

Lectures Perceptions of Online Learning during Covid-19 Pandemic

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ABSTRACT

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, has resulted in over 7 million deaths and more than 776 million confirmed cases globally. The severity and rapid transmission of the virus prompted widespread lockdowns, including the closure of educational institutions. In response to this disruption, online learning became the primary mode of instruction across many universities. This study investigates lecturers' perspectives of online learning during the COVID-19 pandemic at Kebbi State University of Science and Technology (KSUSTA).

A descriptive survey design was adopted to explore the phenomenon, while a quantitative approach was used to provide statistical insight into the relationship between independent and dependent variables. The study population consisted of 192 respondents selected from eight departments. The sample size was determined using both purposive and random sampling methods to ensure representativeness. Data were collected using a structured questionnaire developed in alignment with the study objectives. The instrument was divided into three sections and designed on a four-point Likert scale. It was administered to 50 respondents across five departments.

The Content Validity Index (CVI) of the instrument was calculated at 0.9, confirming its validity. Reliability was assessed using Pearson's Moment Correlation. Data analysis involved the use of mean scores and frequency distributions. The findings revealed an average mean score of 3.21 for the first research question, indicating a generally positive perception of online learning. The second question recorded a mean score of 3.14, reflecting significant challenges in delivering online education effectively. The third question yielded a mean score of 2.96, indicating that while lecturers' roles were recognized as critical, they require further enhancement for a fully effective online learning experience.

The study concludes that improving digital competence, strengthening infrastructure, supporting diversity, enhancing interaction, and monitoring emerging challenges are essential for sustaining effective online learning at KSUSTA during and beyond the pandemic.

Keywords: COVID-19, Online Learning, Lecturers' Perception, Higher Education, KSUSTA, Digital Competence, Educational Technology.

1. INTRODUCTION

The integration of science and technology into daily life activities has had a significant impact on various sectors, including education, agriculture, transportation, business, culture, and health. This integration played a crucial role in facilitating the implementation of online learning during the COVID-19 pandemic. Due to its accessibility, flexibility, convenience, and cost-effectiveness—such as reduced transportation and accommodation costs—online learning modalities such as e-learning, blended learning, flipped learning, and distance learning were rapidly adopted by colleges, higher institutions, and universities worldwide. These modalities served as alternatives to traditional face-to-face or classroom-based teaching methods. (Hodges *et al.*, 2020).

Although students generally responded positively to the transition, many were reluctant to adopt it permanently. Nevertheless, they perceived online learning as comparable to face-to-face instruction in terms of effectiveness, and appreciated its enjoyable nature, the ability to learn at their own pace, easy access to materials, and opportunities for active participation (Lemay *et al.*, 2021).

In recent years, both lecturers and students have encountered several challenges in the delivery and engagement of online education. According to (Zhong, 2020), the scarcity of funding in academic institutions has hindered organizational responsiveness and students' ability to engage effectively in online learning. Additional challenges include inadequate internet coverage, lack of advanced technologies, technical problems, social isolation, poor internet quality, affordability issues, limited digital literacy among learners, and inflexible scheduling (Bączek *et al.*, 2020; Zawadka 2021; Dhawan, 2020).

These issues highlight the need for distance educators to improve their teaching skills and strategies by focusing on the specific difficulties faced by students, particularly during the COVID-19 era, when the use of online and blended learning became mandatory across many universities. Online learning can be delivered through different modes, such as synchronous and asynchronous formats. A variety of digital platforms support this delivery, including Google Meet, Google Classroom, Microsoft Teams, Zoom, Moodle, Canvas, Edmodo, Schoology, Coursera, and Kahoot (Al-Fraihat, 2020).

Understanding lecturers' perceptions of digital learning is crucial in evaluating their adaptability to the new instructional environment. It is important to determine whether lecturers are comfortable with online teaching methodologies or if they prefer returning to traditional face-to-face instruction. Therefore, the primary objective of this study is to examine lecturers' perceptions of online learning during the COVID-19 pandemic at Kebbi State University of Science and Technology. Data was collected using a structured questionnaire, and the instrument's validity was established through the Content Validity Index (CVI), as proposed by (Amin, 2005).

