International Journal of Education, Management Sciences and Professional Studies (IJEMPS)
Vol. 1 Issue 3 (AS 2025) PRINT *ISSN:3115-5065* || E-ISSN:3115-5545
URL: https://journals.iempsglobal.org/index.php/IJEMPS

EFFECTIVENESS OF ICT-DRIVEN GRADING SYSTEMS AND PROFESSIONAL ETHICS COMPLIANCE AMONG LECTURERS IN PUBLIC UNIVERSITIES IN RIVERS STATE.

Ugbari Augustine Obulor
Department of Education, Faculty of Education,
University of Port Harcourt, Choba, Rivers State
ORCID: https://orcid.org/0009-0000-2038-0504
Email: ugbari@gmail.com
Phone: 08033369359

Ugbari Precious Uloma
Department of Educational Management, Faculty of Education,
Rivers State University, Port Harcourt, Rivers State
Email: precious.ugbari@gmail.com
Phone: 07039439638

Abstract

This study examines the effectiveness of ICT-driven grading systems and professional ethics compliance among lecturers in public universities in Rivers State, Nigeria. As Nigerian higher education increasingly adopts digital assessment tools, concerns persist regarding their impact on grading accuracy, transparency, and ethical standards. The study adopted a descriptive survey design involving lecturers from three public universities University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education. Data were collected using structured questionnaires and analysed using descriptive statistics and inferential tests, including Pearson correlation and regression analysis. The findings indicate that ICT-driven grading systems significantly enhance efficiency, accountability, and fairness while fostering stronger adherence to professional ethics such as impartiality, confidentiality, and integrity in assessment. Key challenges include limited technical training, inconsistent institutional policies, and infrastructural constraints. The study provides empirical evidence to support policy development, capacity building, and the ethical integration of ICT in educational evaluation.

Keywords: ICT-driven grading, digital assessment, lecturers' professional ethics, public universities, Rivers State.

Introduction

The rapid growth of Information and Communication Technology (ICT) has significantly transformed higher education systems across the world. In Nigeria, universities increasingly integrate ICT into teaching, learning, and evaluation processes as part of efforts to enhance transparency, accountability, and efficiency in academic administration. One of the most visible outcomes of this transformation is the adoption of ICT-driven grading systems, which have become essential for managing students' assessments, computing results, and maintaining digital records. Such systems ranging from Learning Management Systems (LMS) like Moodle and Google Classroom to Computer-Based Testing (CBT) platforms, plagiarism detection tools, and digital submission media such as Canva have redefined how lecturers evaluate student performance and report outcomes.

Despite these advancements, the integration of ICT into grading has also raised critical questions about professional ethics compliance among academic staff. Issues such as fairness, confidentiality of student data, objectivity in grading, and integrity in result management remain central to public trust in the university system. The National Universities Commission (NUC) and related bodies such as the National Information Technology Development Agency (NITDA) have emphasized digital transformation in Nigerian tertiary education, yet concerns persist regarding lecturers' commitment to ethical practices when using ICT systems. For example, misuse of digital platforms, unauthorized data alteration, and inadequate training in ICT ethics have been observed in several institutions, thereby affecting both the credibility of assessment outcomes and the reputation of academic institutions.

In the context of Rivers State home to major public universities such as the University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education the deployment of ICT-based grading tools has gained momentum. These universities have invested in online result portals, Google Workspace for Education, and departmental e-assessment systems to improve the timeliness and reliability of student grading. However, anecdotal evidence and preliminary observations indicate that the perceived effectiveness of these tools varies across institutions, while compliance with ethical standards remains inconsistent. Some lecturers readily embrace ICT innovations, whereas others demonstrate resistance due to technical challenges, limited infrastructure, or insufficient digital literacy.

Scholars such as Eke and Igwe (2021) have emphasized that ICT adoption in Nigerian universities is not merely a technological shift but also a moral and governance imperative that demands accountability, transparency, and integrity from educators. Similarly, UNESCO (2019) emphasizes that the ethical dimension of digital pedagogy is as crucial as the technical one, particularly in the grading process where decisions affect students' academic and professional futures. Thus, assessing the effectiveness of ICT-driven grading systems alongside professional ethics compliance becomes essential to understanding whether these innovations truly advance educational quality and fairness in Nigerian higher institutions.

