ASSESSMENT OF THE LEVEL OF AWARENESS AND KNOWLEDGE OF DIGITAL DIVIDE AMONG ACADEMIC STAFF IN NIGERIAN UNIVERSITIES

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Abstract

This study investigates the level of awareness and understanding of the digital divide among academic staff in a selected Nigerian university. The digital divide, characterized by unequal access to digital technologies and competencies, remains a persistent barrier to equitable teaching and research in higher education. Using a descriptive survey design, data were collected from 150 academic staff through a structured questionnaire assessing digital divide awareness, access to digital resources, and perceived institutional support. Descriptive and inferential statistical tools, including ANOVA and frequency analysis, were used to analyze the data. Findings revealed a generally high level of conceptual awareness of the digital divide, particularly regarding its impact on teaching and learning. However, the practical adaptation of pedagogy to accommodate digitally disadvantaged students was less common. Significant differences in awareness were observed across academic ranks, with senior staff demonstrating greater understanding. Respondents identified key challenges such as poor internet connectivity, inadequate teaching tools, limited training, and weak institutional support. These findings highlight the need for integrated interventions that improve digital infrastructure, provide continuous digital literacy training, and promote inclusive teaching practices. The study recommends strategic institutional reforms to bridge digital gaps and foster an equitable digital environment for both staff and students.

Keywords: Digital divide, Academic staff, Higher education, Digital awareness, ICT access, Nigeria

Introduction

The rapid evolution of digital technologies has fundamentally transformed the global higher education landscape, altering how teaching, research and administrative activities are conducted. Across institutions worldwide, digital tools now play a pivotal role in shaping academic delivery and engagement (Oyelere & Olusola, 2020). However, the benefits of this transformation have not been equitably distributed, particularly in developing countries such as Nigeria, where significant gaps persist in access to effective use of digital technologies (Olufemi & Oluwatayo, 2018).

This disparity in equitable distribution of digital technologies, commonly referred to as the digital divide, describes the unequal access to and utilization of digital resources among different groups and regions. In Nigeria, this divide is evident across geographical, economic, and institutional lines. Urban Universities tend to be better equipped with digital infrastructure and enjoy more reliable internet and electricity supply than their rural counterparts (Ogunsola & Aboyade, 2019; Adeyemo & Ajayi, 2018). Faculty in less-resourced institutions often face serious constraints in adopting technology for teaching and research purposes (Adetimirin, 2021).

The Covid-19 pandemic revealed these disparities, exposing the limitations of Nigeria's higher education system in shifting to online modalities. Many academic staff lacked the tools, training, or support to deliver

instruction effectively in digital environments (Olayemi & Omotayo, 2020). The situation intensified concerns about equity, access, and the preparedness of institutions to navigate a technology-driven academic future.

Academic staff occupy a critical position in efforts to reduce digital inequities, as their technological awareness, skill levels, and dispositions towards digital tools strongly shape how such technologies are utilized across higher education systems (Ogunrewo & Odusina, 2021). Despite this, relatively few studies have examined the degree to which Nigerian university lecturers recognize the existence and implications of the digital divide (Fasae & Adegbilero-Iwari 2021). Gaining comprehensive insight into lecturers' level of awareness is essential for developing equitable pedagogical approaches and supporting broader institutional advancement in digital transformation.

Statement of the Problem

The Integration of digital technologies in higher education has become essential for effective teaching, research, and academic collaboration. However, many Nigerian Universities continue to face significant disparities in access to digital infrastructure and competencies. These disparities are particularly evident between urban and rural institutions, as well as amongst staff members with differing backgrounds and levels of experience.

Despite efforts to promote digital transformation across the education sector, there is a limited understanding of how academic staff perceive and respond to the digital divide. Many Faculty members may not be fully aware of how technological inequalities impact their students, colleagues, and institutional performance. Without this awareness, educators may inadvertently reinforce digital exclusion by adopting teaching strategies that do not consider the diverse access reality of their students.

Moreover, variations in awareness may exist based on factors such as institution type, geographical location, academic discipline, and career stage. These differences remain underexplored and poorly documented, making it difficult for institutions and policymakers to design appropriate support systems, training programs, and infrastructure investments.