2. METHODOLOGY

2.1 DESIGN

This study employed a descriptive survey design to investigate lecturers' perceptions of online learning during the COVID-19 pandemic at Kebbi State University of Science and Technology, Aliero. This

design facilitated the assessment of lecturers' views as they existed at the time of the study (Kothari, 2004; Cohen, 2000). A quantitative research approach was adopted to gather measurable data reflecting lecturers' experiences and opinions regarding online instruction. This approach enabled the analysis of the relationship between the independent variable (lecturers' perceptions) and the dependent variable (online learning during the COVID-19 pandemic), without manipulating any variables (Cohen *et al.*, 2000).

According to Saunders *et al.*, (2023), descriptive research is concerned with identifying the “who, what, where, and how” of a phenomenon, which aligns with the objectives of this study. In line with (Creswell and Creswell, 2018) recommendations for quantitative studies, structured questionnaires were used as the primary data collection instrument to generate and analyze numerical data.

2.2 PROCEDURE AND PARTICIPANTS

The target population for the study included lecturers across eight academic departments at Kebbi State University of Science and Technology, Aliero, totalling 192 lecturers. Random sampling was employed to select five departments from the eight, ensuring fair representation, while purposive sampling was used to identify 50 respondents from the selected departments. This mixed sampling technique allowed the researchers to balance generalizability with relevance to the study objectives (Etikan, 2016). Data collection occurred in late 2021. Participants completed paper-based surveys administered in person. Participation was voluntary, and responses were collected anonymously to ensure confidentiality and ethical integrity. The questionnaire addressed key themes including lecturers' general perceptions of online learning, their roles and responsibilities in delivering effective online instruction, and the challenges they encountered during the COVID-19 pandemic.

2.3 MEASUREMENT INSTRUMENT

The instrument used for this research is a researcher-designed questionnaire developed in alignment with the study's objectives. The questionnaire is structured to reflect both independent and dependent variables and is administered to lecturers as the target respondents. This instrument was selected because the target population comprises educated individuals, reducing the likelihood of misinterpretation and enhancing the reliability and accuracy of the data collected. The questionnaire is divided into several sections, with each section addressing a specific objective of the study.

Each set of questions related to the research objectives was designed using a four-point Likert scale:

- Strongly Disagree (SD) = 1
- Disagree (D) = 2
- Agree (A) = 3
- Strongly Agree (SA) = 4

This structure was implemented to quantitatively assess respondents' opinions and perceptions concerning the various aspects of online learning addressed in the study

3. RESEARCH QUESTION

This study seeks to explore lecturers' perspectives on online learning during and before the COVID-19

pandemic, as well as how the unprecedented institutional transition to remote instruction influenced lecturers. It also investigates the challenges associated with online learning within the institution and in Nigeria more broadly, and examines lecturers' roles and responsibilities in ensuring a positive online class experience and supporting students' academic progress.

