
RESEARCH ARTICLE

LECTURERS' COMPETENCY LEVEL IN THE UTILIZATION OF REMOTE TEACHING PLATFORMS FOR INSTRUCTIONAL DELIVERY IN FEDERAL UNIVERSITIES IN SOUTH-SOUTH, NIGERIA

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ABSTRACT

The study investigated the extent of computer science lecturers' competency in utilization of remote teaching platforms for instructional delivery in Federal Universities in South-South, Nigeria. The population was made up of 247 computer science lecturers of five Federal Universities offering computer science as a course, in South-South, Nigeria. A sample of 153 respondents was used in the study. This was selected using Taro Yamane's formula and proportionate stratified random sampling technique. Data collection was done with the use of a researcher-developed instrument titled, "Lecturers' Competency in Utilization of Remote Teaching Platforms Questionnaire (LCURTPQ)". Two research questions were raised and two corresponding null hypotheses formulated to guide the study. Descriptive survey design was used for the study. The findings of this study revealed that computer science lecturers demonstrated a very high competency level in utilizing Google Classroom and Zoom platforms. Furthermore, statistical analyses showed no significant difference in the mean response between male and female lecturers in the utilization of Google Classroom and Zoom. It was therefore concluded that male and female computer science lecturers are very highly competent in utilizing Google Classroom and Zoom platforms. Based on the findings, it was recommended among other things that universities should continue to enhance lecturers' digital competency through professional development programs, institutional policies should continue to promote interactive platforms. The research contributes empirical evidence to the discourse on digital pedagogy in Nigerian higher education.

KEYWORDS

Remote Teaching Platforms, Instructional Delivery, Lecturers' Competency

Introduction

Remote teaching platforms are digital environments designed to facilitate instructional delivery outside the confines of traditional classrooms. They combine synchronous tools (e.g., video conferencing, real-time discussions) and asynchronous tools (e.g., learning management systems, digital assignments) to provide flexible and interactive learning opportunities (Turoff as cited in Anekwe, 2017). These platforms are particularly valuable in Computer Science education, where practical demonstrations, immediate feedback, and collaborative problem-solving are essential for effective teaching and learning (Falola *et al.*, 2022).

The transition to remote teaching has been accelerated by global disruptions such as the COVID-19 pandemic, compelling lecturers to adapt their instructional strategies and develop new digital competencies (Muthuprasad *et al.*, 2021). However, adoption rates vary widely, and in many Nigerian universities, lecturers still rely heavily on face-to-face methods, despite the availability of ICT facilities that could support remote delivery (Adeoye *et al.*, 2020).

Competency in using remote teaching platforms extends beyond basic digital literacy. It involves an integrated set of technical, pedagogical, and managerial skills. Technical competency refers to the ability to operate platforms and utilize their features effectively. Pedagogical competency involves designing engaging, learner-centered content, while managerial competency covers organizing virtual classes, maintaining communication, and assessing students remotely (Boyatzis, 1982).

Several studies (Olumorin *et al.*, 2020; Olojede and Oladunjoye, 2021) highlight that many lecturers lack adequate preparation for this shift. Barriers include insufficient institutional training, inconsistent internet access, and resistance to adopting new instructional technologies. The

consequence is uneven quality in remote instruction and suboptimal student learning outcomes.

Research on digital competency often investigates whether male and female lecturers differ in their adoption and effective use of remote teaching tools. Findings are mixed: some studies report no significant gender gap in ICT usage (Yusuf *et al.*, 2022), while others indicate that male lecturers may adopt new technologies earlier, whereas female lecturers tend to emphasize sustained, structured use once they are trained (Adeoye *et al.*, 2020). Investigating gender-related competency differences in specific institutional contexts, such as Federal Universities in South-South Nigeria, helps to identify potential disparities and inform targeted professional development programs.

To better understand lecturers' competencies, this study focuses on two remote teaching platforms: Google Classroom and Zoom. These platforms were selected because they combine synchronous and asynchronous functionalities, support collaborative and interactive learning, and have been widely recognized for improving instructional delivery in higher education (Muthuprasad *et al.*, 2021).

Globally, these tools have been shown to enhance engagement, facilitate timely feedback, and allow for dynamic instructional strategies. However, their integration in Nigerian universities has been inconsistent due to limited awareness, inadequate training, and infrastructural constraints (Adeoye *et al.*, 2020; Olojede and Oladunjoye, 2021). The following subsections provide an overview of each platform, its instructional relevance, and the competencies lecturers must demonstrate to use them effectively.