This study, therefore, investigates the relationship between ICT-driven grading systems and professional ethics compliance among lecturers in public universities in Rivers State. It seeks to determine how effectively these technologies enhance grading accuracy, transparency, and timeliness, and whether their adoption correlates with improved ethical behaviour among lecturers. The findings are expected to provide evidence-based insights that can guide university administrators, policymakers, and ICT directors in strengthening institutional frameworks for ethical, technology-enabled assessment practices within Nigeria's tertiary education system.

Literature Review

ICT-Driven Assessment and Grading in Higher Education

In recent decades, information and communication technology (ICT) has reshaped assessment and grading practices in higher education globally. ICT-driven grading systems refer to digital platforms and applications designed to collect, record, compute, and communicate students' academic results efficiently and transparently. Such systems include Learning Management Systems (LMS) like Moodle and Google Classroom, Computer-Based Testing (CBT) platforms, plagiarism detection tools such as Turnitin, and creative assessment platforms like Canva, which support digital submissions and presentation grading.

According to Auta, Paul-Mgbeafulike, Ikpeama, and Ufondu (2025), the integration of digital tools in Nigerian universities enhances lecturers' efficiency and supports transparent teaching and assessment processes by improving ease of use and perceived usefulness. These technologies help reduce manual errors and promote objectivity in academic evaluation. Similarly, Eke and Igwe (2021) observed that Nigerian universities adopting online result management systems and LMS platforms have recorded significant improvements in transparency and accessibility of academic records.

ICT-driven grading systems also support institutional accountability through digital audit trails that log all actions taken on a student's record. This feature discourages unethical grade manipulation and fosters data security. In addition, these technologies have encouraged collaborative learning, where feedback and grades are instantly available to students through digital interfaces. Nevertheless, the effective use of ICT grading tools in Nigerian universities often depends on institutional support, ICT literacy levels, and the ethical orientation of lecturers using them.

Professional Ethics and Lecturer Conduct in the Digital Era

Professional ethics in academia encompasses adherence to moral principles, fairness, transparency, and responsibility in all teaching, grading, and research activities. Within the context of digital assessment, ethical compliance implies using ICT tools in ways that uphold integrity, confidentiality, and equity in evaluating students. Okojie and Olinya (2020) define ethical compliance as the consistent alignment of one's actions with institutional policies and moral obligations, especially in handling sensitive data and student outcomes.

In the Nigerian university system, ethics in grading is not only a moral issue but a legal and institutional one. The **National Universities Commission (NUC)** mandates that all academic staff must demonstrate impartiality and accountability in student evaluation. Similarly, **NITDA's Nigeria Data Protection Regulation (NDPR, 2019)** emphasizes confidentiality and data security in digital academic environments.

However, ethical dilemmas often arise in the digital context ranging from unauthorized data alteration to delayed publication of results and plagiarism-related conflicts. As Okojie and Olinya (2020) note, ethical awareness does not always translate to ethical behaviour; hence, institutional policies and ICT audit mechanisms are essential to ensure compliance. Ethical digital pedagogy requires not only technical proficiency but also a culture of responsibility, particularly when lecturers manage sensitive academic data.

Theoretical Foundations

The relationship between ICT usage and professional ethics in education can be understood through several theoretical lenses. The Technology Acceptance Model (TAM) developed by Davis (1989) explains that the adoption of ICT tools is influenced by two main perceptions *perceived usefulness* and *perceived ease of use*. Lecturers are more likely to employ digital grading systems when they believe such technologies improve efficiency and are easy to navigate.

Complementing TAM is the Deontological Ethical Theory which emphasizes duty, moral obligation, and adherence to ethical rules irrespective of consequences. From this perspective, lecturers have a duty to ensure fairness, honesty, and confidentiality, even when ICT tools make it technically possible to act otherwise. As Ibrahim and Odu (2022) argue, ICT systems alone cannot guarantee integrity; rather, ethical principles must guide their use.