4. ANALYSIS

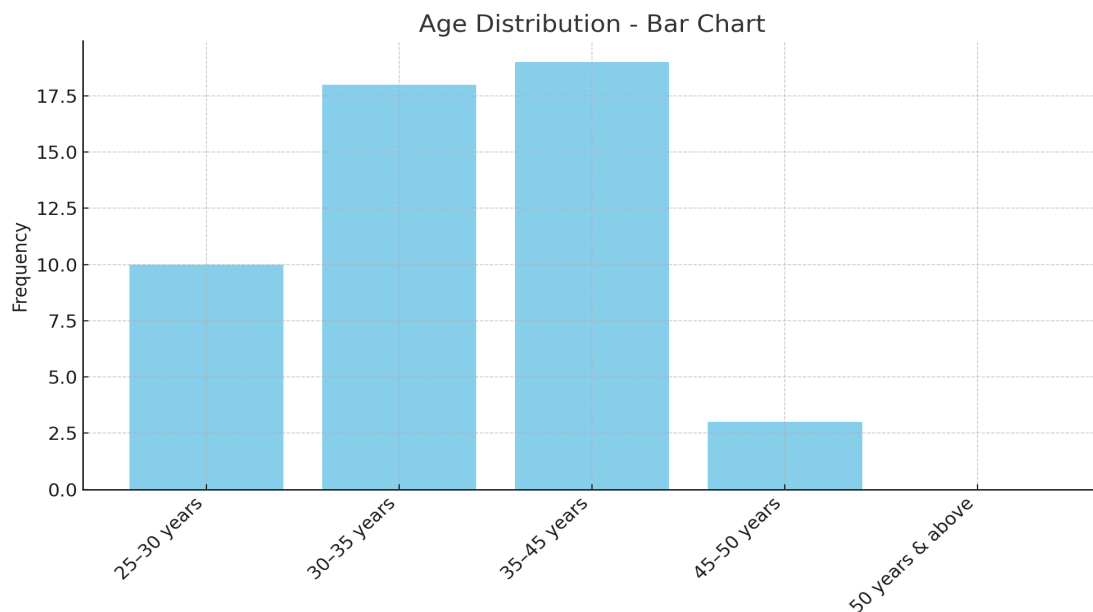
4.1. BACKGROUND

The summarized of the results and computed descriptive statistics, analysing patterns to present a comprehensive overview of student perceptions.

PARTICIPANT DEMOGRAPHICS

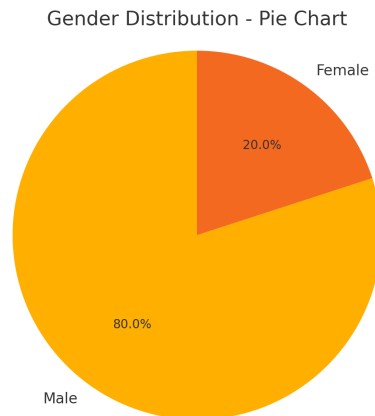
4.2 DEMOGRAPHIC PROFILE OF RESPONDENTS

4.2.1 AGE DISTRIBUTION



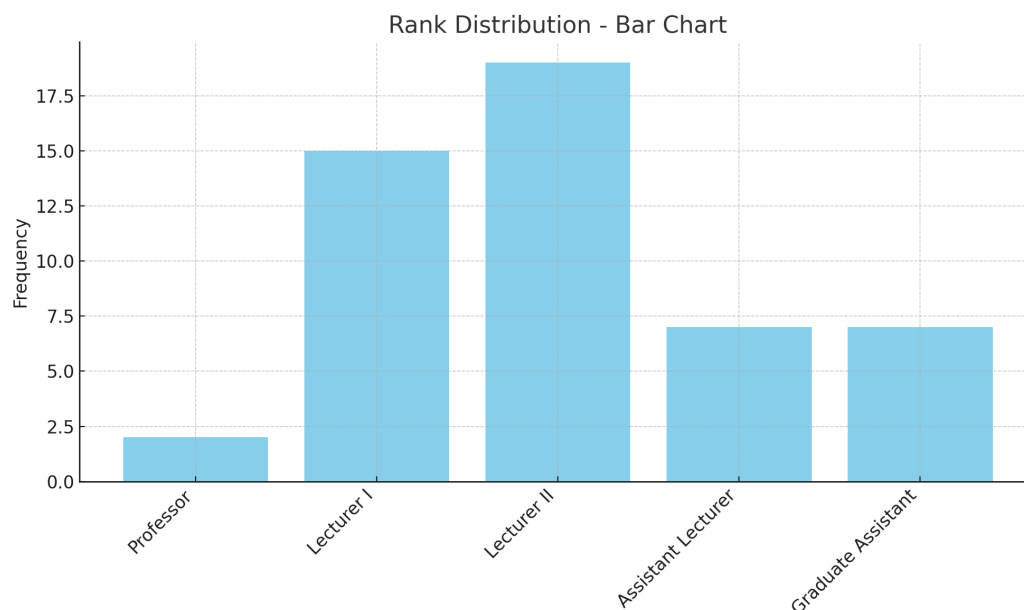
The data in Table1, indicates that the majority of respondents, 19 (38%), were within the 35–45 years age bracket, followed closely by 18 respondents (36%) in the 30–35 years age group. Respondents aged 25–30 years accounted for 10 individuals (20%), while those aged 45–50 years represented a smaller proportion at 3 (6%). Notably, no respondents were aged 50 years and above. The predominance of respondents in the 35–45 age group suggests a relatively young academic workforce. This may reflect the staffing structure of KSUSTA, a state-owned university, which typically employs fewer senior academics such as professors or older lecturers.

