



ENSURING DIGITAL EQUITY IN NIGERIAN POLYTECHNICS: EMPIRICAL ANALYSIS OF LEGAL RIGHTS AWARENESS, ETHICAL RESPONSIBILITY AND EDUCATION TECHNOLOGY INTEGRATION

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Abstract: The growing use of Educational Technologies (EdTech) in polytechnics in Nigeria has raised the concern related to digital equity and access to learning. This paper looks at the degree of digital equity in integration of EdTech and evaluates how legal rights knowledge and institutional moral responsibility has an impact on polytechnic students in Nigeria. Data were gathered using a quantitative and descriptive cross-sectional survey design on 300 students sampled out of federal, state and private polytechnics in Osun State using stratified random sampling. Multiple regression analysis and descriptive statistics were used. The results show that there is a medium level of digital equity in access to EdTech and this means that structural inequalities are not completely met by current digitalizing efforts. Legal rights awareness and ethical responsibility have a significant effect on digital equity, although the effect of ethical responsibility is higher. This paper indicates that there is a requirement in policy frameworks that can incorporate legal literacy and ethical governance in the implementation of EdTech. It draws the conclusion that a sustainable and inclusive digital education of polytechnics in Nigeria needs coordinated institutional and policy responses to technological supply.

Keywords: Digital Equity, Educational Technology, Legal Rights; Ethical Obligations, Polytechnic.

1.0 Introduction

In the last ten years, the area of educational technology (EdTech) profoundly has changed the practice of teaching, learning, and assessment all over the globe. In Nigeria, polytechnics have been progressively using online platforms (learning management systems and online labs and online assessments) to augment delivery of instruction and offer adaptable learning opportunities in accordance with the skills development of 21st century (Selwyn, 2016; Afolayan and Olanrewaju, 2020). The COVID-19 pandemic increased the pace of this change by mandating online and hybrid learning modalities to be adopted in English-speaking universities, which in turn revealed inequalities in the accessibility of digital resources and connectivity, as well as institutional support, to students (Akomolehin and Aluko, 2025; Oni *et al.*, 2025).

Despite the national education policies of Nigeria focusing on integrating ICT in education and becoming digital

(Federal Republic of Nigeria, 2014), there are disparities in the access to EdTech based on socio-economic, geographic, and institutional factors. The students in a city usually enjoy better infrastructure and access to broadband connectivity, whereas students in rural regions continue to have the inequalities in education associated with bad network coverage, expensive data rates, and access to digital devices (ITU, cited in Eteng *et al.*, 2022; UNICEF, 2024). These inequalities do not only have consequences on the academic engagement of students but also on their readiness to a digitally more and more competitive labour market.

Digital equity is extensively referred to as the awarding of encompassing and equal access to online tools, materials, and opportunities that allow significant engagement in digitally mediated learning situations (Selwyn, 2016). The prospects of EdTech to improve the learning outcomes have been limited in most developing settings such as

British International Journal of Education and Social Sciences

An official Publication of Center for International Research Development

Double Blind Peer and Editorial Review International Referred Journal; Globally index

Available <https://cirdjournals.com/index.php/bijess>; E-mail: journals@cirdjournals.com



Nigeria, due to the continuous digital gaps that restrict the capacity of students to successfully utilize technology mediated learning. The facts of the Nigerian higher education show that inequities usually follow the introduction of EdTech infrastructure as socio-economic, geographic, and institutional differences lead to unequal usage and learning outcomes (Akomolehin and Aluko, 2025; Oni *et al.*, 2025).

There are multiple dimensions of digital divide, which include access to infrastructure (machines and connection), digital skills (literacy and competency), and the ways and patterns of use, especially how learners can make good use of digital information. Although this can be achieved in the situations where even the basic access to EdTech is provided, the lack of institutional support and training worsens the achievement of intended educational outcomes (Frontiers on Digital Divides and Bridges, 2025). Consequently, EdTech projects have the potential to serve as a tool of educational inclusion instead of enhancing status quo.