Purpose of the Study

The purpose of this study is to assess the level of awareness and understanding of digital divide issues among academic staff within a selected Nigerian university.

Specifically, the study seeks to:

1. Assess the level of awareness and knowledge of the digital divide among academic staff in the University of Lagos.
2. Examine how demographic factors such as age, gender, academic rank, and career stage influence awareness of digital divide issues.
3. Identify perceived challenges related to digital access, infrastructure, and support that may affect staff engagement with digital tools.

Research Questions

1. What is the level of awareness and understanding of the digital divide among academic staff in the University of Lagos?
2. How do demographic factors such as age, gender, academic rank, and career stage influence academic staff awareness of digital divide issues?
3. What challenges related to digital access, infrastructure, and support are perceived by academic staff in relation to technology use in their academic work?

Literature Review

Understanding the digital divide in Higher Education

The digital divide in higher education refers not only to unequal access to digital devices and internet connectivity but also the disparities in digital skills and the ability to utilize technology for academic purposes effectively.

In the Nigerian context, these disparities are influenced by infrastructural limitations, economic inequality, and regional development gaps. While some urban universities have advanced ICT infrastructure and technical support, many rural and state-owned institutions continue to struggle with poor connectivity, frequent power outage and outdated technology (Adeyemo & Ajayi, 2018; Ogunsola & Aboyade, 2019). These challenges create systemic barriers to the full integration of technology in the academic environment.

Academic Staff as Drivers of Digital Inclusion

Academic staff play a pivotal role in bridging the digital divide within higher education institutions. Their attitude, awareness and competencies determine the extent to which technology is adopted and used in pedagogical practices (Ogunrewo & Odusina, 2021). Faculty members who understand the implications of digital inequity are more likely to implement inclusive teaching strategies and support students with limited digital access (Awoleye & Siyanbola, 2019).

Demographic and professional factors influence Faculty digital awareness. Studies have shown that early career academics may possess stronger digital skills but often lack awareness of institutional digital inequality, while senior academics may understand systemic issues but struggle with the technical aspect of digital teaching. These variations underscore the importance of context-sensitive interventions that account for individual differences.

Institutional Context and Support Mechanisms

The level of institutional support significantly shapes how academic staff perceive and respond to the digital divide. Universities that provide access to professional development, digital tools, and administrative encouragement for innovation tend to have more digitally aware faculty (Ogunsola & Aboyade, 2019). Conversely, institutions that neglect these areas may inadvertently reinforce digital exclusion even among otherwise motivated staff.

Infrastructural problems such as unreliable electricity, limited bandwidth, and lack of access to current software remain major obstacles in many Nigerian universities. These limitations not only constrain teaching and research but also influence faculty attitude towards technology adoption (Adetimirin, 2021). As a result, digital device awareness is often shaped not only by individual interest but also by institutional environment.

Theoretical Framework

This study is grounded in two complementary theoretical models: Rogers' diffusion of innovation (DOI) Theory and the technology-organization-environment (TOE) framework. These models provide a multilayered lens through which the awareness and understanding of the digital divide among academic staff can be examined, considering both individual-level and institutional-contextual factors.

Diffusion of Innovation (DOI) Theory

Rogers' diffusion of innovation theory (2003) explains how new ideas, practices, or technologies spread within a social system. The theory categorizes individuals into five adopter groups based on their openness to innovations: Innovators, early adopters, early majority, late majority, and laggards. These categories

help in understanding the varying degrees to which individuals accept and engage with technological change.

In the context of this study, DOI theory is applied to categorize academic staff based on their level of engagement with digital tools and their awareness of digital divide issues. Factors such as perceived usefulness, complexity, compatibility with existing practices, and observability of outcomes are critical in influencing how academic staff interpret and respond to digital inequities.

This framework is particularly useful in highlighting the role of personal characteristics such as risk tolerance, attitude towards change, and previous technological exposure in shaping digital divide awareness by mapping staff into adopter categories. The study aims to identify patterns of awareness that correlate with individual readiness to engage with the digital transformation effort. The theory recognizes that faculty members differ in their receptiveness to digital innovations, and these differences can be systematically understood through the adopter typology. Furthermore, DOI framework acknowledges that adoption decisions are not made in isolation but are influenced by communication channels, social networks within academic departments, and the perceived attributes of the innovation itself.