Google Classroom is a cloud-based platform designed to streamline the distribution of assignments, communication, and resource sharing

in a paperless environment. It integrates with other Google tools (Docs, Slides, Drive) to support structured learning pathways and both synchronous and asynchronous interactions (Olumorin *et al.*, 2020). In Computer Science courses, it enables lecturers to organize content systematically, monitor student progress, and provide timely feedback (Falola *et al.*, 2022). To use Google Classroom effectively, lecturers must demonstrate competence in organizing virtual classrooms, creating and grading digital assignments, and leveraging analytics to improve instruction (Muthuprasad *et al.*, 2021). In Nigeria, however, adoption has been constrained by inadequate training and poor internet access (Adeoye *et al.*, 2020), underscoring the need for capacity-building initiatives.

Zoom is a real-time video-conferencing platform that allows lecturers to replicate many aspects of face-to-face classroom interaction. It supports features such as screen sharing, breakout rooms, and session recordings, which are particularly valuable for Computer Science courses requiring demonstrations and collaborative exercises (Yu, 2024). Effective use of Zoom requires competency in managing virtual classrooms, delivering interactive presentations, and troubleshooting technical issues (Olojede and Oladunjoye, 2021). While Zoom gained popularity during the COVID-19 pandemic, challenges such as bandwidth limitations and insufficient digital skills among lecturers have hindered its optimal utilization in Nigerian universities (Yusuf *et al.*, 2022).

Traditional classroom instruction sometimes falls short of providing an immediate learning environment with faster evaluations and more engaging opportunities. However, digital learning tools and technology appear to fill this void. In recent years, the utilization of remote teaching platforms has become increasingly prevalent, particularly during emergency situations such as flooding caused by heavy rains, pandemics,

kidnappings, terrorist attacks, and violent communal clashes. In these circumstances, schools are often closed indefinitely or students and lecturers are instructed to vacate campuses and return home, making physical lectures impossible.

While remote teaching platforms offer promising avenues for delivering educational content in such emergencies, their effectiveness in facilitating Computer Science education—a field traditionally reliant on hands-on experimentation and interactive learning—remains underexplored. Despite the potential benefits embedded in the use of these platforms, preliminary observations by this researcher through field visits, phone interactions with colleagues at specific universities, website reviews of Federal Universities in South-South Nigeria, and informal inquiries reveal that although these universities have ICT facilities that could aid remote teaching, Computer Science lecturers still rely heavily on traditional face-to-face instructional delivery. They have yet to fully integrate remote teaching platforms such as Google Classroom and Zoom into their teaching processes.

This situation is only tentative, as no empirical evidence currently substantiates the extent to which these platforms are used or how competent lecturers are in using them. Furthermore, where they are used, it remains unclear whether disparities exist between male and female lecturers in their levels of competency. Therefore, this study seeks to examine the extent of lecturers' competency in utilizing remote teaching platforms for instructional delivery in Federal Universities in South-South Nigeria

| Purpose of the Study

The main purpose of this study was to investigate the extent of use of remote teaching platforms among computer science lecturers for instructional delivery in Federal Universities in South – South, Nigeria. Specifically, the study sought to:

1. Determine the extent of use of Google Classroom among male and female

computer science lecturers for instructional delivery in Federal Universities in South – South, Nigeria.

2. Examine the extent of use of Zoom among male and female computer science lecturers for instructional delivery in Federal Universities in South – South, Nigeria.

| Research Questions

1. What is the extent of use of Google Classroom among male and female computer science lecturers for instructional delivery in Federal Universities in South – South, Nigeria?
2. What is the extent of use of Zoom among male and female computer science lecturers for instructional delivery in Federal Universities in South – South, Nigeria?

| Research Hypotheses

The following null hypotheses were formulated to guide the study and tested at 0.05 alpha level of significance:

H₀₁ There is no significant difference in the mean responses between male and female Computer Science lecturers' competency in the utilization of Google Classroom for instructional delivery in Federal Universities in South-South, Nigeria.