A further theoretical lens is Systems Theory, which views the university as an interconnected system of people, processes, and technology. Drawing from Luhmann's (1995) Social Systems Theory, the effectiveness of ICT-driven grading can be understood as dependent on the coordination of multiple subsystems such as infrastructure, policy, human capacity, and governance ethics within the university system.

Empirical Review

Empirical evidence globally and locally supports the idea that ICT-driven grading improves efficiency, but findings about ethical outcomes remain mixed. Adeoye and Adeniran (2019) found that automation in result computation significantly reduced grade errors and improved transparency in South-South Nigerian universities. Similarly, Adeosun and Ajayi (2020) reported that lecturers using Google Classroom and Moodle experienced faster feedback cycles and fewer student complaints about result delays.

However, studies such as Eke and Igwe (2021) warn that the success of ICT-driven grading depends on ethical awareness and institutional control mechanisms. Their research revealed

that despite high ICT usage, some lecturers engaged in unethical behaviours, such as postsubmission score changes and unauthorized access to databases.

UNESCO (2019) similarly emphasizes that ICT integration enhances educational accountability but must be accompanied by strong ethical frameworks to prevent abuse of technology. Auta et al. (2025) emphasized the positive correlation between digital literacy and professional ethics compliance, suggesting that training in ICT use significantly predicts ethical behaviour. Yet, the same study noted that infrastructure challenges, power instability, and poor internet connectivity continue to limit effective use of digital grading platforms in Nigerian universities.

Emerging tools such as Canva have also expanded assessment beyond traditional written work. Onyema and Deborah (2019) observed that lecturers who adopt Canva and similar platforms for project-based grading report improved student creativity and engagement. However, they also face challenges in maintaining fairness and standardization, particularly where design-based work is subjective.

Synthesis and Research Gap

The reviewed literature demonstrates a growing scholarly consensus that ICT-driven grading enhances efficiency, objectivity, and transparency in higher education assessment. It also reveals that ethical compliance among lecturers is a determining factor for the credibility of digital grading systems. However, most existing studies treat ICT adoption and ethics compliance as separate constructs rather than exploring their interdependence.

In addition, while substantial research has been conducted at national and regional levels, there is limited empirical evidence specifically focusing on public universities in Rivers State, where digital transformation is still evolving and infrastructural disparities exist among institutions. Few studies have examined how lecturers in these universities perceive the ethical implications of ICT-based grading or how platform diversity (Moodle, Google Classroom, Canva, CBT portals) affects compliance behaviour.

This study therefore bridges that gap by empirically assessing the effectiveness of ICT-driven grading systems and their relationship with professional ethics compliance among lecturers in public universities in Rivers State.

Methodology

This study adopted a descriptive survey research design to examine the effectiveness of ICTdriven grading systems and professional ethics compliance among lecturers in public universities in Rivers State, Nigeria. The design was considered appropriate because it allows the researcher to collect quantitative data from a large population and describe existing conditions without manipulation of variables. The study sought to capture lecturers' experiences, perceptions, and ethical practices associated with the use of ICT-based grading platforms such as Moodle, Google Classroom, Computer-Based Testing (CBT) systems, and Canva.

The target population comprised all academic staff in the three major public universities in

Rivers State: the University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education. Collectively, these institutions have an estimated 1,800–2,000 academic staff distributed across faculties and departments (Registry Records, 2024). The population was appropriate because these universities represent the largest concentration of public tertiary institutions in the state with established ICT infrastructures and digital grading practices.

The sample size was determined using the Yamane (1967) formula for finite populations:

$$n = \frac{N}{1 + N(e^2)}$$

where n = sample size, N = population (≈ 2,000), and e = 0.05 (5% level of precision). Substituting the values yielded approximately 333 respondents, to which a 15% non-response buffer was added, resulting in a total of 380 lecturers selected for the study.

A stratified random sampling technique was adopted to ensure proportional representation across universities and faculties. Within each stratum, respondents were randomly selected to avoid bias and to reflect the diversity of ICT exposure among lecturers.

