COMPUTER SCIENCE LECTURERS' UTILIZATION OF MICROSOFT TEAMS FOR INSTRUCTION IN FEDERAL TERTIARY INSTITUTIONS IN KADUNA STATE, NIGERIA

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Abstract

Technology is increasingly reshaping teaching and learning globally. This study examined the utilization of Microsoft Teams for instruction and explored whether lecturers' demographic characteristics influence its use. Two research questions and two hypotheses guided the study. A cross-sectional research design was adopted across seven institutions. The population consisted of 242 Computer science Lecturers (CSLs), from which 202 were selected using a census-based sampling technique of the 202 questionnaires administered, 192 were retrieved and analyzed. The instrument was validated with a reliability index of 0.752 using Cronbach's Alpha. Data were analyzed using descriptive statistics and inferential tests. The Chi-square test indicated a statistically significant difference in utilization ($p < 0.001$). However, the Kruskal–Wallis H test showed that demographic characteristics had no statistically significant influence on lecturers' utilization ($p = 0.53$). The study concluded that CSLs demonstrate utilization of Microsoft Teams for instruction. It recommends improved ICT infrastructure and continuous capacity-building programmes to enhance effective technology integration in teaching.

Keywords: Microsoft Teams, Utilization, Virtual Learning Platform, Teaching and Learning and Federal Tertiary Institutions.

Introduction

The role of technology and digital revolution in tertiary institutions has become increasingly significant in this 21st century, altering how teaching and learning are conceptualized and delivered across the world. The digital platforms now provide greater flexibility, interactivity and collaboration by bringing all-in one while extending learning opportunities beyond the physical classrooms, while fostering accessibility, collaboration and communication. The modern-day higher Education systems, digital tools have become vital to curriculum design and instruction delivery, with institutions integrating them into Education to enhance teaching effectiveness and student learning outcomes (EDUCAUSE, 2021). The outbreak of the COVID-19 pandemic in 2020 accelerated this trend, as institutions were forced to adopt online collaboration and communication platforms such as Whatsapp, Zoom, Google Classroom and Skype to ensure continuity of instruction in the middle of campus closures.
The pandemic revealed both the opportunities and the challenges associated with digital learning. Globally, Microsoft Teams emerged as one of the most widely adopted educational collaboration online platforms, providing tools for synchronous teaching, file sharing, assignments, discussions and resource management. Microsoft Teams is an online platform designed for communication, collaboration and virtual learning, which brings people together to share the same digital space where they can interact, chat, hold meetings, share files and work together in real time.

Scholarly literature has increasingly documented the global expansion of digital platforms in higher education, particularly the growing adoption of Microsoft Teams as a tool for teaching and learning. Recent reports indicate that the platform has recorded over 270 million monthly active users and is projected to

exceed 300 million users by 2026 across nearly 183,000 educational institutions worldwide. These statistics reflect the widespread global acceptance and integration of Microsoft Teams into contemporary educational environments (Microsoft, 2022; Business of Apps, 2025; DemandSage, 2025). Despite this rapid adoption, studies suggest that the effectiveness of such platforms in instructional contexts varies considerably depending on several interrelated factors, including lecturers' awareness of the platform, accessibility, patterns of utilization, availability of digital infrastructure, Internet connectivity, user motivation, professional characteristics, and the digital proficiency and competency of instructors.

Evidence from developed regions such as North America, South America, Asia, and Europe indicates that higher education institutions have successfully integrated Microsoft Teams into blended and hybrid learning models. Investments in digital infrastructure, coupled with policy-driven innovation, have enabled the platform to support instructional design, assessment processes, and collaborative learning activities. Empirical studies further demonstrate that the use of Microsoft Teams can enhance communication efficiency, student engagement, and learning outcomes. However, these benefits are largely influenced by the quality of instructional design, the availability of reliable digital infrastructure, and lecturers' technological proficiency (EDUCAUSE, 2022; Taylor & Francis, 2024).