Technology-Organisation-Environment (TOE) Framework

Tornatzky and Fleischer (1990) developed the Technology-Organisation-Environment Framework to explain how organisations make decisions about adopting new technologies. The framework examines three interconnected domains that shape innovation adoption patterns.

The technological domain addresses the practical availability and sustainability of digital resources. For Nigerian universities, this encompasses the extent to which institutions can access reliable internet services, acquire necessary ICT equipment, and obtain appropriate educational software platforms. The quality and perceived usefulness of these technological resources directly influence whether faculty members can effectively integrate them into their teaching practices. Beyond mere availability, this dimension considers the compatibility of technologies with existing academic workflows and the ease with which they can be implemented within the university environment.

Within the organisational domain, internal institutional dynamics play a critical role. Universities differ in how their leadership prioritizes digital transformation, allocates financial and technical resources, and invests in faculty development programs. The presence or absence of robust institutional support structures can either facilitate faculty adoption of educational technologies or create barriers that discourage engagement. Factors such as administrative commitment, training opportunities, technical support services and reward systems for innovation constitute this Organizational dimension. The Organizational culture surrounding technology use, including policies that either encourage or constrain digital experimentation, significantly shapes faculty's willingness to embrace digital tools and develop awareness of digital inequities.

The environmental domain captures the broader contextual forces operating beyond individual institutions. Government policies regarding educational technology, national funding priorities, regional infrastructure development levels, and prevailing societal attitudes towards digital innovation all exert influence on university technology adoption. Nigerian Universities operating less developed regions often encounter more pronounced challenges related to inadequate infrastructure and limited regulatory support compared to their counterparts in more urbanized areas. This external environment includes economic conditions that affect institutional budgets, regulatory frameworks governing technology and us, and the broader digital ecosystem within which universities must operate.

TOE is particularly relevant in explaining how external and institutional conditions impact academic staff's awareness of digital inequity. It recognizes that even highly motivated individuals may be constrained by organisational or environmental factors. A faculty member may possess strong digital skills and awareness of digital divide issues yet face insurmountable barriers in addressing these concerns due to inadequate institutional infrastructure or broader regional limitations. The framework thus provides a

comprehensive lens for understanding why awareness levels and technology adoption patterns vary across different institutional contexts.

Integrated Framework Application

By integrating DOI and TOE, this study adopts a multi-level analytical lens. While DOI explains individual variation in awareness and engagement with digital issues, TOE accounts for the broader contextual influences that shape these individual differences.

The integrated approach allows for a more comprehensive understanding of digital divide awareness. It acknowledges that academic staff do not operate in isolation; their awareness is shaped by the tools available to them, the support they receive from their institutions, and the socio-economic environment in which they work. The interaction between personal attributes and contextual realities forms the core of this study's theoretical foundation. For instance, an innovator faculty member in the DOI typology may still struggle to implement inclusive digital practices if the organisational context lacks supportive policies or if the environmental context is characterised by poor infrastructure. Conversely, early majority or late majority adopters may be motivated to develop greater digital divide awareness when organisational support is strong and technological resources are readily available. This theoretical integration enables the study to examine not only who is aware of digital divide issues, but also why awareness levels vary and what factors can be leveraged to enhance awareness across the entire academic staff population.

Methodology

This study employed a descriptive survey design to examine the level of awareness and understanding of digital divide issues among academic staff at the University of Lagos. This design was appropriate for capturing perceptions, attitudes and self-reported experiences related to digital access, usage and institutional within a real-world academic setting.

The target population comprised of all academic staff across various faculties and departments on the university. A stratified random sampling technique was used to ensure fair representation across academic ranks, disciplines and experience levels. A total of 150 academic staff participated in the study.

Data were collected using a structured questionnaire. The Instrument consisted of four sections: Section A captured demographic information, including gender, age, academic rank, disciplines and years of experience. Section B measured awareness and understanding of digital divide concepts through 7 Likert-scale items that directly address research question 1. Section C assessed access to digital resources and perceived institutional support using six items that contributed to answering research question 3. Section D employed both multiple-choice and open-ended questions to identify specific barriers to technology adoption and to classify respondents according to Rogers' adopter categories, thus providing data for research questions 2 and 3.