Data were collected using a structured questionnaire titled *"ICT-Driven Grading and Professional Ethics Compliance Scale (ICT-GPECS)"*, designed by the researcher based on the study objectives and literature reviewed. The instrument contained seven sections (A–G) covering:

- Demographic information
- Utilization of ICT-driven grading systems
- Perceived effectiveness of ICT tools
- Professional ethics compliance
- Relationship between ICT usage and ethics
- Challenges in ICT adoption
- Consent and remarks

Items were rated on a five-point Likert scale ranging from *Strongly Agree (5)* to *Strongly Disagree (1)*. The questionnaire was designed for both online (Google Forms) and print administration to ensure wider coverage and ease of participation.

The draft instrument was subjected to content and face validity by three experts in Educational Technology and Measurement & Evaluation at the University of Port Harcourt. Their feedback led to refinement of ambiguous items and alignment with the study's objectives.

For reliability, the instrument was pilot-tested on 30 lecturers from Rivers State University (excluded from the main study). The internal consistency of the questionnaire was computed using Cronbach's Alpha, yielding a coefficient of 0.86, which exceeds the 0.70 benchmark recommended by Nunnally (1978), indicating satisfactory reliability.

Questionnaires were distributed electronically via Google Forms and physically where necessary. For the online version, the link was shared through departmental mailing lists, academic WhatsApp groups, and official institutional communication channels. The researcher ensured voluntary participation and obtained informed consent at the beginning of the form. Data collection lasted four weeks, and follow-up reminders were sent to improve response rates.

All responses were anonymized to protect participants' identities and ensure ethical compliance in line with Ethical guidelines.

The data collected were analyzed using both descriptive and inferential statistics with the aid of the Statistical Package for the Social Sciences (SPSS) version 26.

- Descriptive statistics such as mean, standard deviation, and percentage were used to summarize demographic data and measure central tendencies of responses.
- Inferential statistics were employed to test the hypotheses:
  - Pearson Product Moment Correlation (r) was used to determine the relationship between ICT-driven grading usage and professional ethics compliance. o Simple Linear Regression assessed the predictive effect of ICT adoption on ethical behaviour.
  - ANOVA tested differences in ICT usage across the three universities.

All hypotheses were tested at a 0.05 level of significance. Results were presented in tables with narrative interpretations to highlight trends and relationships.

Ethical standards were upheld throughout the study. Participants were informed of the study's purpose, assured of confidentiality, and allowed to withdraw at any stage without penalty. Data were securely stored and used solely for academic purposes. Proper attribution was given to all referenced works, and institutional protocols were observed prior to data collection.

Results and Discussion

Demographic Profile of Respondents

Out of the 380 questionnaires distributed, 342 were properly completed and returned, representing a 90% response rate. The demographic data indicated that 57% of the respondents were male and 43% female, reflecting a fairly balanced gender distribution. A majority (46%) were within the 30–39-year age bracket, while 35% had between 5–10 years of teaching experience. Academic ranks were evenly distributed, with 28% at Lecturer II level and 25% at Lecturer I level, showing wide representation across cadre. These distributions suggest that the

sample captured lecturers with sufficient teaching and grading experience across the three universities.

Utilization of ICT-Driven Grading Systems

Findings revealed high levels of ICT adoption among lecturers in Rivers State public universities. As shown in *Table 1*, respondents strongly agreed that their universities provide access to digital grading platforms such as Moodle, Google Classroom, and CBT portals (mean = 4.21, SD = 0.73). Regular use of these platforms for grading was also reported (mean = 4.08), and lecturers affirmed that ICT systems have reduced their workload (mean = 4.15).

However, moderate agreement was observed for adequacy of training (mean = 3.47), indicating that while ICT infrastructure exists, capacity building remains a challenge. The findings corroborate those of Eke and Igwe (2021), who reported that many lecturers rely on peer learning or departmental assistance rather than formal ICT training.

