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# WEB-BASED DIGITAL TECHNOLOGY SKILLS REQUIRED FOR ONLINE TEACHING AND LEARNING OF SCIENCE EDUCATION COURSES IN COLLEGE OF EDUCATION ZING, TARABA STATE.

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## Abstract
The study examined the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State. One research question and one null hypothesis guided the study. Descriptive survey design was adopted. The population consisted of 81 lecturers from the various departments of the School of Secondary Education (Sciences), College of Education Zing and 50 were selected using simple random sampling method. The WDTSROTLSECQ, a four-point rating scale questionnaire, was used for data collection. The instrument was validated by 3 experts and Cronbach's alpha reliability coefficient of 0.78 was achieved. The data collected were analysed using mean and standard deviation. The mean was used to answer the research question while the standard deviation was used to determine the closeness or otherwise of the responses from the mean. The null hypothesis stated was tested using the independent t-test at 0.05 level of significance. The findings revealed that lecturers in the school required web-based digital technology skills for online teaching of science education courses (weighted average mean = 3.44). The findings further revealed that there was no significant difference between the mean response of experienced and less experienced lecturers ($t_{46}$ = -0.9054, $p>0.05$). It was concluded that science education lecturers require continuous digital skills development to meet evolving educational demands post COVID-19. Based on the findings of the study, it was recommended among others that government should provide ongoing training for science education lecturers to enhance their competencies in essential digital skills, as it will ensure that lecturers are well-equipped to meet the demands of digital teaching and learning.
**Key words:** Digital technology; skills; online; teaching; learning and science education.

## Introduction

The potential of digital technology to innovate and improve learning experiences has always attracted the attention of educational researchers and practitioners as observed by Onojetah (2014). Hence, educational professionals agree that these technologies have the prospects for improving teaching and learning as well as showing workforce opportunities. It is also evident as agreed by Amiaya (2016) that the traditional educational environments are not suitable for preparing learners to function or be productive in the workplace in today's society. Unfortunately, unemployment poses great danger in the society, for it creates identified crisis which thus results after long term into various activities like '419', kidnapping, prostitution, armed robbery and others (Danjuma, *et al*, 2024). Therefore, educational institutions that fail to incorporate digital technologies cannot seriously claim to prepare their students for life in the 21st century knowledge-driven economy.

Digital technologies denote a wide range of technologies, tools, services and applications using various types of hardware and software. They facilitate services or activities by electronic means to create, store, process, transmit and display information (Ventura, Roca-Cuberes & Corral-Rodriguez, 2018). Broadly, digital technologies include the use of personal computers, television, radio, mobile phones, etc. The term is used to describe the use of digital resources to effectively find, analyse, create, communicate and use information in a digital context. This includes the use of web tools, digital media tools, programming tools and software applications. Digital technology skill therefore involves the ability, confidence, critical and responsible use of, and engagement with, digital technologies for learning at work, and for participation in the society (European Commission, 2018). Lyashenko (2016) observed that digital technologies are now embedded in our society. Focus has therefore shifted from whether or not to use them in teaching and learning, to understanding which technologies can be

used for what specific educational purposes and then to investigate how best they can be used and embedded across the range of educational contexts in schools.

Science education is defined as an educational process that emphasizes inquiry-based learning, where students actively engage in questioning, investigating and constructing their own understanding of scientific concepts through hands-on experiences and collaboration (Smith & Doe, 2023). Similarly, Johnson & Carter (2023) described science education as an interdisciplinary approach that combines knowledge from various fields such as physics, chemistry, biology and environmental science, aiming to develop critical thinking and problem-solving skills necessary for understanding complex real-world issues. Babajide (2015) states the policy of science education in Nigeria as:

1. The laying of sound knowledge in scientific and reflective thinking.
2. To equip students with adequate scientific knowledge to live comfortably in the world of science and technology.
3. Science shall be taught to all children in primary and secondary school levels.
4. The teaching and learning of science shall be towards the development of students in the cognitive, affective and psycomotive domains.
5. There shall be equal opportunities in terms of provision of curriculum materials resources persons and laboratory materials.
6. At least one science subject is compulsory for every child at the end of secondary school.
7. Local provisions of instructional materials shall be encouraged.