The questionnaire was validated by experts who reviewed the instrument for content validity, clarity of items and alignment with the research purpose. Following expert validation, the instrument was pilot tested with 30 academic staff from a similar institution not included in the main study. Internal consistency reliability analysis of the pilot data yielded Cronbach's alpha coefficients of 0.83 for section B and 0.81 for section C.

Data were analyzed using descriptive statistics, which include mean, frequencies, standard deviation and percentages to summarize awareness levels and common challenges. Inferential statistics, specifically ANOVA, were employed to examine the relationship between demographic variables and awareness scores.

The findings were interpreted through the lens of Rogers' DOI theory and the TOE framework, which together assisted in explaining how individual characteristics and Institutional-environmental factors shape digital divide awareness among academic staff

Results

Research Question 1:What is the level of awareness and understanding of the digital divide among academic staff in the university?

Table 1: Descriptive Statistics for Digital Divide Awareness

Awareness Item	Mean	SD
I understand the concept of the digital divide.	4.02	0.81
I know how digital inequality affects student learning.	3.87	0.94
I can identify the causes of the digital divide within the university.	3.62	1.01
I adapt my teaching methods based on students' digital access.	3.30	1.12
I believe the digital divide impacts teaching and research effectiveness.	4.10	0.76

The results presented in Table 1 indicate that academic staff at the University of Lagos exhibit a generally high level of awareness regarding the digital divide. Respondents reported strong agreement with understanding the concept itself (M=4.0, SD=0.81) and that belief that it significantly impacts teaching and research effectiveness (M=4.10, SD=0.76). Awareness of how digital inequality affects students affects students learning was also high (M=3.87, SD =0.94). However, awareness appears to reduce slightly when it comes to identifying specific causes within their context (m=3.62, SD=101). Notably, the lowest mean score was recorded for the item on adapting teaching methods to accommodate students with limited digital access (M=3.30, SD=1.12), suggesting a gap between awareness and practical instructional adjustments. Overall, while general awareness is evident, the findings highlight a need for deeper engagement with contextual causes and inclusive pedagogical practices.

Research Question 2: How do demographic factors such as age, gender, academic rank, and career stage influence academic staff awareness of digital divide issues?

Table 2: One-Way ANOVA of Digital Divide Awareness by Academic Rank

Academic Rank	N	Mean Awareness Score	SD
Assistant Lecturer	33	3.41	0.64
Lecturer II	42	3.58	0.55
Lecturer I	31	3.73	0.59
Senior Lecturer	24	3.88	0.50
Associate Prof/Prof	20	3.96	0.47
Total	**150**	**3.69**	**0.59**

ANOVA Results:

Source	SS	Df	MS	F	p-value
Between Groups	4.12	4	1.03	3.22	0.015*
Within Groups	45.92	145	0.32		
Total	**50.04**	**149**			

Significant at $p < 0.05$

Table 2 presents the result of a one-way ANOVA examining the influence of an academic rank on awareness of digital issues among academic staff. The analysis reveals a statistically significant difference in awareness scores across different academic ranks. (F (4,145) = 3.22, p+0.015), indicating the rank is a meaningful factor in shaping awareness levels. Specifically, awareness tends to increase progressively with rank: Assistant Lectures had the lowest mean awareness score (M=3.41, SD=0.64), while Associate Professors and Professors had the highest (M3.96,SD = 0.47) This trend suggests that more experience more experienced and higher ranking staff members may have broader understanding of digital inequality, possibly due to their longer exposure to institutional systems and greater involvement in administrative or policy related roles. These findings underscore the importance of tailoring digital equity interventions and training to address gaps in awareness among lower- ranking and early-career academic staff.

Research Question 3; What challenges related to digital access, infrastructure, and support are perceived by academic staff in relation to technology use in their academic work?