The discipline of computer science occupies a strategic position in advancing information and communication technology–driven transformation in education. Computer science lecturers are often expected to be among the early adopters of emerging digital tools due to their professional background and their role in preparing students for participation in a technology-driven, twenty-first-century society. Nevertheless, the effective instructional utilization of Microsoft Teams depends on a chain of interconnected factors. Lecturers must first develop awareness of the platform and its instructional capabilities, but awareness alone is insufficient without adequate accessibility and opportunities for utilization. The interaction among these factors ultimately determines the extent to which Microsoft Teams can effectively support instructional delivery and improve students' academic outcomes. These considerations underscore the relevance and timeliness of investigating lecturers' awareness and utilization of Microsoft Teams in higher education.

Statement of the Problem

The COVID-19 pandemic in 2020 fast-tracked the adoption of digital technologies such as Microsoft Teams platforms, which have become vital for effective teaching and learning in higher Education globally. This adoption compels institutions to incorporate digital tools to maintain continuity in instructional delivery. Globally, in regions such as North America, Europe and parts of Asia, the platform has been successfully integrated into hybrid learning models, supported by strong digital infrastructure, policies and training. Microsoft Teams has recorded over 300 million active users across more than 183,000 institutions worldwide. But despite its widespread adoption internationally and recognition for enhancing teaching and learning, the educational effectiveness of Microsoft Teams largely depends on lecturers' awareness, accessibility, utilization, institutional support and the availability of robust digital infrastructure is supported by UNESCO (2020) report on digital learning which collectively influence teaching effectiveness, students' performance and overall learning.

Furthermore, Nigerian Federal tertiary institutions, especially those in Kaduna State, adoption has been inconsistent due to infrastructural, institutional support and socio-economic challenges such as poor internet connectivity, high data costs, weak institutional policies, competency and inadequate staff training. This degree of awareness, accessibility and utilization of Teams among lecturers remains uncertain. Preliminary observations suggest that few Computer Science lecturers have limited awareness of Microsoft Teams and its instructional potential. Even among those who are aware, accessibility challenges**,** including poor internet connectivity, inadequate ICT infrastructure and insufficient institutional support, hinder usage.

The absence of sufficient empirical evidence creates a significant knowledge gap and without such information, policymakers, Federal tertiary administrators and Educators face challenges in making data-driven decisions to strengthen digital learning integration. Therefore, this study seeks to systematically assess the extent of utilization and how demographic characteristics influence their use of Microsoft Teams for instruction among Computer Science lecturers in Federal tertiary institutions in Kaduna State

Objectives of the study

This research has achieved the following;

1. determined the extent of utilization of Microsoft Teams for instruction among Computer Science lecturers in Federal tertiary institutions in Kaduna State, Nigeria
2. explored the influence of moderating factors (demographic characteristics) of Computer science lecturers on their utilization of Microsoft Teams for instruction in Federal tertiary institutions in Kaduna State, Nigeria

Research Questions

The following were the research questions raised and answered for this study:

1. What is the extent of utilization of Microsoft Teams for instruction among Computer Science lecturers in Federal tertiary institutions in Kaduna State, Nigeria?
2. How do the moderating factors (demographic characteristics) of Computer science lecturers impact their utilization of Microsoft Teams for instruction in Federal tertiary institutions in Kaduna State, Nigeria?

Research Hypotheses

The following hypotheses were formulated to guide the study:
H01: There is no significant difference in the extent of utilization of Microsoft Teams for instruction among Computer Science lecturers in Federal tertiary institutions in Kaduna State, Nigeria.
H02: There is no significant difference in moderating factors (demographic characteristics: Academic qualification, age, gender, years of experience, academic rank) of Microsoft Teams for instruction among Computer science lecturers on their utilization in Federal tertiary institutions in Kaduna State, Nigeria

Methodology

The study employed a descriptive survey research design was adopted aimed to assess Microsoft Teams Adoption for Instruction; Utilization and Demographic characteristics among Computer Science Lecturers in Federal Tertiary Institutions in Kaduna State, Nigeria, involving Computer science lecturers across the seven (7) Federal tertiary institution Kaduna State, Nigeria. The population of the study comprised 242 Computer science lecturers, out of which 202 were selected using purposive and Census-based sampling method. This approach is supported by Makwana (2023), who highlights the importance of this suitable sampling technique due to is small population for generalization and eliminating errors. The researcher administered 202 questionnaires, of which 192 were successfully retrieved and used for Data analysis and hypotheses test. Data was collected using a validated questionnaire with a reliability index of 0.752, as determined using Cronbach's Alpha. The data was analyzed using both descriptive and Non-parametric statistics of Chi-square statistical test and Kruskal–Wallis H test.