Innovations in web-based digital technologies have created a glaring need for science education lecturers to acquire more skills in order to bring up the caliber of graduates that will fit squarely into the modern challenging work trends. Brown & Green (2023) defined web-based digital technologies as interactive platforms that facilitate online learning experiences through multimedia content, real-time communication and collaborative tools, enhancing student engagement and

knowledge retention. These technologies are described as systems that enable the access, sharing and dissemination of information across various digital channels, supporting both formal and informal learning environments by providing learners with diverse resources and tools (Smith & Lee, 2023). Similarly, Morris (2016) views web-based digital technologies as network applications accessible over the internet (blogs, discussion boards, conferencing session tools, online multimedia and mobile technologies, etc) that enables individuals to connect to each other.

Online teaching and learning is the education that takes place over the internet or through internet-aided devices. It is one of the by-products of the advancement in Information and Communication Technology (Eze *et al*, 2018). Smith & Thompson (2023) define online teaching and learning as a pedagogical approach that utilizes digital platforms to deliver educational content, facilitate interaction among students and instructors and enable assessments, thereby creating a flexible and accessible learning environment. Johnson & Carter (2023) described online teaching and learning as the process of delivering educational experiences through the internet, incorporating various digital tools and resources to engage students in active learning, facilitate communication and assess understanding in a virtual environment.

In online teaching and learning, learners can interact directly with the learning content that they find in multiple formats (e.g, video, audio, document, etc.). Additionally, they can also choose to have their own learning sequenced, directed and evaluated by a teacher. It is the opposite of classroom traditional face-to-face education. Online teaching and learning complements and in other cases replaces the traditional classroom teaching and learning format. Where it complements the traditional teaching and learning format, it is supplemental and where it replaces the traditional mode of teaching and learning, it becomes a pure electronic learning.

Regrettably, it appears that most public tertiary institutions in Nigeria have not been able to embrace online teaching and learning to the detriment of their

students and the society at large. Various factors might be responsible for these, such as inadequate funding, inadequate digital technology equipment, students' population, training of lecturers and students, sustainable internet facilities, amongst others (Adeoye, Adanikin & Adanikin, 2020). Wahab (2020) reports that even with the outbreak of COVID-19 pandemic which led to the closure of schools, the Nigerian education sector is not adapting to the challenges posed by the pandemic and is expected to struggle on that front for the foreseeable future due to certain deficiencies such as the weakness of digital online teaching infrastructure, the inexperience of lecturers, the information gap, the complex environment at home, and so forth.

The issue at stake now is that, as a matter of fact, not all science education lecturers who claim to be computer literate have sufficient competence in the use of digital technologies and can demonstrate proficiency in imparting the knowledge to students. This explains why Adesina, Oluwatoyin & Nwankwo (2023) observe that apart from the fact that some institutions lack digital technology tools needed for effective teaching and learning which will acquaint the students with the relevant digital skills needed to face the challenges of the world of work, some of the lecturers of science education lack the pedagogical competencies for implementing digital technologies. To buttress this point, Jegede in Ajie-Uche, Efughi & Ajaero (2018) observe that most Nigerian lecturers lack basic skills and competencies required for effective use of digital technologies for teaching. There is also low level of online teaching and learning awareness in Nigeria. It is against this backdrop that the study examines the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State.

**Statement of the Problem**

The rapid shift towards online education has necessitated the integration of web-based digital technology skills in the teaching and learning of science education courses. However, many educators face significant challenges in

acquiring and applying these skills effectively. Research indicates that a substantial number of science education lecturers lack the requisite digital competencies, which can hinder their ability to deliver engaging and effective online instruction (Owoeye & Yara, 2019). This skills gap is particularly concerning given the increasing reliance on digital platforms for teaching, especially in the context of the COVID-19 pandemic, which has accelerated the transition to remote learning (Maharani *et al*., 2020). Without adequate digital skills, lecturers may struggle to utilize online resources, engage students, and assess learning outcomes, ultimately compromising the quality of science education.