Table 3: Frequencies of Reported Challenges Related to Digital Access

Reported Challenge	**Frequency**	**Percentage (%)**
Poor internet connectivity	118	78.7%
Inadequate access to teaching equipment	92	61.3%
Lack of digital skills training	84	56.0%
Limited technical support	70	46.7%
Lack of institutional incentives for innovation	58	38.7%

Table 3 outlines the primary challenges perceived by academic staff in relation to digital access and technology use within the university. The most frequently cited issue was poor internet connectivity, reported by 78.7% of respondents, indicating that reliable online access remains a critical barrier to effective technology integration. This was followed by inadequate access to teaching equipment (61.3%) and lack of digital skills training (56.0%), highlighting both infrastructural and capacity-building gaps within the institution. Additionally, limited technical support (46.7%) and a lack of institutional incentives for innovation (38.7%) were reported, suggesting that even motivated staff may face systemic constraints in adopting digital tools. These findings reflect a combination of technological and organizational challenges, reinforcing the need for comprehensive institutional strategies that address both physical infrastructure and professional development to foster digital equity in academic practice.

Discussion of Findings

High conceptual awareness with limited practical implementation

The findings reveal a paradoxical situation where academic staff demonstrate strong conceptual awareness of the digital divide yet show limited translation of this awareness into practical pedagogical adjustments. The high mean scores for understanding the digital divide concept (M=4.02) and recognizing its impact on teaching effectiveness (M=4.10) indicate that faculty members are not oblivious to digital inequality issues. This level of awareness aligns with existing literature suggesting the Nigerian academics are increasingly conscious of technology-related disparities in higher education (Fasae & Adegbilero-Iwari,2021; Ogunrewo & Odusina, 2021).

However, the considerably lower mean score for adopting teaching methods based on students digital access (M= 3.30) reveals a significant awareness practice gap. This finding resonates with Rogers' Diffusion of Innovation Theory, which distinguishes between knowledge of an innovation and the decision

to implement it. According to Rogers (2003), Individuals Progress through awareness, persuasion, decision, implementation, and decision stages recognizing the importance of digital equity but not yet systematically implementing inclusive practices.

This gap may be explained by what Rogers identifies as the complexity and compatibility attributes of innovation. Faculty members may perceive inclusive digital pedagogy as complex, requiring substantial redesign of teaching materials and methods. Additionally, such practices may be compatible with existing institutional reward systems that prioritize research productivity over teaching innovation. Without clear Institutional support and recognition for inclusive teaching effort, faculty members may acknowledge the digital divide intellectually while maintaining traditional pedagogical approaches that inadvertently disadvantage digitally marginalized students.

The finding that respondents scored moderately on identifying specific causes of the digital divide within their institution (M = 3.62) further suggests that awareness remains somewhat abstract rather than contextually grounded. Faculty may understand the digital divide as a general phenomenon without fully recognizing the manifestations and root causes within their own institutional environment. This superficial awareness limits their capacity to develop targeted interventions or advocate effectively for institutional changes that address local digital inequities.

The statistically significant difference in awareness levels across academic ranks provides compelling evidence that professional experience and institutional position shape digital divide consciousness. The progressive increase in awareness from Assistant Lecturers (M = 3.41).

Conclusion

In conclusion, this study has shown that while academic staff at the selected university demonstrate a generally high level of awareness regarding the digital divide, significant gaps remain in the practical application of this awareness, particularly in adapting teaching methods to address students' varying digital access. Awareness levels were found to vary across academic ranks, with senior staff exhibiting greater sensitivity to digital inequality issues than their junior counterparts. Additionally, major barriers such as poor internet connectivity, inadequate teaching equipment, limited training, and insufficient institutional support continue to hinder effective digital integration.

These findings, interpreted through the Diffusion of Innovation and Technology-Organization-Environmental frameworks, reveal that digital divide awareness is influenced by both individual characteristics and systemic institutional-environmental factors. While many faculty members have progressed beyond the awareness stage in the innovation adoption process, the translation of this awareness into inclusive pedagogical practices is constrained by organisational and environmental barriers that lie beyond individual control.

The study underscores the urgent need for integrated interventions that address multiple dimensions simultaneously: Improving technological infrastructure, strengthening organisational support mechanisms, and creating environmental conditions conducive to digital equity. Targeted professional development programs should be designed to enhance awareness among early career academic staff.

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