On top of infrastructural issues, the adoption of EdTech has essential legal issues related to the right to digital education. Although laws on education in Nigeria accentuate non-discrimination and equal educational opportunity, they often do not establish the conditions of digitalisation on the accessibility, participation, and protection of the rights of learners (Okebukola, 2022). It has been suggested by scholars that the right to education should thus be redefined to include the digital access explicitly due to the growing center-stage of online and blended learning in the provision of tertiary education.

Furthermore, EdTech represents a growing area that poses legal ambiguities regarding data protection, privacy, and informed consent because of the vast amount of student information gathered online (Mbaying *et al.*, 2025). In spite of the fact that laws and policies on data protection in Nigeria exist, the practices in educational institutions have not been consistent, which restricts the level of awareness and protection of students against digital rights violations. Ethics are also of prime focus when it comes to digital equity in integration with EdTech. Equity, non-discrimination and distributive justice based ethical systems focus on the duty of the institutions when

implementing technologies with high impact on the life chances of learners (Rawls, 1971). The institutional ethical responsibility is thus not just limited to the availment of access to technology but also the conscious efforts in reducing any socio-economic and infrastructural disparities. Recent research reveals that the relevance, instructional design that is culturally responsive, and the preparedness of the instructor are important to create a fair usage of digital resources (Frontiers on Digital Divides and Bridges, 2025). In the absence of these ethical protections, EdTech would simply unintentionally favor those students that already have digital capital, which would enforce equality in the learning experience.

The theoretical approaches employed in this study to construct the concept of digital equity in EdTech integration would be rights-based and ethical approaches to EdTech integration and integration, where students are familiar with their rights to availability, non-discrimination, and responsible digital citizenship, and institutional practice, where EdTech integration and administration is conducted fairly and inclusively. Through the empirical investigation of these dimensions in the context of Nigerian polytechnic education, the study helps fill a severe literature gap on the legal and ethical factors of digital equity in the process of EdTech integration.

2.0 Aim and Objectives

The aim of the study is to investigate the effects of the legal rights awareness and the ethical responsibility on the digital equity of EdTech integration in the polytechnic in Nigeria. While the objectives are to:

1. determine the level of digital equity in access to EdTech by students in Nigerian polytechnics.
2. assess how the digital equity of the EdTech integration in the question of awareness of legal rights and its influence on the Nigerian polytechnics.
3. identify the effect that ethics responsibility has on the digital equality in EdTech integration within the context of Nigerian polytechnics.

2.1 Hypotheses



H₀₁: There is no significant level of digital equity in access to EdTech by students in Nigerian polytechnics.

H₁₁: There is significant level of digital equity in access to EdTech by students in Nigerian polytechnics.

H₀₂: Legal rights awareness has no significant effect on digital equity in EdTech integration in Nigerian polytechnics.

H₁₂: Legal rights awareness has significant effect on digital equity in EdTech integration in Nigerian polytechnics.

H₀₃: Ethical responsibility has no significant effect on digital equity in EdTech integration in Nigerian polytechnics.

H₁₃: Ethical responsibility has significant effect on digital equity in EdTech integration in Nigerian polytechnics.

3.0 Methodology

This paper has taken a quantitative approach with a descriptive cross-sectional survey study to determine students perception towards educational technology (EdTech), awareness of legal rights, ethical responsibility and digital equity in higher education. The target population was the students in the selected federal, state and the private polytechnics in Nigeria which is an institutional diversity in terms of governance and resource distribution. A case study was made of Polytechnics in Osun State. A stratified random sampling method was used to get proportional representation of institutions, faculties and academic level which gave a sample size of 300. The sample size was deemed to be sufficient to conduct

multivariate statistical analysis and in line with recent research findings on digital equity and EdTech adoption in African fourth-level institutions (Akomolehin and Aluko, 2025; Oni *et al.*, 2025).

