WhatsApp | 7 | 25.9% |
| Zoom | 10 | 37.0% |
| Google Classroom | 2 | 7.4% |
| Microsoft Teams | 4 | 14.8% |
| **Total** | **27** | **100%** |

**Source:** Survey 2024

The analysis of result on the platforms used by Library and Information Science (LIS) educators for virtual teaching highlights distinct preferences. The results indicated that significant majority, 37.0%, use Zoom, making it the most popular used, this might be due to its robust features for live video classes and meetings. WhatsApp follows, with 25.9% of educators using it, indicating its convenience and widespread acceptance. Google Classroom is also a notable option, used by 7.4% of educators. Microsoft Teams and YouTube are used by 14.8% of educators each, showing moderate levels of adoption. However, platforms like Twitter, Facebook, and Skype are not used at all, indicating they are not favored for virtual teaching among this group. It can deduced from the above that a strong preference is skewed on Zoom and WhatsApp, with Google Classroom also being a significant tool, while other platforms see little to no use.

**Table 3: Level of Virtual Teaching Skills**

| S/N | Statement | SA | A | D | SD |
|---|---|---|---|---|---|
| 1 | I feel confident in my ability to effectively utilize virtual teaching platforms. | 20 (74.1%) | 7 (25.9%) | 0 (0.0%) | 0 (0.0%) |
| 2 | I possess the necessary knowledge to engage students effectively in virtual learning environments. | 15 (55.6%) | 7 (25.9%) | 5 (18.5) | 0 (0.0%) |
| 3 | I am proficient in delivering engaging virtual lessons that encourage active participation and interaction among students. | 12 (44.4%) | 15 (55.6%) | 0 (0.0%) | 0 (0.0%) |
| 4 | I am confident in my ability to troubleshoot common technical issues encountered during virtual teaching sessions. | 5 (18.5%) | 22 (81.5) | 0 (0.0%) | 0 (0.0%) |

**Source**: Survey, 2024

The survey "Exploring Virtual Teaching Skills among LIS Educators reveals a high level of confidence among educators in their virtual teaching abilities. A significant 74.1% of respondents strongly agree that they feel confident in effectively utilizing virtual teaching platforms, with

25.9% agreeing. Notably, no respondents disagree or strongly disagree, indicating a universally positive perception of their virtual teaching skills. In terms of engaging students in virtual learning environments, 55.6% of educators strongly agree that they have the necessary knowledge, and 25.9% agree. However, 18.5% disagree, suggesting some need for additional support. No educators strongly disagreed, showing that none feel entirely unprepared for virtual teaching. Similarly, on the respondents proficiency in delivering virtual lessons that encourage active participation and interaction among students 44.4% of the respondents strongly agreed that they are proficient in that and 55.6% agreed.. Neither of the respondents disagreed. When it comes to troubleshooting technical issues during virtual teaching sessions, 81.5% of educators agreed they are confident in their troubleshooting abilities, and 18.5% strongly agreed. There are no severe gaps in confidence, as none disagreed or strongly disagreed. Overall, the survey indicates that LIS educators have a strong positive perception and high proficiency in virtual teaching skills, feeling confident in using virtual teaching platforms, engaging students, and troubleshooting technical issues. A small minority may benefit from further support to reach the same level of confidence.

**Table 4: Benefits of Virtual Teaching**

| S/N | Statement | SA | A | D | SD |
|---|---|---|---|---|---|
| 1. | Virtual teaching reaches students who are geographically distant or unable to attend traditional classrooms due to health, mobility limitations, or other reasons. | 21 (77.8%) | 6 (22.2%) | 0 (0.0%) | 0 (0.0%) |
| 2. | Allows for asynchronous learning, accommodating diverse learning styles and schedules, and helping students balance education with other responsibilities. | 15 (55.6%) | 9 (33.3%) | 3 (11.1%) | 0 (0.0%) |
| 3. | Both teachers and students enhance their digital literacy, acquiring crucial skills for navigating today's digital-first world. | 12 (44.4%) | 15 (55.6%) | 0 (0.0%) | 0 (0.0%) |
| 4. | Developing virtual teaching skills enhances career opportunities and job security for teachers, aligning with the growing demand for online educators. | 15 (55.6%) | 12 (44.4%) | 0 (0.0%) | 0 (0.0%) |
| 5. | Online classes can accommodate more students than traditional classrooms without additional physical space, making education more broadly available. | 21 (77.8%) | 3 (11.1%) | 3 (11.1%) | 0 (0.0%) |