H₀₂ There is no significant difference in the mean responses between male and female Computer Science lecturers' competency in the utilization of Zoom for instructional delivery in Federal Universities in South-South, Nigeria.

| Research Method

The study adopted a descriptive survey design, which employed the use of questionnaire for data collection. The study was carried out in five Federal Universities in South-South, Nigeria. The population consisted of 247 Computer Science lecturers across the five universities during the 2023/2024 academic session. Using Taro

Yamane's formula, a sample size of 153 lecturers representing 62% of the population was determined. A proportionate stratified random sampling technique ensured that lecturers from each university were fairly represented in the study. Data were collected with a structured research-developed questionnaire titled *Lecturers' Competency in Utilization of Remote Teaching Platforms Questionnaire (LCURTPQ)*. The instrument assessed the competency of computer science lecturers in using Google Classroom and Zoom for instructional delivery, using a five-point Likert scale. Validation was achieved through expert review, while a pilot test with 30 lecturers (outside the main sample) produced a Cronbach Alpha reliability coefficient of 0.92, confirming high internal consistency. The questionnaire was administered by trained research assistants after securing institutional consent. Completed questionnaires were retrieved, coded, and prepared for analysis. Data were analyzed using descriptive statistics (mean scores) to answer research questions, while independent samples t-tests at a 0.05 significance level were applied to test hypotheses on gender differences using SPSS. Competency levels were interpreted using real limits of numbers on a five-point scale: a mean score between 4.50 and 5.00 indicated a very high extent of competency; 3.50 to 4.49 a high extent; 2.50 to 3.49 a moderate extent; 1.50 to 2.49 a low extent; and 0.50 to 1.49 a very low extent. For hypothesis testing, a null hypothesis was rejected when the p-value was less than or equal to 0.05, indicating a statistically significant difference between male and female lecturers' mean scores, and retained when the p-value exceeded 0.05, indicating no significant difference. A positive t-value signified a higher mean for males, while a negative t-value signified a higher mean for females.

| Results

Research Question One: What is the extent of use of Google Classroom among male and female Computer Science lecturers for instructional delivery in Federal Universities in South–South Nigeria?

Table 1: Extent of Use of Google Classroom among male and female computer science lecturers for instructional delivery

S/N	Competency Item	(MX)	(FX)	Overall Mean	Extent of Use
1	Navigate dashboard during instructional delivery	4.64	4.85	4.74	VHE
2	Create a new class for a structured learning environment	4.65	4.75	4.69	VHE
3	Archive classes for future retrieval	4.74	4.73	4.74	VHE
4	Restore archived classes for continuity	4.52	4.46	4.49	HE
5	Attach lecture files to assignments	4.48	4.46	4.47	HE
6	Attach links to assignments	4.59	4.40	4.51	VHE
7	Attach videos to assignments	4.52	4.48	4.50	VHE
8	Invite students to join a class	4.41	4.33	4.37	HE
9	Assign posts for content dissemination	4.44	4.45	4.44	HE
10	Integrate Google Drive for resource management	4.40	4.33	4.37	HE
Cluster Mean		4.54	4.52	4.53	VHE

$n = 153$ (male = 86, female = 67), Male Mean = $\overline{MX}$, Female Mean = $\overline{FX}$

Table 1 shows that both male and female lecturers recorded a cluster mean of 4.54 and 4.52 respectively, while the overall cluster mean was 4.53, which falls within the range of Very High Extent in the response options, indicating that both male and female lecturers demonstrated a very high level of competency in utilizing Google Classroom for instructional delivery. Both male and female lecturers recorded Very High Extent in most aspects of usage such as navigating the dashboard, creating new classes, archiving classes, attaching links and videos to assignments, and restoring archived content. However, some functions such as inviting students to join a class,

assigning posts, attaching lecture files, and integrating Google Drive had a High Extent level of competency for both groups. While female lecturers outperformed males slightly in certain items (e.g., navigating the dashboard: 4.85 vs. 4.64 and creating a new class: 4.75 vs. 4.65), male lecturers had higher mean scores in functions like restoring classes, attaching links to assignments, and integrating Google Drive. The cluster means of male (4.54) and female (4.52) lecturers imply that both genders in Federal Universities in South-South, Nigeria demonstrated a high extent of competency in the utilization of Google Classroom for instructional delivery.

Research Question Two: What is the extent of use of Zoom among male and female Computer Science lecturers for instructional delivery in Federal Universities in South–South Nigeria?