The structured instrument was called the Legal -Ethical Digital Equity Questionnaire (LEDEQ) and comprised of three parts, Digital Equity (4 items), Legal Rights Awareness (4 items) and Ethical Responsibility (4 items). The measures of all items were done on a 5-point Likert scale where 1 (Strongly Disagree) was the lowest and 5 (Strongly Agree) the highest. Expert validity was obtained in terms of review by specialists in legal, educational, and educational technology thus reliability analysis involving Cronbachs alpha produced coefficients that fell above 0.70 on all constructs indicating satisfactory internal consistency. Data analysis SPSS (version 26): R (version 4.x): were used to complete the data analysis. Objective 1 was addressed with the help of descriptive statistics (mean and standard deviation), whereas Hypotheses 1 and 2 were tested with the help of multiple regression analysis at a level of significance (0.05). Regression diagnostics was used to test the validity of the data to be used in inferential analysis.

4.0 Results and Discussions

4.1 Reliability Analysis

Cronbach alpha was used to measure the internal consistency of the measurement scales. According to Table 1, the alpha coefficients of all the constructs were greater than the recommended value of 0.70, which points to the satisfaction of reliability and the ability of the instrument to further statistical processing.

Table 1: Reliability Statistics of Study Variables

Construct	Number of Items	Cronbach's Alpha
Digital Equity	4	0.81
Legal Rights Awareness	4	0.78
Ethical Responsibility	4	0.84

4.2 Realization of objectives and test of hypotheses

Objective 1

Table 2: Descriptive Statistics



Variable	Mean	Standard Deviation
Digital Equity	3.12	0.86
Legal Rights Awareness	3.45	0.79
Ethical Responsibility	3.67	0.73
Variable	Mean	Standard Deviation

Descriptive statistics sought to address the objective 1 and hypothesis 1, by assessing the level of digital equity in EdTech access among students in Nigerian polytechnics. The results presented in Table 2 show that digital equity recorded a mean score of 3.12 (SD = 0.86), indicating a moderate level of equity. Legal rights awareness and ethical responsibility recorded higher mean values, suggesting relatively positive significant level of digital

equity in access to EdTech by students in Nigerian polytechnics.

Objective 2 and 3

Multiple regression analysis was conducted to examine the combined and individual effects of legal rights awareness and ethical responsibility on digital equity, addressing Objectives 2 and 3.

Table 3: Model Summary

R	R ²	Adjusted R ²	Std. Error of Estimate
0.781	0.610	0.607	0.54

Table 4: ANOVA for Regression Model

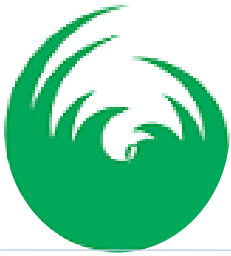
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	68.41	2	34.21	231.40	.000
Residual	43.28	297	0.15		
Total	111.69	299			

Table 5: Regression Coefficients

Predictor	B	Std. Error	Beta	t	Sig.
Constant	0.87	0.21	—	4.14	.000
Legal Rights Awareness	0.41	0.06	0.39	6.32	.000
Ethical Responsibility	0.53	0.06	0.48	8.47	.000

Table 3 shows the regression model summary that shows the existence of a strong relationship between the predictors and the dependent variable (0.781). The results of the ANOVA presented in Table 4 demonstrate that the

regression model was found to be statistically significant (F(2, 297) = 231.40, p <.05), which means that the predictors have a statistically significant total effect in explaining a considerable amount of the variance in digital



equity. Table 5 shows the personal contributions of every predictor. Both the awareness of legal rights and ethical responsibility had strong positive impacts on digital equity. The stronger predictor was ethical responsibility. According to the findings, the null hypotheses are rejected, which means that the awareness of legal rights and the ethical responsibility play a significant role in the digital equity of EdTech integration in polytechnics in Nigeria.