4.2.2 GENDER DISTRIBUTION



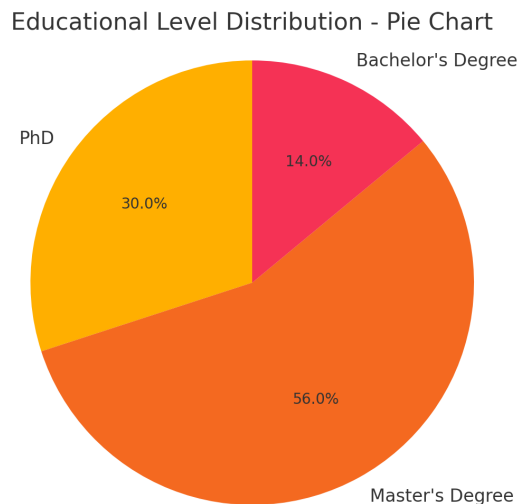
The gender distribution reveals a significant disparity, with male respondents constituting the majority at 40 (80%), and female respondents accounting for only 10 (20%). This male dominance may be attributed to the institution's specialization in science and technology disciplines, which, historically and culturally, have experienced lower female participation due to perceptions that these fields are male-oriented.

4.2.3 ACADEMIC RANK OF LECTURERS



Regarding academic ranks, most respondents were Lecturer II, representing 19 individuals (38%), followed by Lecturer I with 15 individuals (30%). Assistant Lecturers and Graduate Assistants each accounted for 7 respondents (14%), while Professors constituted the smallest group at 2 individuals (4%). The small number of Professors may be reflective of the institution's relatively recent establishment and state ownership, which might limit the recruitment or retention of highly senior academic staff.

4.2.4 EDUCATIONAL QUALIFICATIONS



In terms of educational attainment, the majority of respondents held a Master's degree, comprising 28 individuals (56%). This was followed by Bachelor's degree holders at 7 (14%) and PhD holders at 15 (30%). No respondents reported holding a Postgraduate Diploma (PGD). The dominance of Master's degree holders is consistent with hiring practices in many public universities, where Master's-level qualifications are often the minimum requirement for entry-level academic positions. The presence of Bachelor's degree holders may be explained by the recruitment of graduate assistants as part of the academic workforce development strategy.

4.3 DATA ANALYSIS

The primary aim of this study was to gather evaluative feedback from university lecturers regarding their perceptions of online learning during the COVID-19 pandemic. A descriptive analytical approach was employed to interpret the collected data. Responses to open-ended questions were transcribed and systematically categorized to identify recurring themes. Repetitive or frequently mentioned responses were noted and analyzed. The most commonly occurring responses were then quantified, and their mean scores were calculated and tabulated for reporting purposes. The following section presents the detailed findings derived from the survey responses.

4.4 RESULTS

The survey was conducted to gain insights into the perceptions, challenges, and experiences of university lecturers regarding the recently introduced online learning platform. The results are categorized into three main dimensions assessed by the survey:

- Perceptions of Online Learning
- Challenges in Online Instruction
- Roles, Responsibilities, and Experiences of Lecturers

Perceptions of Online Learning

The analysis revealed an average mean score of 3.21 for the first research question, indicating that lecturers generally held a positive perception of online learning as a medium of instruction during the pandemic.

Challenges in Online Instruction

Table 2. Lecturers Perspective of online learning

For the second dimension, the survey recorded a mean score of 3.14, suggesting that although lecturers acknowledged the usefulness of online learning, they faced significant challenges in its effective delivery. These challenges included issues such as poor internet connectivity, inadequate digital infrastructure, and limited technical support.