Furthermore, the limited availability of professional development programs focused on web-based technologies exacerbates this problem. Many institutions in Nigeria lack structured training initiatives that equip lecturers with the necessary digital skills for online teaching (Adeyemi, 2021). This deficiency not only affects educators but also impacts students, who may not receive the quality of instruction needed to thrive in a digital learning environment. The result is a cycle of underprepared educators and disengaged learners, which calls for urgent attention and intervention to enhance the digital competencies of science education lecturers (Baba & Ndam, 2020). Addressing this issue is critical for improving the effectiveness of online science education and ensuring that both lecturers and students can navigate the digital landscape successfully.

**Objective of the Study**

The objective of the study is to identify the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State.

**Research Question**

What are the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State?

## Research Hypothesis

There is no significant difference between the mean responses of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State.

## Methods

The descriptive survey design was used for the conduct of the study. The population of the study consisted of all lecturers in the School of Secondary Education (Sciences), College of Education Zing, Taraba State. The departments include Biology (21), Chemistry (18), Computer Science (10), Integrated Science (9), Mathematics (7), P.H.E (9) and Physics (8). There are 81 lecturers in these departments and 50 were selected using simple random sampling method. The instrument used was the Web-Based Digital Technology Skills Required for Online Teaching and Learning of Science Education Courses Questionnaire (WDTSROTLSECQ). The questionnaire consisted of 20 items based on the purpose of the study and the research question. The instrument was validated by three experts from the department of Science Education, Taraba State University, Jalingo, Department of Curriculum and Instruction, College of Education, Zing and the department of Computer Science, Federal College of Education, Yola. A pilot study was conducted at the Federal College of Education, Yola, in order to establish the reliability of the instrument. Cronbach's Alpha was used to determine the reliability of the instrument which yielded a reliability coefficient of 0.78. Each of the items was assigned four response options of Highly Required (HR- 4 points), Moderately Required (MR- 3 points), Slightly Required (SR- 2 points) and Not Required (NR- 1 point). A total of 48 questionnaires were filled and returned consisting of 24 experienced lecturers (10 years and above of service) and 24 less experienced lecturers (1-9 years of service). The data collected were analysed using mean and standard deviation. The mean was used to answer the research question while the standard deviation was used to

determine the closeness or otherwise of the responses from the mean. Positive decision rule for this study was established at a mean of 2.50 and above while any mean less than that was regarded as negative. The null hypothesis stated was tested using the t-test at 0.05 level of significance. Hypothesis of no significant difference was accepted when the observed probability value was greater than or equal to 0.05 level of significance. Where the calculated probability value was less than 0.05 level of significance, the hypothesis was rejected.

## Results

**Research Question:** What are the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State?

**Table 1: Mean and standard deviation of responses on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State?**

| S/N | ITEM STATEMENTS | MEAN | SD | REMARK |
|---|---|---|---|---|
| 1 | Ability to connect to the internet using different internet connection options. | 3.83 | 0.37 | Highly Required |
| 2 | Ability to identify, manage and navigate different web pages to obtain or publish teaching contents. | 3.58 | 0.67 | Highly Required |
| 3 | Ability to use e-mail to mail teaching contents. | 3.48 | 0.68 | Moderately Required |
| 4 | Ability to use the Uniform Resource Locator (URL) to locate teaching contents online. | 3.63 | 0.56 | Highly Required |
| 5 | Ability to use search engines such as google, yahoo and MSN for research purposes. | 3.63 | 0.60 | Highly Required |
| 6 | Ability to use social networking services to post teaching contents. | 3.15 | 0.76 | Moderately Required |
| 7 | Ability to organize videoconferencing using zoom, google meet, etc. | 3.46 | 0.73 | Moderately Required |
| 8 | Ability to use interactive multimedia and presentation application for teaching. | 3.52 | 0.71 | Highly Required |
| 9 | Ability to use cloud computing for storing and sharing of files. | 3.25 | 0.88 | Moderately Required |
| 10 | Ability to use online collaborative tools to connect with students and lecturers. | 3.40 | 0.84 | Moderately Required |
| 11 | Ability to use interactive forms on the web to create feedback or ask questions. | 3.44 | 0.73 | Moderately Required |
| 12 | Ability to use interactive online survey tools (SurveyMonkey, Zoomerang, etc). | 3.23 | 0.94 | Moderately Required |