4.3 Discussion of Findings

The results reveal that digital equity in polytechnics of Nigeria is still average, with the growing presence of EdTech infrastructure. This finding aligns with previous research findings that show that access does not necessarily lead to equitable use of digital learning resources in the Nigerian higher education (Akomolehin and Aluko, 2025; Oni et al., 2025). The high power of the awareness of the legal rights implies that students with the awareness of their educational and digital rights are in a better position to demand fairness, pursue redress, and navigate institutional systems. This corresponds to the rights-based view that focuses on legal consciousness as a tool of promoting educational justice on digital platforms (Okebukola, 2022). More importantly, digital equity was most significantly predicted by ethical responsibility notably because of the centrality of institutional practices, pedagogical flexibility, and policy enforcement in defining equitable learning experiences. This result is in line with new evidence at the international level on how digital equity is profoundly affected by ethical governance, culturally responsive pedagogy, instructor readiness and not technology provision per se (Frontiers on Digital Divides and Bridges, 2025). In general, the findings support the modern policy discourses that EdTech integration should be human, ethically-grounded, and rights-based in order not to support the existing inequalities (Premium Times Nigeria, 2025).

5.0 Conclusion

This research offers empirical data that knowledge of legal rights and ethical responsibility are vital factors of digital equity in EdTech integration in Nigerian poly-techniques. The moderate degree of equity experienced portends to the

existence of structural and institutional constraints such as unequal connectivity, socio-economic differences, and lack of uniform support structures. Through legal consciousness and moral responsibility within EdTech plans, Nigerian polytechnics will be able to promote a more accommodative, equitable, and sustainable system of digital education that would meet the national development agenda and global equity models.

6.0 Recommendations

1. *Enforce Legal Rights Literacy:* Polytechnic institutions need to incorporate digital rights education, ICT law, and educational justice in student orientation programmes and in general studies curricula so as to promote legal awareness.
2. *Institutionalise Ethical EdTech Governance:* Institutional level Ethical principles should be formalised on EdTech application, focusing on inclusive pedagogy, flexibility on assessment, and cushioning against disadvantaged students.
3. *Equity-Based Policy Frameworks:* National EdTech policies must incorporate equity indicators by providing disadvantaged students with subsidised access to connectivity, devices, and rural broadband.
4. *Multi-Stakeholder Partnerships:* The government, the private sector, and civil society organisations should strengthen their collaboration to fill in the gaps in the infrastructures and provide sustainable and inclusive digital learning ecosystems.

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Appendix

Legal–Ethical Digital Equity Questionnaire (LEDEQ)

This questionnaire is designed to collect data on students’ perceptions of digital equity, legal rights awareness, and ethical responsibility in the integration of educational technology (EdTech) in Nigerian polytechnics.

Response Scale: 5 = Strongly Agree (SA), 4 = Agree (A), 3 = Undecided (U), 2 = Disagree (D), 1 = Strongly Disagree (SD)

Section A: Digital Equity in EdTech Integration (Dependent Variable)

Code	Item	SA	A	U	D	SD
1	I have adequate access to digital devices (e.g., laptop, smartphone) for academic activities.					
2	Internet connectivity available to me is sufficient for online learning activities.					



3	My institution’s EdTech platforms are accessible to all students regardless of background.					
4	The use of digital learning tools does not disadvantage some students over others.					

Section B: Legal Rights Awareness (Independent Variable 1)

Code	Item	SA	A	U	D	SD
5	I am aware that access to education is a legally protected right in Nigeria.					
6	I understand that unequal access to learning resources may constitute discrimination.					
7	My institution informs students about their rights regarding digital learning.					
8	Students can seek redress when unfairly denied access to digital learning resources.					

Section C: Ethical Responsibility in EdTech Use (Independent Variable 2)

Code	Item	SA	A	U	D	SD
9	My institution considers disadvantaged students when implementing EdTech.					
10	Lecturers adjust teaching methods when students face digital access challenges.					
11	Institutional EdTech policies promote fairness and inclusion.					
12	No student is unfairly penalised due to limited access to digital tools.					