Roles, Responsibilities, and Experiences of Lecturers

S/N	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	Interpretation
A.	Online learning offer access to a wide range of course content	22	28	0	0	3.44	Very high
B.	Online course providing sufficient course-specific resources, contact information for the instructor and/or the department	18	24	7	1	3.18	High
C.	Online learning facilitates learning on students of diverse learning styles and personalities	15	25	7	3	2.9	High
D.	Online learning utilizes a variety of sources that assist student learning (articles, links to websites, etc.)	21	24	4	1	3.3	Very High
E.	Online learning provides multiple activities for students to develop critical thinking skills	18	28	3	1	3.26	Very High
F.	Online learning provides formative or continuing assessment and feedback to students about their performance throughout the semester	18	28	2	2	3.24	High
G.	communicate with students regularly in order to engage them	20	23	7	0	3.26	Very High
H.	I help students make connections between content and their lives	14	29	6	1	3.12	High
I.	Online learning promotes a student's desire to learn	21	22	5	2	3.24	High
	Average mean					3.21	High

The third dimension yielded a mean score of 2.96, reflecting that while lecturers recognized their critical roles and responsibilities in facilitating online learning, there is a need for capacity building and professional development to enhance their effectiveness in virtual instruction environments.

4.5 DESCRIPTIVE STATISTICS AND INTERPRETATION

In Table2, presents descriptive statistics derived from participants' responses regarding the effectiveness of online learning environments across multiple dimensions. Based on the obtained mean scores, respondents strongly agreed that online learning environments offer access to a wide range of course content and utilize varied instructional resources such as academic articles and hyperlinks to relevant websites, which enhance student learning. Additionally, the data indicates that online platforms support multiple learning activities that promote the development of critical thinking skills and encourage regular communication to maintain student engagement.

There was also a high level of agreement among respondents regarding the availability of course-specific resources, clear contact information for instructors or departments, and the platform's ability to cater to students with diverse learning styles and personalities. Respondents further affirmed that online courses provide formative and continuous assessments, as well as timely feedback—components that are often more difficult to implement in traditional face-to-face instruction.

Moreover, lecturers noted that online learning enables instructors to help students make real-world connections with the course content and promotes intrinsic motivation to learn. The overall average mean scores of 3.21 suggests a generally positive perception of online learning as an effective modality for enhancing student engagement, promoting flexible learning, and ensuring access to diverse educational resources. These results underscore the perceived effectiveness and adaptability of online education, particularly in delivering comprehensive content, fostering engagement, and addressing varied learner needs. The findings align with existing literature that highlights the flexibility and learner-centered nature of online learning environments (Bozkurt and Sharma, 2020)

S/N	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	Interpretation
A.	a Student negative attitude affect their capacity toward online class	18	22	7	3	2.66	High
B.	b Human and pets' intrusions affect student studies toward online class	15	23	11	1	3.04	High
C.	Digital competence affects the delivery of content	20	22	5	3	3.18	High
D.	Technical and adapting difficulty affect student studies toward online class	20	25	4	1	3.28	Very High
E.	The inadequate internet coverage and usability affect the delivery of instruction effectively	19	27	3	1	3.28	Very High
F.	Adequate technology resources promoted successful online teaching such as network, computers	23	25	2	0	3.42	Very High
G.	Socio-economic factor affects deliver of instruction effectively	20	25	3	2	3.26	Very High
H.	Problem of Assessment and Supervision of student toward online class	19	24	5	2	3.20	High
I.	. During online studies, students are able to get help when they have questions	17	20	10	3	3.02	High
J.	Lack of advanced technologies	18	17	11	4	3.06	High
	Average mean					3.14	High

Table2. Challenges of Online Learning from Lecturers' Perspective

4.6 PERCEIVED BARRIERS TO EFFECTIVE ONLINE LEARNING

This section analyses the perceived barriers to effective online learning and instruction as reported by participants. The study explored a range of challenges, including technical limitations, infrastructural constraints, and socio-psychological factors affecting both students and lecturers. Respondents strongly agreed that several challenges hinder the implementation of online learning. Among the most frequently cited were technical difficulties and the struggle to adapt, which significantly impacted students' academic engagement. Inadequate internet coverage and poor usability were reported as major barriers to the effective delivery of instruction. The unavailability of essential technological resources, such as reliable networks and computers, also impeded successful online teaching. Additionally, socio-economic factors were identified as key constraints, influencing both the ability to access digital tools and the broader delivery of instruction.

Respondents also agreed that negative student attitudes and limited motivation negatively affected participation in online classes. Moreover, disruptions from the home environment, including human and pet intrusions, were reported to interfere with students' focus and learning continuity. Challenges related to the assessment and supervision of students were also highlighted, with concerns about the adequacy of support when students encountered difficulties during their studies.