**Source**: Survey, 2024

The analysis of results on the benefits of virtual teaching among LIS educators at Modibbo Adama University and Taraba State University reveals a strong consensus on its advantages. Virtual

teaching is highly valued for its ability to reach geographically distant or otherwise unable students, with 77.8% of respondents strongly agreeing and 22.2% agreeing, highlighting its inclusivity and accessibility. Additionally, a significant majority find virtual teaching beneficial for facilitating asynchronous learning, with 55.6% strongly agreeing and 33.3% agreeing, allowing for flexible education that meets various needs. Enhanced digital literacy is another recognized benefit, as 88.8% of educators either strongly agree or agree that virtual teaching equips both teachers and students with essential skills for the digital age. Furthermore, all respondents acknowledge that developing virtual teaching skills enhances career opportunities and job security, with 55.6% strongly agreeing and 44.4% agreeing, reflecting the growing demand for online educators. Lastly, 77.8% of educators strongly agree and 11.1% agree that virtual teaching allows classes to accommodate more students without needing additional physical space, thereby expanding educational access and availability. This data underscores the growing recognition within the LIS community of the transformative impact that online education can have in making learning more inclusive and widely accessible, with minimal dissent and no strong disagreements.

**Table 5: Challenges of virtual teaching**

| S/N | Statement | SA | A | D | SD |
|---|---|---|---|---|---|
| 1. | Poor funding of education | 24 (88.9%) | 3 (11.1%) | 0 (0.0%) | 0 (0.0%) |
| 2. | Limited access to the Internet, and bandwidth difficulties. | 27 (100%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| 3. | Lack of commitment from both lecturers and students. | 12 (44.4%) | 12 (44.4%) | 3 (11.1%) | 0 (0.0%) |
| 4. | Visually impaired learners are left out because of a lack of appropriate content and delivery systems to aid their impairment. | 15 (55.6%) | 6 (22.2%) | 6 (22.2%) | 0 (0.0%) |
| 5. | Lack of enhanced Indigenous technology | 12 (44.4%) | 12 (44.4%) | 3 (11.1%) | 0 (0.0%) |

**Source**: Survey, 2024

The response data from the cross-sectional analysis of virtual teaching challenges among LIS educators at Modibbo Adama University and Taraba State University reveals several key insights. A significant majority, 24 respondents, representing 88.9%, strongly agree that poor funding of education is a substantial challenge to virtual teaching, highlighting the critical impact of financial resources on the effectiveness of virtual education initiatives. The remaining 3 respondents (11.1%) also agree, further emphasizing the widespread recognition of this issue. Notably, no respondents disagreed, indicating a unanimous acknowledgment of the funding constraints faced

in virtual teaching. This underscores the pressing need for increased investment and financial support to enhance the quality and accessibility of virtual education programs.

Additionally, there is unanimous agreement among respondents regarding the challenges of limited internet access and bandwidth issues, which significantly impede effective online education delivery and exacerbate inequalities. This calls for comprehensive efforts to improve equitable access and infrastructure. Regarding the lack of commitment from both lecturers and students, 88.8% of respondents strongly agree or agree, highlighting a pervasive issue within virtual educational environments. The remaining 11% who disagree suggest a smaller but notable perspective, possibly indicating varying experiences or perceptions among respondents. Furthermore, 77.8% of respondents believe that virtual teaching poses substantial challenges for visually impaired learners due to inadequate content and delivery systems tailored to their needs. The remaining 22.2% disagreed or strongly disagreed, indicating some variation in experiences or opinions. A significant majority of respondents, 88.8%, also perceive the lack of enhanced indigenous technology as a substantial challenge in virtual teaching, while the minority opinion of 11.1% acknowledges some level of challenge, albeit to a lesser extent. Notably, no respondents strongly disagreed with this statement.