Research Question one: What is the extent of utilization of Microsoft Teams for instruction among Computer science lecturers in Federal tertiary institutions in Kaduna State, Nigeria?

This research questions was analyzed using Means and Standard deviation to describe the results, as shown in Table 6

Table 1: Mean Scores on Responses of the extent of utilization of Microsoft Teams for instruction among Computer science lecturers in Federal tertiary institutions in Kaduna State, Nigeria.

S/N	Item	HU	U	RU	NU	Mean	STD	Decision
1	I use Microsoft Teams to deliver lectures.	33	87	45	27	2.70	0.90	Utilized
2	I use Microsoft Teams to give and grade assignments.	16	48	98	30	2.21	0.95	Not Utilized
3	I use Microsoft Teams for group discussions and collaboration.	94	64	23	11	3.22	0.87	Highly Utilized
4	I use Microsoft Teams to conduct quizzes and assessments.	16	35	84	57	2.18	0.98	Not Utilized
5	I use Microsoft Teams to provide timely feedback to students.	7	23	67	95	1.92	0.91	Not Utilized
6	I use Microsoft Teams to share lecture notes and resources.	73	111	2	6	3.53	0.71	Highly Utilized
7	I use Microsoft Teams to communicate with students after class.	15	19	42	116	1.84	0.89	Not Utilized
8	I use Microsoft Teams for departmental or faculty meetings.	107	70	12	3	3.74	0.62	Highly Utilized
9	I use Microsoft Teams to monitor students' participation.	9	14	108	61	1.80	0.88	Not Utilized
10	I use Microsoft Teams to improve teaching and learning overall.	91	73	17	11	3.11	0.81	Highly Utilized
	Grand Total					**2.63**	**0.85**	

(Decision Mean = 2.50

The Table 1 above present the results, a grand mean of 2.63 indicates that Microsoft Teams is generally utilized for instructional purposes since the value is above the benchmark., but relatively low means and the grand standard deviation of 0.85 indicates moderate variation in responses, reported that lecturers 'responses on utilization are relatively close, although some differences exist across institutions. Largely, the result implies that Microsoft Teams is moderately utilized by Computer Science lecturers for instructional delivery and academic activities.

Research Question Two: How do the Moderating Factors (Demographic Characteristics: Age, Gender, Academic Qualification, Years of Experience and Professional Rank) of Computer Science Lecturers Impact their Awareness of Microsoft Teams for Instruction in Federal Tertiary Institutions in Kaduna State, Nigeria?

This research questions was analyzed using Means and Standard deviation to describe the results, as shown in Table 7 below.

Table 2: Mean Scores on Responses on how do The Moderating Factors (Demographic Characteristics: Age, Gender, Academic Qualification, Years of Experience And Professional Rank) of Computer Science Lecturers Influence their Utilization of Microsoft Teams for Instruction in Federal Tertiary Institutions in Kaduna State, Nigeria.

	Demographic Characteristics and Utilization	SA	A	D	SD	Mean	STD	Decision
11	My age does not limit my effective utilization of Microsoft Teams in classroom instruction.	54	21	94	23	2.64	0.88	Positive Influence
12	My gender does not affect how I utilize Microsoft Teams in teaching and learning.	79	44	32	37	2.80	0.91	Positive Influence
13	My academic qualifications make me more confident in utilizing Microsoft Teams for instruction.	71	51	50	25	2.78	0.89	Positive Influence
14	My years of teaching experience help me to better utilize Microsoft Teams for delivering lectures.	57	81	39	15	2.91	0.85	Positive Influence
15	My professional rank provides me with more opportunities to utilize Microsoft Teams in my teaching practice.	86	67	29	10	3.10	0.81	Positive Influence
	Grand Total					**2.85**	**0.87**	

Decision Mean of 2.50

The Table 2 above reported that demographic moderating factors influence their utilization of Microsoft Teams for instruction, using the decision mean of 2.50, the grand mean of 2.85 indicated that demographic characteristics have a positive influence on utilization, since the value is above the benchmark. The grand standard deviation of approximately 0.87 showed moderate variation in responses, indicated that lecturers generally share similar views regarding the influence of demographic characteristics on the utilization of Microsoft Teams. Largely, the result implies that demographic factors moderately enhance the utilization of Microsoft Teams for instructional delivery.