The recorded an average mean score of 3.14, reflecting a general consensus among respondents that these barriers represent significant impediments to the effective implementation of online education during the COVID-19 pandemic. This score underscores that infrastructural and accessibility issues remain dominant challenges, consistent with previous findings in developing and transitional educational contexts (Olum *et al.*, 2020).

Furthermore, the findings suggest that beyond technological limitations, psychosocial and pedagogical factors—such as student motivation, available support systems, and supervision—substantially affect the effectiveness of online learning environments. For example, intrusions from household environments (Mean = 3.04) and lack of access to advanced technologies (Mean = 3.06) were noted as pressing concerns, emphasizing the importance of designing adaptable and resilient learning environments.

In conclusion, while online learning offers substantial benefits in terms of flexibility and accessibility, its success is highly dependent on the resolution of infrastructural, technical, and socio-economic challenges, which disproportionately affect students and institutions in under-resourced settings. The study's findings reinforce the importance of comprehensive planning, which should include not only investment in technology but also support mechanisms for learners, digital literacy training, and pedagogical strategies to reduce distractions and promote sustained engagement.

S/N	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	Interpretation
A.	Online instructor provides feedback to guide learning in a timely manner	16	25	6	3	3.08	High
B.	Online studies, provided the ample opportunities to interact with one another	15	20	14	3	3.02	High
C.	Online studies help you to identify topics clear and provide instructions for completing assignments in a timely manner	12	27	9	2	2.98	High
D.	Online courses provide assistance on how to participate in online discussion forums, chats, or others used	12	20	11	7	2.74	High
E.	Online studies are more effective than a face-to-face meeting	10	16	10	14	2.44	Poor
F.	The nature of online studies is not impersonal	15	26	5	4	3.04	High
G.	Online study contains sufficient learner's support that links to campus resources	14	28	3	5	3.02	High
H.	I have several inabilities to work with computers	10	20	13	7	2.66	High
I.	I am not comfortable with the lack of interaction with other learners or a trainer	16	20	10	4	2.96	High

J.	I have a low internet bandwidth	10	30	9	1	2.98	High
K.	I have too many distractions, e.g., games, YouTube, etc	20	17	10	3	3.08	High
L.	I have Physical health barriers such as eye strain during online studies.	21	17	8	2	3.06	High
M.	The socio-economic factor affected my study	25	19	5	1	3.36	Very High
Average Mean						2.96	High

Table 3. Lecturer's Roles and Responsibilities to a Positive Experience with an Online Class

4.7 LECTURERS' ROLES AND RESPONSIBILITIES IN ONLINE LEARNING ENVIRONMENTS

This section explores the roles and responsibilities of lecturers that contribute to a positive and effective experience in online learning environments. The results reflect respondents' perceptions of instructional effectiveness, engagement strategies, and support mechanisms. One of the most highly rated responsibilities was the provision of timely feedback by instructors (Mean = 3.08), highlighting its crucial role in guiding and supporting student learning. Similarly, the clarity of content delivery and timely assignment instructions (Mean = 2.98) was identified as a key factor in maintaining structure and enhancing learner understanding in virtual settings. Respondents also emphasized the importance of lecturer presence, as reflected by the score for the non-impersonal nature of online learning (Mean = 3.04), indicating that active instructor engagement fosters a greater sense of connection and personal involvement.

Opportunities for interaction among students and instructors (Mean = 3.02), along with access to learner support services linked to campus resources (Mean = 3.02), further underscore the extended role of lecturers beyond content delivery—serving as facilitators of social interaction and institutional support. However, assistance with participating in discussion forums and chat functions was rated lower (Mean = 2.74), revealing an area where greater instructional guidance or student motivation may be necessary. Although some challenges fall outside the direct control of lecturers, such as low internet bandwidth (Mean = 2.98), environmental distractions (Mean = 3.08), and physical health barriers like eye strain (Mean = 3.06), these issues may still be mitigated through strategic course design, flexible scheduling, and moderated pacing. Students also expressed discomfort with limited peer interaction (Mean = 2.96), suggesting the need for lecturers to foster social presence through synchronous sessions, breakout rooms, or moderated discussions.