Table 2: Extent of use of Zoom among male and female computer science lecturers for instructional delivery

S/N	Items	MX	FX	Overall Mean	Extent of Use
1	Schedule meetings to facilitate structured course delivery.	4.67	4.72	4.69	VHE
2	Use screen sharing feature for presentation of lecture slides and demonstrations.	4.56	4.69	4.62	VHE
3	Record live class sessions for future playback.	4.59	4.63	4.61	VHE
4	Edit recorded instructional sessions to improve content delivery and clarity.	4.48	4.63	4.55	VHE
5	Use virtual classrooms features to facilitate interaction with your students.	4.49	4.51	4.50	VHE
6	Manage and control participant settings to ensure an orderly class environment for smooth lesson delivery.	4.42	4.51	4.46	HE

7	Use closed captioning feature to provide real-time transcription of spoken words into texts for improved instructional delivery.	4.56	4.42	4.50	VHE
8	Design lesson contents on the platform for instructional delivery.	4.58	4.49	4.54	VHE
9	Use breakout room features to split a class into smaller groups for collaborative learning.	4.62	4.54	4.58	VHE
10	Activate raise-hand function to enable students' signal for questions or comments during instructional delivery.	4.50	4.61	4.55	VHE
Cluster Mean		4.55	4.58	4.56	VHE

n = 153 (male = 86, female = 67), Male Mean = $\overline{MX}$, Female Mean = $\overline{FX}$

Table 2 presents that male lecturers had a cluster mean of 4.55, while their female counterparts had 4.58. The overall cluster mean stood at 4.56, which falls within the Very High Extent range in the response options, indicating that both groups demonstrated a very high level of competency in utilizing Zoom for instructional delivery. Across the ten assessed items, both male and female lecturers demonstrated Very High Extent of competency in most Zoom functionalities, including scheduling meetings, screen sharing, recording sessions, editing instructional videos,

designing lesson content, managing virtual classrooms through breakout rooms, using the raise-hand function, and using closed captioning. However, one exception was observed in the item on managing and controlling participant settings, which recorded a High Extent level of competency. The cluster mean for male (4.55) and female (4.58) lecturers imply that both genders in Federal Universities in South-South, Nigeria demonstrated a very high extent of competency in the utilization of Zoom for instructional delivery.

Null Hypothesis One:

There is no significant difference in the mean responses between male and female Computer Science lecturers' competency in the utilization of Google Classroom for instructional delivery in Federal Universities in South-South, Nigeria.

Table 3: Summary of t-test analysis on the difference in the mean responses of male and female Computer Science Lecturers' competency in the utilization of Google Classroom Platform for instructional delivery

S/N	Items	Group	N	$\bar{X}$	t-value	P-value	Decision
1	Navigate dashboard during instructional delivering.	Male	86	4.64	-2.992	.003	S
		Female	67	4.85			
2	Create a new class for a structured learning environment.	Male	86	4.65	-1.263	.208	NS
		Female	67	4.75			
3	Archive classes to retain course content history for future retrieval and reference.	Male	86	4.74	.167	.867	NS
		Female	67	4.73			
4	Restore classes as needed to provide flexibility in course continuity.	Male	86	4.52	.704	.483	NS
		Female	67	4.46			
5	Attach lecture files to assignments, for organized provision of learning resources.	Male	86	4.48	.160	.873	NS
		Female	67	4.46			
6	Attach links to assignments to expand the learning experience beyond the classroom.	Male	86	4.59	2.242	.026	S
		Female	67	4.40			
7	Attach videos to assignments to provide visual explanations to complex concepts.	Male	86	4.52	.496	.621	NS
		Female	67	4.48			
8	Invite students to join a class for easy participation.	Male	86	4.41	.860	.391	NS
		Female	67	4.33			
9	Assign posts for structured approach to content dissemination.	Male	86	4.44	-.062	.951	NS
		Female	67	4.45			

10	Integrate Google drive for effective management of teaching resources.	Male	86	4.40	.635	.527	NS
		Female	67	4.33			
Cluster Mean, t-value and p-value		Male		4.54	0.691	.492	NS
		Female		4.52			

$\bar{X}$ = Mean; NS = No Significant Difference; S = Significant Difference

Table 3 shows the mean competency scores of male and female computer science lecturers ranged between 4.33 and 4.85, reflecting a generally high level of proficiency across both groups. The t-values ranged between -2.992 to 2.242 and p-values between .003 and .951. The cluster analysis shows Male Mean = 4.54, Female Mean = 4.52, $t = 0.691$, and $p = .492$. At a 0.05 level of significance, only two items recorded p-values less than 0.05, indicating statistically significant differences in male and female lecturers' responses. For the remaining eight

items, the p-values were all greater than 0.05, indicating that the observed differences in mean responses between male and female lecturers were not statistically significant. Since the majority of the p-values exceeded the 0.05 threshold, the null hypothesis stating that "There is no significant difference in the mean responses between male and female Computer Science lecturers' competency in the utilization of Google Classroom for instructional delivery in Federal Universities in South-South, Nigeria" was accepted.