Hypothesis Testing

H01: There is no significant difference in the extent of utilization of Microsoft Teams for instruction among Computer Science lecturers in Federal tertiary institutions in Kaduna State, Nigeria.

Table 3: Chi square (X^2) Statistics on Significant Difference in the Extent of Utilization of Microsoft Teams for Instruction among Computer Science Lecturers in Federal Tertiary Institutions in Kaduna State, Nigeria.

Variable	N	df	X^2 Calculated	X^2 Critical (0.05)	P-value	Decision
Utilization of Teams for Instruction	1920	3	18.23	7.815	< 0.001	Rejected

x^2 computed = 18.23 ***p-value= < 0.001***

The Chi-square analysis in Table 10 revealed a statistically significant difference across response categories ($\chi^2 = 18.23$, df = 3, p = < 0.001; χ^2 critical = 7.815). The null hypothesis was therefore rejected, indicating that lecturers' utilization of Microsoft Teams is varies across different instructional functions**.** Core features

such as lecture delivery, sharing of instructional materials and departmental communication were more frequently used, whereas features related to assessment, grading, monitoring student participation and providing feedback were less consistently adopted. The relatively small margin between the calculated and critical Chi-square values reported that while there is variation,

H02: There is no significant difference in moderating factors (demographic characteristics: age, gender, academic qualification, years of experience and professional rank) of Microsoft Teams for instruction among Computer science lecturers on their utilization in Federal tertiary institutions in Kaduna State, Nigeria.

Table 4: Kruskal-Wallis H-Test on Significant Difference of Demographic Characteristics (Age, Gender, Academic Qualification, Years of Experience And Professional Rank) of Microsoft Teams For Instruction Among Computer Science Lecturers on their Utilization in Federal Tertiary Institutions in Kaduna State, Nigeria.

Variable	N	Df	H (Computed)	H Critical	P-Value	Decision
Demographic Characteristics on Utilization of Microsoft Teams	192	4	3.18	9.49	0.53	Not Significant

H computed (3.18) < H critical (9.49) **P-value (0.53) > 0.05**

The Kruskal–Wallis H test result in Table 4 shows that there is no statistically significant difference in the moderating influence of demographic characteristics (age, gender, academic qualification, years of experience and professional rank) on their utilization of Microsoft Teams for instruction among Computer Science lecturers across the institutions. This is based on the computed H value (3.18), which is lower than the critical value (9.49) and the p-value (0.53), which is greater than the 0.05 level of significance. Therefore, the null hypothesis, which states that there is no significant difference in utilization based on demographic characteristics, is accepted.

The result indicated that lecturers utilize Microsoft Teams in relatively similar ways regardless of demographic differences. This reported that utilization is more strongly influenced by institutional factors such as availability of ICT infrastructure, internet connectivity, power supply and technical support rather than personal demographic characteristics.

Discussion of Findings

Utilization of Microsoft Teams for Instruction: The analysis of Hypothesis One revealed a statistically significant difference in the utilization of Microsoft Teams for instruction ($\chi^2 = 8.79$, df = 3, p = 0.032), leading to the rejection of the null hypothesis. Although the calculated Chi-square value exceeded the critical threshold of 7.815, the relatively small margin between the two values suggests that the level of utilization, while statistically significant, demonstrates only moderate variation across instructional tasks. This indicates that Microsoft Teams is integrated into instructional teaching; however, its application remains uneven across different pedagogical activities. This pattern is consistent with findings reported by David Moorhouse and Dirk Kohnke, who observed that although digital platforms such as Microsoft Teams effectively support basic synchronous and asynchronous communication, their broader pedagogical potential is often underutilized in higher education contexts (Moorhouse & Kohnke, 2022).