| | | | | |
|---|---|---|---|---|
| 13 | Ability to Use online scheduling and organization tools (e.g., Google Calendar, Trello). | 3.21 | 0.76 | Moderately Required |
| 14 | Ability to conduct online research and using academic databases. | 3.48 | 0.82 | Moderately Required |
| 15 | Ability to create and manage discussion boards for student interaction. | 3.40 | 0.73 | Moderately Required |
| 16 | Ability to manage and analyse student data (grades, feedback). | 3.56 | 0.61 | Highly Required |
| 17 | Ability to utilize Learning Management Systems (e.g., Moodle, Canvas). | 3.35 | 0.78 | Moderately Required |
| 18 | Ability to create and manage online course content. | 3.48 | 0.61 | Moderately Required |
| 19 | Ability to design online assessments (quizzes, tests, etc.). | 3.48 | 0.71 | Moderately Required |
| 20 | Ability to create online interactive digital audio and video instructions. | 3.33 | 0.82 | Moderately Required |
| | **Weighted Average** | **3.44** | **0.72** | **Moderately Required** |

**Source: Field Survey, 2024.**

Table 1 above shows the responses of lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State. The result revealed that all the web-based digital technology skill items outlined were moderately required for online teaching and learning of science education courses in College of Education Zing, with a weighted average mean of 3.44. However, items 1, 2, 4, 5, 8 and 16 were rated highly required with mean scores of between 3.52 and 3.83 while the remaining items were rated moderately required with mean scores of between 3.15 and 3.48. All the items have standard deviation scores ranging from 0.37 to 0.94. This means that the responses of the respondents are not wide spread as they are close to the mean.

**Research Hypothesis**

There is no significant difference between the mean responses of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State.

**Table 2: Summary of t-test of the difference between the mean responses of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State.**

| Group | N | Mean | SD | t-cal | Df | p-value | Decision |
|---|---|---|---|---|---|---|---|
| Experienced Lecturers | 24 | 3.35 | 0.76 | -0.9054 | 46 | 0.37 | Accepted |
| Less Experienced Lecturers | 24 | 3.54 | 0.64 | | | | |

**Source: Field Survey, 2024. P>0.05**

The data in table 2 revealed that there are 24 experienced lecturers and 24 less experienced lecturers. The experienced lecturers' response showed that the web-based digital technology skills are moderately required for online teaching and learning of science education courses in College of Education Zing (mean = 3.35; SD = 0.76) while the less experienced lecturers' response indicated that the web-based digital technology skills are highly required for online teaching and learning of science education courses in College of Education Zing (mean = 3.54; SD = 0.64). Their responses are close as the standard deviations are very low. The table revealed that there was no significant difference between the mean response of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing ($t_{46}$ = -0.9054, p>0.05). Therefore, the null hypothesis that states that there is no significant difference between the mean responses of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State was accepted. This implies that experienced and less experienced lecturers did not differ in their responses regarding the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing, Taraba State. Though there was a slight difference between their mean responses, with less

experienced lecturers having higher mean response, the difference was not statistically significant (mean difference = 0.19).