Null Hypothesis Two:

There is no significant difference in the mean responses between male and female Computer Science lecturers' competency in the utilization of Zoom for instructional delivery in Federal Universities in South-South, Nigeria.

Table 4: Summary of t-test analysis on the difference in the mean responses of male and female Computer Science lecturers' competency in the utilization of Zoom platform for instructional delivery

S/N	Items	Group	N	$\bar{X}$	t-value	P-value	Decision
1	Schedule meetings to facilitate structured course delivery.	Male	86	4.67	-0.539	.591	NS
		Female	67	4.72			
2	Use screen sharing feature for presentation of lecture slides and demonstrations.	Male	86	4.56	-1.623	.107	NS
		Female	67	4.69			
3	Record live class sessions for future playback.	Male	86	4.59	-0.412	.681	NS
		Female	67	4.63			
4	Edit recorded instructional sessions to improve content delivery and clarity.	Male	86	4.48	-1.765	.080	NS
		Female	67	4.63			
5	Use virtual classroom features to facilitate interaction with your students.	Male	86	4.49	-0.212	.833	NS
		Female	67	4.51			
6	Manage and control participant settings to ensure an orderly class environment.	Male	86	4.42	-0.991	.323	NS
		Female	67	4.51			
7	Use closed captioning feature for real-time transcription.	Male	86	4.56	1.682	.095	NS
		Female	67	4.42			
8	Design lesson contents on the platform for instructional delivery.	Male	86	4.58	1.064	.289	NS
		Female	67	4.49			
9	Use breakout rooms to split a class into smaller groups for collaboration.	Male	86	4.62	0.888	.376	NS
		Female	67	4.54			
10	Activate raise-hand function to enable student questions or comments.	Male	86	4.50	-1.226	.222	NS
		Female	67	4.61			

Cluster Mean, t-value and p-value	Male	86	4.55	-0.838	.403	NS
	Female	67	4.58			

$\bar{X}$ = Mean; NS = No Significant Difference; S = Significant Difference

Table 4 shows the mean responses of male and female computer science lecturers ranged between 4.42 and 4.72, indicating a high level of competency in using the platform across both genders. The cluster analysis shows Male Mean = 4.55, Female Mean = 4.58, $t = -0.838$, and $p = .403$. The t -values ranged from $-.539$ to 1.682 , and p -values ranged between $.080$ and $.833$, all of which are greater than the 0.05 significance level. This implies that none of the observed differences

Discussion of Findings

Google Classroom and Lecturers' Competency

The findings of this study revealed that Computer Science lecturers in Federal Universities in South-South, Nigeria demonstrated a very high extent of competency in utilizing Google Classroom for instructional delivery. The overall cluster mean score (4.53) as seen in Table 4.1, clearly places their competency within the "Very High Extent" range (4.50–5.00). This result implies that lecturers, regardless of gender, are not only familiar with but also proficient in using key features of Google Classroom such as navigating the dashboard, creating and archiving classes, attaching files and videos, and integrating Google Drive as part of their instructional routines.

This aligns with trending findings which indicates a sharp increase in the technological proficiency of university lecturers, particularly due to institutional demands during and after the COVID-19 pandemic. As reported by Trust and Whalen (2020), the shift to emergency remote teaching accelerated digital competence acquisition, particularly in the use of Learning Management Systems (LMS) like Google Classroom. Similarly, Alghamdi (2021) found that faculty members in Saudi universities

in mean scores between male and female lecturers were statistically significant. Therefore, the null hypothesis stating that "There is no significant difference in the mean responses between male and female Computer Science Lecturers' competency in the utilization of Zoom platform for instructional delivery in Federal Universities in South-South, Nigeria" was accepted. cluster ($t = -0.838$, $p = .403$).

considered Google Classroom effective and easy to use, citing high engagement with its features for instructional delivery.