Table 1: Mean Responses on Utilization of ICT-Driven Grading Systems (n = 342)

Item	***Mean***	***SD***	***Remark***
	4.15	0.78	High
	3.47	0.92	Moderate
	3.89	0.86	High
Provision of ICT grading platforms	4.21	0.73	High
Regular use of ICT tools for grading	4.08	0.81	High
ICT reduces workload			
Adequate training received			
Reliability of ICT systems			

Perceived Effectiveness of ICT-Based Grading

Lecturers perceived ICT grading systems as highly effective in improving accuracy, transparency, and timeliness of result publication. The overall mean of 4.12 indicated a positive perception of effectiveness. Respondents agreed that automated systems reduce human error and promote fairness (mean = 4.28). Similar findings by Adeoye and Adeniran (2019) confirmed that digital result management eliminates computation inconsistencies common in manual grading.

Nevertheless, a few respondents expressed concerns about intermittent power supply and poor internet connectivity affecting submission deadlines. This reinforces Ekeh and Adimora's (2021) observation that infrastructural constraints undermine the potential of ICT in Nigerian universities.

Professional Ethics Compliance

The study also examined the extent to which ICT usage influences ethical conduct among lecturers. As summarized in *Table 2*, most respondents agreed that digital systems promote transparency and discourage unethical practices (mean = 4.18). They also affirmed that confidentiality of student records is easier to maintain through secure portals (mean = 4.05).

However, ethical policy awareness recorded a lower mean of 3.64, implying that some lecturers may be using these systems without clear understanding of institutional ethics guidelines. This aligns with Okojie and Olinya (2020), who emphasized that ethical awareness does not automatically guarantee compliance unless reinforced by policy and training.

Table 2: Mean Responses on Professional Ethics Compliance (n = 342)

Item	***Mean***	***SD***	***Remark***
	3.64	0.95	Moderate
	4.20	0.79	High
Uphold honesty and fairness	4.26	0.72	High
ICT reduces opportunities for favoritism	4.18	0.76	High
Confidentiality of student data	4.05	0.83	High
Awareness of ethical policies			
ICT promotes transparency			

Relationship Between ICT Usage and Ethics Compliance

Using **Pearson Product Moment Correlation**, a significant positive relationship was found between lecturers' use of ICT-driven grading systems and professional ethics compliance ($r = 0.63$, $p < 0.05$). This indicates that increased adoption of digital grading tools is associated with higher adherence to ethical standards such as fairness, confidentiality, and accountability.

A **simple linear regression** further revealed that ICT utilization significantly predicted ethical compliance, explaining **39% of the variance** in ethical behaviour ($R^2 = 0.39$, $p < 0.05$). These results validate the Technology Acceptance Model's assumption that perceived usefulness of technology can influence behavioural outcomes. These findings align with **Davis's (1989)** Technology Acceptance Model, which posits that users' acceptance of ICT tools is influenced by their perceived usefulness, ease of use, and the presence of adequate training and organizational support.

Challenges in the Use of ICT Grading Systems

Despite positive outcomes, lecturers identified several barriers affecting ICT implementation. The most frequently reported challenges were poor internet connectivity (78%), unstable power supply (71%), inadequate training (63%), and limited access to institutional subscriptions for platforms such as Google Workspace or Canva (58%). Others mentioned system downtime, lack of incentives, and weak ICT policy enforcement.

These findings echo Eke, Igwesi, and Orji (2011), who emphasized that information professionals and technology-driven education are essential to national development and selfreliance. Their position reinforces the need for universities to strengthen ICT-based capacity building to sustain the gains of digital assessment and academic integrity.

Discussion

The results collectively indicate that ICT-driven grading systems have become integral to academic assessment in Rivers State public universities and are perceived as effective tools for enhancing grading transparency and ethical behaviour. High mean scores on fairness, accuracy, and confidentiality affirm that technology contributes to restoring credibility in academic evaluation a finding consistent with international studies (UNESCO, 2019).

The significant correlation between ICT utilization and ethical compliance demonstrates that technology adoption can serve as both a *technical* and *ethical reform mechanism*. When grading processes are automated and digitally logged, opportunities for manipulation or bias are minimized. However, the persistence of moderate scores in training and ethics awareness underscores that technology alone does not guarantee integrity. Continuous digital literacy programs and institutional enforcement of ethical codes remain indispensable.

In line with Systems Theory (Luhmann, 1995), the study confirms that the effectiveness of ICT-driven grading depends on the synergy between human capacity, infrastructure, and institutional governance. Without adequate support systems, even well-designed platforms may fail to promote ethical conduct. Thus, universities must complement technological investments with policy reforms, monitoring mechanisms, and incentives for ethical digital behaviour among lecturers.