**Table 6: Strategies in Combating the Challenges facing the Application of Virtual Teaching**

| S/N | Statement | SA | A | D | SD |
|---|---|---|---|---|---|
| 1. | Improved funding to the educational sector | 21 (77.8%) | 6 (22.2%) | 0 (0.0%) | 0 (0.0%) |
| 2. | Improved electricity access and a stronger bandwidth connection | 24 (88.9%) | 3 (11.1%) | 0 (0.0%) | 0 (0.0%) |
| 3. | Re-orientation and training of lecturers and students on the technical skills required for virtual teaching and learning | 21 (77.8%) | 6 (22.2%) | 0 (0.0%) | 0 (0.0%) |
| 4. | Assistive technologies and applications suitable for visually impaired learners should be developed. | 21 (77.8%) | 6 (22.2%) | 0 (0.0%) | 0 (0.0%) |
| 5. | The nation's Indigenous technology should be adequately enhanced | 12 (44.4%) | 15 (55.6%) | 0 (0.0%) | 0 (0.0%) |

**Source**: Survey, 2024

The data on strategies to combat challenges in the application of virtual teaching at Modibbo Adama University and Taraba State University highlights several key approaches supported by respondents. A significant majority, 77.8% strongly agreeing and 22.2% agreeing, believe that increased funding for the educational sector is essential. This strong consensus underscores the

importance of financial investment in overcoming obstacles such as technological disparities, insufficient training, and infrastructure limitations. Similarly, the necessity for improved electricity access and stronger bandwidth connections is overwhelmingly supported, with 88.9% strongly agreeing and 11.1% agreeing. This suggests that stakeholders recognize the critical role of stable and robust technological infrastructure in enhancing virtual teaching. Additionally, there is a unanimous agreement (100%) on the importance of developing assistive technologies and applications for visually impaired learners, reflecting a broad recognition of the need for inclusive education solutions. Another strategy that garnered substantial support is the re-orientation and training of lecturers and students in technical skills necessary for virtual teaching and learning, with 77.8% strongly agreeing and 22.2% agreeing. This indicates a shared understanding of the pivotal role of continuous professional development in adapting to digital pedagogies. Furthermore, enhancing indigenous technology is seen as a promising strategy, with 44.4% strongly agreeing and 55.6% agreeing. This shows a significant inclination towards investing in local technological solutions to address the unique challenges faced in virtual teaching within the region. Overall, the data reflects a strong endorsement of multiple strategies, emphasizing the need for comprehensive, multifaceted approaches to effectively address and overcome the challenges associated with virtual teaching in these institutions.

**Conclusion**

The survey on virtual teaching skills among LIS educators at Modibbo Adama University and Taraba State University highlights a general high level of competence and confidence in virtual teaching among educators, along with a strong recognition of its benefits, including accessibility, inclusivity, digital literacy, and career enhancement. The study indicated that Zoom, WhatsApp, and Google Classroom emerged as the primary platforms for virtual teaching, demonstrating educators' preference for accessible and interactive tools. Despite the substantial advantages, key challenges were identified from the study, such as inadequate funding, internet connectivity issues, lack of commitment among students and educators, accessibility issues for visually impaired learners and the need for more indigenous technology solutions.

## Recommendations

i. The Government, educational authorities and relevant stakeholders should prioritize increased funding to address financial limitations for virtual education initiatives to enhance infrastructure, training, and resource availability.

ii. Academic institutional authorities should schedule a periodical re-orientation and training programs on digital teaching skills and virtual learning techniques for both educators and students to improve their virtual skills.

iii. Educational institutions should prioritize the use of assistive technologies and learning platforms tailored to the needs of visually impaired learners which will ensure that all students benefit equally from virtual education.

iv. Government and educational institutions should support the development of technology tools and software that meet the unique needs and requirements of the institution's regional context.

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