## Discussion of Findings

The study revealed that lecturers highly require web-based digital technology skills in the use of different internet connection options, search engines for research purposes, interactive multimedia and presentation application for teaching and ability to use the Uniform Resource Locator (URL) to locate teaching contents online. Other skills highly required are ability to manage and analyse student data and ability to identify, manage and navigate different web pages to obtain or publish teaching contents. Also, the study revealed that ability to use e-mail to mail teaching contents, conduct online research and using academic databases, create and manage online course content, design online assessments, organize videoconferencing, utilize Learning Management Systems and ability to use online collaborative tools to connect with students and lecturers were moderately required by lecturers. Other skills moderately required are ability to create online interactive digital audio and video instructions, use of online scheduling and organization tools, cloud computing for storing and sharing of files, interactive online survey tools, use of social networking services to post teaching contents, interactive forms on the web to create feedback or ask questions and ability to create and manage discussion boards for student interaction. The findings further revealed that there was no significant difference between the mean response of experienced and less experienced lecturers on the web-based digital technology skills required for online teaching and learning of science education courses in College of Education Zing ($t_{46}$ = -0.9054, $p>0.05$).

These findings corroborate that of Kwaki (2018) who maintains that digitizing administrative and educational processes, such as using LMS for course delivery, integrating cloud computing for file storage and sharing, creating interactive multimedia content and using collaborative tools for better student-

teacher communication enhance teaching and learning. The study further noted that lecturers require competencies in managing digital platforms and using online tools for teaching as it will aid in imparting the needed skills to students who can function effectively in a knowledge-driven economy. Also, Eli-Chukwu *et al*. (2023) observed that digital skills such as using online collaborative tools, managing Learning Management Systems (LMS) and conducting online research were essential for effective teaching and that both lecturers and students faced significant challenges due to inadequate digital infrastructure and limited experience with e-learning tools.

## Conclusion

The research underscores the critical need for web-based digital technology skills among science education lecturers in College of Education Zing for effective online teaching and learning. It identifies essential competencies such as using search engines for research, utilizing Learning Management Systems and employing interactive multimedia for teaching. These skills are vital for adapting to digital transformations in education, which became especially apparent during the COVID-19 pandemic, as institutions faced challenges integrating e-learning tools. The findings suggest that regardless of teaching experience, lecturers require continuous digital skills development to meet evolving educational demands, reflecting broader trends in digital transformation across higher institutions in Nigeria.

## Recommendations

1. Government should provide ongoing training for science education lecturers to enhance their competencies in essential digital skills such as using Learning Management Systems, creating multimedia content and conducting online research. This will ensure that lecturers are well-equipped to meet the demands of digital teaching and learning.
2. Government should prioritize upgrading digital infrastructure in the college, including reliable internet connectivity and access to up-to-date

technology tools. Improved infrastructure would support the effective use of online teaching tools and platforms, reducing the digital divide and enhancing e-learning experiences.

3. The college management should establish policies that promote the integration of digital technologies into teaching science education courses, including setting standards for digital skills proficiency among lecturers. This would create a culture of digital literacy and continuous improvement in teaching methods.
4. The Dean School of Secondary Education (Sciences) should foster a community of practice where lecturers can share their experiences and strategies for using digital tools. Peer learning initiatives, workshops and forums can help spread best practices and innovations in digital teaching across the various departments.

## References

Adeoye, I.A., Adanikin, A.F. & Adanikin, A. (2020). COVID-19 and E-Learning: Nigeria Tertiary Education System Experience. *International Journal of Research and Innovation in Applied Science (IJRAIS)*, 5(5), 28-31.

Adesina, A. T., Oluwatoyin, A. O. & Nwankwo, J. C. (2023). Competence of science education lecturers in digital technologies: Challenges and implications for teaching. *Journal of Science Education and Technology*, 32(3), 450-465.

Adeyemi, T. O. (2021). Digital competence in higher education: Implications for teaching and learning. *Journal of Educational Technology*, 15(2), 45-59.

Ajie-Uche, G., Efughi, S.A. & Ajaero, O.O. (2018). Capacity Building Needs of Business Education Lecturers in ICT-Based Teaching in Tertiary Institutions in South-South Nigeria. *Nigerian Journal of Business Education*, 5(1), 322-334.

Amiaya, A.O. (2016). Availability and Utilization of New Technology for Teaching Office Technology and Management in Delta State Polytechnics. *Nigerian Journal of Business Education,* 3(2), 64-72.