Although the overall competency was high, certain items recorded slightly lower mean values (yet still within the "High Extent" range), such as "inviting students to join a class" (4.37), "assigning posts" (4.44), and "integrating Google Drive" (4.37). These relatively lower scores may reflect differences in usage frequency, relevance to the specific instructional context, or limited advanced training. This finding supports Khalil and Ebner (2020) who found that while educators may be quick to adopt core functions of digital platforms, they may underutilize advanced tools due to lack of in-depth training.

Gender-based analysis revealed minimal differences in competency levels between male and female lecturers (male mean = 4.54; female mean = 4.52), suggesting overall parity. However, further analysis using an independent samples t -test (Table 4.6) revealed statistically significant gender differences in two specific competencies: navigating the dashboard ($p = 0.003$) and attaching links to assignments ($p = 0.026$). Female lecturers outperformed their male counterparts in dashboard navigation, while male lecturers

performed slightly better in attaching links. These findings suggest minor gender-based strengths in specific digital skills, rather than a general gap in competence.

This minor difference resonates with the observations of Kim *et al.* (2020), who argued that digital competence is influenced by individual experience, prior exposure, and task-specific familiarity rather than broad gender generalizations. Yadav and Mahajan (2022) further observed that gender differences in ICT usage among university teachers are narrowing, particularly when training opportunities are uniformly accessible.

Importantly, the overall statistical analysis confirmed that there was no significant difference in the overall competency of male and female lecturers in using Google Classroom, as 8 out of 10 items had p-values greater than 0.05. This supports the null hypothesis, affirming that both male and female lecturers demonstrate comparable proficiency in using Google Classroom for teaching. This aligns with findings from Bervell and Umar (2018), who reported similar digital engagement levels across genders in LMS usage in West African universities.

The implications of these findings are critical for policy and professional development planning. The observed high competency suggests that Federal Universities in South-South Nigeria have either provided effective training or lecturers have independently adapted to technology. However, areas like collaborative tools (e.g., Drive integration) and administrative functions (e.g., inviting students) may benefit from more targeted training programs. In summary, this study's findings confirm that Computer Science lecturers in South-South, Nigeria have successfully integrated Google Classroom into their instructional practice at a very high level, with minimal gender disparities. The result supports a growing body of evidence that professional digital competence among

lecturers has improved significantly in the post-pandemic educational context.

Zoom and Lecturers' Competency

The findings of this study as presented in Table 4.2 indicate that Computer Science lecturers in Federal Universities across South-South Nigeria exhibit a very high level of competency in utilizing Zoom for instructional delivery. The overall cluster mean score of 4.56 falls within the "Very High Extent" range (4.50–5.00), showing a widespread and effective use of Zoom's instructional tools by both male (mean = 4.55) and female (mean = 4.58) lecturers. This observation aligns with the global trend that emerged during the COVID-19 pandemic, where higher education institutions transitioned to online platforms like Zoom to maintain teaching continuity. As Rapanta *et al.* (2020) pointed out, synchronous platforms such as Zoom became essential to digital pedagogy, and university faculty quickly adapted to its suite of tools—including screen sharing, breakout rooms, class recordings, and virtual interaction features. The present study confirms that this adaptation has not only persisted but matured into high-level digital competence among lecturers.

All ten measured items in the survey reflect strong digital teaching practices, particularly in the use of core features like scheduling meetings (mean = 4.69), screen sharing (mean = 4.62), recording sessions (mean = 4.61), and using breakout rooms (mean = 4.58). These findings reinforce the assertion by Bozkurt and Sharma (2020) that the shift to digital learning has expanded instructors' capacity to design and deliver engaging lessons through technology. One item—"managing and controlling participant settings"—recorded a mean of 4.46, placing it within the "High Extent" range, slightly below the others. This may reflect the technical complexity or less frequent use of such administrative functions compared to core instructional tools. According to Trust and Whalen (2020), faculty

members often prioritize content delivery tools over administrative functions unless they receive specific training in classroom management on digital platforms.

From a gender-based perspective, the analysis shows that both male and female lecturers demonstrated similarly high competencies. The minor numerical differences in mean scores across the ten items (male mean = 4.55, female mean = 4.58) were not statistically significant. Table 4.7 supports this, with p-values ranging from .080 to .833, all above the 0.05 threshold. Therefore, the null hypothesis that “There is no significant difference in the mean responses between male and female Computer Science Lecturers’ competency in the utilization of Zoom for instructional delivery” was accepted.