Similarly, studies by Ayodeji Oke and Gideon Bongomin emphasize that technological constraints such as unstable internet connectivity, limited institutional infrastructure, and insufficient technical support often restrict lecturers' use of digital platforms to surface-level instructional functions rather than more advanced pedagogical applications (Oke & Fernandes, 2020; Bongomin et al., 2020). Consequently, the transition from basic content delivery toward a more comprehensive digital learning ecosystem requires not only reliable digital infrastructure but also sustained institutional support, professional development initiatives, and targeted training programmes. Such interventions are essential for enabling lecturers to move beyond simple communication and collaboration toward the effective use of advanced instructional management tools embedded within digital learning platforms.

Influence of Demographic Characteristics: The analysis of Hypothesis Two revealed that demographic characteristics exerted a positive but statistically non-significant influence on the utilization of Microsoft Teams for instructional purposes. Although the data indicated that mid-career lecturers with postgraduate qualifications and moderate teaching experience demonstrated slightly higher levels of engagement with the platform, these variations did not reach statistical significance. This suggests that while personal attributes may offer some advantage in navigating digital platforms, they do not constitute the primary determinants of technology adoption within the institutional context examined in this study.

These findings are consistent with the perspectives of Joke Tondeur, Ronny Scherer, and Fazilat Siddiq, who reported that teaching experience and professional rank can positively influence lecturers' attitudes and readiness toward the integration of educational technologies (Tondeur et al., 2021). Similarly, research by Princely Ifinedo, Marja Kankaanranta, and Raija Hämäläinen suggests that professional experience and academic qualification may enhance educators' disposition toward the use of digital learning technologies (Ifinedo et al., 2022). However, the absence of statistical significance in the present study implies that professional maturity alone cannot overcome broader systemic barriers that influence technology utilization.

Conversely, the findings present a contrast to the arguments advanced by Rasheed Rasheed, Amirrudin Kamsin, and Norazah Abdullah, as well as Minh Nguyen and Anikó Habók, who emphasize that demographic differences particularly variations in digital literacy are important predictors of technology accessibility and adoption (Rasheed et al., 2021; Nguyen & Habók, 2023). In the present study, however, the minimal influence of demographic variables suggests a leveling effect, whereby both the challenges and opportunities associated with digital technology use are experienced relatively uniformly across lecturers regardless of age, gender, or professional rank.

Generally, the findings highlight that institutional readiness, the availability of reliable ICT infrastructure, and the provision of continuous technical support constitute the critical determinants of effective digital technology integration. Consequently, the successful instructional adoption of Microsoft Teams appears to depend less on individual lecturer characteristics and more on the presence of supportive institutional structures that facilitate sustainable digital transformation in higher education.

Conclusion

Based on the findings of the study, the utilization of Microsoft Teams for instructional purposes among lecturers was found to be moderate. The results indicate that lecturers commonly use the platform for activities such as lecture delivery, sharing instructional materials, facilitating collaborative learning, and supporting departmental communication. However, certain advanced collaborative features and instructional management tools embedded within the platform remain underutilized.

The study further revealed that demographic characteristics demonstrated a positive but statistically non-significant influence on the utilization of Microsoft Teams. This suggests that factors such as age, academic rank, qualification, and teaching experience do not significantly determine lecturers' engagement with the platform. Instead, the level of utilization appears to be more strongly influenced by institutional conditions, including the availability of adequate ICT infrastructure, supportive institutional policies, and access to continuous digital training and professional development opportunities.

The overall findings highlight that effective integration of Microsoft Teams in instructional practices depends less on individual lecturer characteristics and more on institutional readiness and sustained technological support within higher education institutions.

Recommendations

Based on the findings from the analyzed data and tests of research hypotheses, the following recommendations are put forward by the researcher;

1. Federal tertiary institutions in Kaduna State should promote full use and pedagogical utilization of Microsoft Teams by training lecturers on its use for assessment, grading, feedback and student engagement activities, with technical support partnerships from private technology companies and develop policies and incentives to encourage lecturers to fully integrate Teams into instructional practices**.**
2. Federal tertiary institutions in Kaduna State, with intervention support from the Federal Government of Nigeria and private energy companies, should provide alternative power supply solutions such as solar systems and inverters to support continuous digital teaching and learning activities and develop, implement comprehensive digital education policies to support sustainable integration of Microsoft Teams.

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