Baba, U. & Ndam, B. (2020). The challenges of online teaching in Nigerian universities: Perspectives from lecturers. *Nigerian Journal of Educational Research*, 12(1), 23-34.

Babajide, V. F. T. (2015). Science Education in Nigeria: The Journey so far. *International Journal of Innovative Research in Education, Technology and Social Strategies*, 1(1), 53-69.

Brown, A. S. & Green, T. D. (2023). Interactive learning environments: The role of web-based digital technologies in education. *Journal of Educational Technology*, 30(4), 215-230.

Danjuma, A., Mohammed, A., Aliyu, A. & Yelwa, S.S. (2024). Computerized Office Skills Required by Computer Education Students of Colleges of Education for Employment in Business Organizations in Taraba State, Nigeria. *Rainbow: A multidisciplinary Journal,* 6(1), 1-10.

Eli-Chukwu, N. C., Igbokwe, I. C., Ifebude, B., Nmadu, D., Iguodala, W., Uma, U., Onyeneke, R. U.& Akudo, F. U. (2023). Challenges confronting e-learning in higher education institutions in Nigeria amid COVID-19. *Journal of Applied Research in Higher Education*, 15(1), 238-253.

European Commission (2018). www.commission.europa.eu. Retrieved on 11th October 2024.

Eze, S.C., Chinedu-Eze, V.C. & Bello, A.O. (2018). The Utilization of E-Learning Facilities in the Educational Delivery System of Nigeria: A Study of M-University. *International Journal of Educational Technology in Higher Education*, *15*(3), 1-20.

Johnson, L. M. & Carter, T. (2023). Interdisciplinary approaches in science education: A pathway to critical thinking. *International Journal of Science Education*, 39(5), 567-589.

Johnson, L. M., Carter, T. & Davis, R. A. (2023). Innovations in online teaching and learning: A comprehensive overview. *International Journal of Educational Technology*, 15(4), 210-225.

Kawaki, K. (2018). Vision-Strategy-Implementation: Digital transformation at Baze University. *ICEGOV2020 Proceedings*.

Lyashenko, M.S. (2016). Implementation of Web-Based Technologies into Teaching and Learning Practices in the University. *International Journal of Information and Education Technology,* 6(3), 243-246.

Maharani, A., Supriyadi, S. & Mulyono, M. (2020). Online learning during the COVID-19 pandemic: Perspectives from lecturers in higher education. *International Journal of Learning and Change*, 12(3), 233-245.

Morris, P.O. (2016). Web-Based Technologies for Ensuring Interaction in Online Course. *Handbook of Research on Strategic Management of Interaction, Presence and Participation in Online Courses.* Retrieved on 11th October 2024 from www.igi-global.com/dictionary/web-based-technologies/32430.

Onojetah, S.O. (2014). Business Education Curriculum and Integration of New Technologies. *Nigerian Journal of Business Education*, 2(1), 132-148.

Owoeye, J. O. & Yara, P. (2019). The impact of digital literacy on teaching and learning in Nigerian universities. *African Journal of Educational Management*, 27(1), 14-25.

Smith, J. A. & Doe, R. (2023). Inquiry-based learning in science education: Enhancing student engagement. *Journal of Science Education Research*, 45(2), 123-145.

Smith, J. A. & Lee, M. (2023). Accessing knowledge: Web-based technologies in learning contexts. *International Journal of Digital Education*, 12(3), 145-162.

Smith, J. A., & Thompson, R. (2023). Understanding online teaching and learning: Strategies for effective digital education. *Journal of Online Learning and Teaching*, 19(2), 123-145.

Ventura, R., Roca-Cuberes, C. & Corral-Rodriguez, A. (2018). Interactive Digital Communication: Assessment of Professionals, Teachers and Students in the Area of Communication on Academic Competences and Professional Profiles. *Revista Latina de Communicacion Social,* 73(2), 331-351.

Wahab, A. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in Light of COVID-19 Pandemic. *Journal of Higher Education Studies*, 10(3), 16-25.