Notably, the high impact of socio-economic constraints (Mean = 3.36) emerged as a significant external barrier, reinforcing the importance of empathetic teaching practices, such as flexible deadlines, asynchronous content delivery, and sensitivity to students' diverse circumstances. Despite these efforts, the perception that online learning is more effective than face-to-face instruction was rated lowest (Mean = 2.44), indicating ongoing scepticism about the modality's overall efficacy.

The overall average mean scores of 2.96 suggests a generally positive perception of lecturers' roles in online learning, but also reflects the need for continued professional development and support to enhance instructional strategies for virtual settings. The findings affirm that lecturers play a pivotal role in shaping the quality of the online learning experience—particularly through feedback, instructional clarity, interactive facilitation, and the humanization of digital education spaces. While infrastructural and personal barriers persist, empathetic, responsive, and well-prepared instructors can significantly enhance learner engagement and outcomes in online environments.

5. CONCLUSION AND RECOMMENDATIONS

This study highlights that the respondents generally held positive perceptions of online learning during the COVID-19 pandemic. Despite acknowledging its benefits—such as flexibility, resource accessibility, and promotion of independent learning—lecturers also reported substantial challenges. These included limited digital infrastructure, poor internet connectivity, socio-economic barriers, and insufficient technical support, which make the transition impossible to take place. Moreover, although lecturers recognized their vital roles in the success of online learning, they emphasized the need for enhanced digital competencies and professional development to effectively adapt to virtual environments.

To sustain and improve online education beyond the pandemic, the study concludes that institutions must invest in:

- Strengthening digital infrastructure,
- Enhancing lecturer and student digital skills,
- Expanding support systems and learning resources,
- Addressing socio-economic disparities,
- Encouraging more interactive and personalized online teaching strategies.

REFERENCES

- Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67–86. doi: [10.1016/j.chb.2019.08.004](https://doi.org/10.1016/j.chb.2019.08.004)
- Amin, M. E. (2005). *Social science research: Conception, methodology and analysis*. Makerere University.
- Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., & Woźniak, K. (2020). Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. *Medicine*, 99(49), e23365. <https://doi.org/10.1097/MD.00000000000023365>
- Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to Corona Virus pandemic. doi: [10.5281/ZENODO.3778083](https://doi.org/10.5281/ZENODO.3778083)

- Cohen, L. (2000). *Research methods in education* (5th ed.). doi:10.4324/9780203224342
- Creswell, J. W., & Creswell, J. D. (2018). *Research design* (5th ed.). Thousand Oaks, CA: SAGE Publications. ISBN-13: 978-1506386706
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Etikan, I. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1. doi: 10.11648/j.ajtas.20160501.11
- Hodges, C. B., Moore, S., Lockee, B. B., Torrey Trust, & Bond, M. A. (2024). The difference between emergency remote teaching and online learning. In *Handbook of Research in Online Learning* (pp. 511–522). doi:10.1163/9789004702813_021
- Kothari, C. R. (2004). *Research methodology* (2nd ed.). New Delhi, India: New Age International. ISBN8122415229, 9788122415223
- Lemay, D. J., Bazalais, P., & Doleck, T. (2021). Transition to online learning during the COVID-19 pandemic. *Computers in Human Behavior Reports*, 4(100130), 100130. doi: 10.1016/j.chbr.2021.100130
- Lemay, D. J., Bazalais, P., & Doleck, T. (2021). Transition to online learning during the COVID-19 pandemic. *Computers in Human Behavior Reports*, 4(100130), 100130. doi: 10.1016/j.chbr.2021.100130
- Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus disease-2019: Knowledge, attitude, and practices of health care workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in Public Health*, 8, 181. doi:10.3389/fpubh.2020.00181
- Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (8th ed.). London, England: Pearson Education ISBN-13: 978-1292208787.
- Zawadka, J., Miękisz, A., Nowakowska, I., Plewko, J., Kochańska, M., & Haman, E. (2021). Remote learning among students with and without reading difficulties during the initial stages of the COVID-19 pandemic. *Education and Information Technologies*, 26(6), 6973–6994. doi:10.1007/s10639-021-10559-3
- Zhong, R. (2020). The coronavirus exposes education's digital divide. Retrieved from The New York Times: <https://www.nytimes.com/2020/03/17/technology/chinaschools-coronavirus.html>