These findings corroborate previous findings which indicated that gender is no longer a dominant factor in digital literacy or technological adoption among university lecturers. For instance, García-Peñalvo *et al.* (2021) found that with equal exposure and access to technology, male and female educators tend to develop comparable digital competencies. Similarly, Alghamdi (2021) emphasized that when institutional support structures are in place, gender disparities in digital teaching skills diminish significantly.

Interestingly, although male lecturers scored slightly higher in using features like breakout rooms (mean = 4.62), female lecturers showed marginally higher competencies in scheduling and editing recorded sessions. However, as the t-test values showed, these differences were not statistically meaningful, suggesting equity in digital engagement and skill acquisition. The high level of Zoom competency demonstrated by both genders also reflects the increased institutional emphasis on digital pedagogy and professional development. As Moorhouse and Wong (2021) observed, universities that invested in continuous

professional development during the pandemic have seen long-term gains in faculty digital proficiency an observation consistent with the findings of this study. In summary, the findings demonstrate that Computer Science lecturers in Federal Universities in South-South Nigeria are not only competent but highly proficient in leveraging Zoom for instructional delivery. The negligible gender differences further underscore the inclusiveness of digital skills development and the growing uniformity in digital teaching practices among higher education faculty.

| Conclusion

Based on the findings, the study concluded that Computer Science lecturers in Federal Universities in South-South, Nigeria, exhibit very high competency in using **Google Classroom** and **Zoom**, reflecting strong integration of these platforms into digital pedagogy. Gender was not found to be a significant factor in lecturers’ competency levels for these platforms. These findings underscore the importance of sustaining digital literacy initiatives to maintain and further enhance effective instructional delivery using Google Classroom and Zoom.

| Educational Implications of Findings

The findings of this study have significant implications for education, particularly in improving the digital teaching capabilities of Computer Science lecturers in Federal Universities in South-South, Nigeria. The high competency levels observed in the use of Google Classroom and Zoom indicate that lecturers have successfully integrated these platforms into their teaching methods. This suggests that they are capable of delivering lectures, managing course content, and engaging students in virtual learning environments, ensuring the continuity of education even in times of disruptions such as strikes or pandemics. The ability to use these platforms efficiently contributes to more interactive and flexible learning experiences,

allowing students to access instructional materials and participate in discussions beyond the traditional classroom setting. This competency reflects a positive adaptation to technology-driven education, aligning with global trends in digital learning.

| Contribution to Knowledge

This study makes significant contributions to knowledge by providing empirical data on the competency levels of Computer Science lecturers in South-South Nigeria regarding the use of remote teaching technology. By assessing their proficiency in utilizing Google Classroom and Zoom, the research offers valuable insights into the extent of technology integration in instructional delivery. These findings contribute to the growing body of literature on digital pedagogy in Nigerian universities, particularly in the field of Computer Science education. The study further highlights how lecturers engage with various educational technology tools, shedding light on the effectiveness of these platforms in facilitating virtual learning and knowledge dissemination.

Moreover, the study offers practical recommendations for improving digital competencies among lecturers, which can serve as a valuable reference for educational policymakers, university administrators, and curriculum developers. By emphasizing the importance of structured professional development programs, the research underscores the need for continuous capacity-building initiatives to strengthen lecturers' proficiency in technology-enhanced learning. These contributions not only enhance the quality of instructional delivery in Nigerian universities but

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also support broader efforts to integrate digital learning tools into higher education, ensuring that graduates acquire relevant skills for the modern, technology-driven workforce.

| Recommendations

1. Since Computer Science lecturers already exhibit very high competency in using Google Classroom and Zoom, universities should continue to organize periodic workshops and refresher courses to ensure that lecturers remain up to date with new features and best practices for these platforms.
2. University management should provide continuous technical support, ensure reliable internet access, and equip lecturers with updated ICT resources to maximize the effective use of Google Classroom and Zoom.
3. Lecturers with advanced digital teaching experience should be encouraged to mentor colleagues, fostering a collaborative culture that reinforces consistent use of these platforms across departments.
4. University authorities should formalize the use of these platforms in instructional delivery guidelines, ensuring their sustained adoption beyond emergency situations like the COVID-19 pandemic.
5. Since gender is not a barrier to competency, the proven success in Computer Science departments can serve as a model for other faculties. Training programs should be extended to other disciplines to replicate this high level of proficiency.

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