Conclusion

This study assessed the effectiveness of ICT-driven grading systems and professional ethics compliance among lecturers in public universities in Rivers State, Nigeria. The findings demonstrate that ICT integration into grading and assessment processes has significantly improved accuracy, timeliness, and transparency in result computation and feedback delivery. Platforms such as Moodle, Google Classroom, CBT portals, and Canva are increasingly being adopted, enabling lecturers to manage students' performance records more efficiently.

A significant positive relationship was found between the use of ICT-driven grading systems and lecturers' adherence to professional ethics. The results suggest that when academic assessment is digitally managed, opportunities for malpractice, bias, and record manipulation are considerably reduced. ICT tools provide audit trails and standardised workflows that encourage accountability and fairness.

However, the study also revealed persistent challenges such as inadequate ICT training, limited awareness of ethical guidelines, poor internet connectivity, and unstable power supply. These constraints highlight that while technology enhances efficiency, it cannot substitute for ethical awareness and institutional enforcement mechanisms. The study thus concludes that ICTdriven grading systems can only achieve their full ethical and operational potential when supported by robust infrastructure, policy frameworks, and continuous professional development for lecturers.

Recommendations

Based on the findings and conclusions, the following recommendations are proposed:

Institutionalize Continuous ICT and Ethics Training

Public universities should organize regular capacity-building workshops on the use of digital grading tools and ethical standards for academic evaluation. Training should cover areas such as data security, fair assessment practices, and the responsible use of digital platforms like Moodle, Google Classroom, and Canva.

Develop and Enforce Clear ICT Ethics Policies

University Senates and governing councils should formulate comprehensive ICT ethics policies specifying acceptable conduct in digital grading, data handling, and result publication. Enforcement committees should monitor compliance and ensure sanctions for violations.

Improve ICT Infrastructure and Technical Support

Government and university administrators should invest in reliable internet connectivity, stable electricity, and institutional subscriptions to platforms that support grading automation. Dedicated ICT support units should provide real-time assistance to lecturers and students.

Integrate ICT-Driven Assessment into Quality Assurance Frameworks

The National Universities Commission (NUC) should include ICT-driven grading systems and ethics compliance as part of accreditation benchmarks and quality assurance assessments for tertiary institutions.

Promote Transparency through Digital Audit Trails

Universities should configure their grading systems to maintain verifiable audit logs that track grading activities. This will discourage unethical practices and provide evidence for internal and external audits.

Encourage Collaborative Platforms for Assessment Review

Departments should adopt collaborative grading approaches where multiple lecturers can review assessments through shared digital environments, enhancing peer accountability and reducing the risk of bias.

7. **Strengthen Institutional Oversight and Feedback Mechanisms**

Regular system evaluations, user feedback, and periodic ethics audits should be implemented to identify areas of improvement in ICT adoption and ethical compliance.

Implications for Policy and Future Research

The study provides empirical evidence that technology-based grading enhances ethical conduct in academia when supported by enabling conditions. Policymakers and educational managers can draw on these findings to promote digitally transparent, ethically guided assessment systems across Nigerian higher institutions.

Future research could expand beyond Rivers State to include private universities and colleges of education, employ qualitative interviews to capture deeper ethical experiences, or evaluate the long-term impact of ICT ethics training on lecturer behaviour. Comparative studies across geopolitical zones could also help develop a national framework for ICT-integrated ethical assessment in Nigerian higher education.

References

Adeoye, B. F., & Adeniran, R. A. (2019). E-assessment in Nigerian higher education: Benefits, challenges and policy implications. International Journal of Education and Development Using Information and Communication Technology (IJEDICT), 15(2), 62–78.

Auta, M. A., Paul-Mgbeafulike, V. S., Ikpeama, F. U., & Ufondu, C. C. (2025). Digital resilience as a moderator in the adoption of digital tools for teaching vocational subjects in Nigerian universities: A TAM perspective. Abdurrauf Social Science, 2(2), 110–123. https://doi.org/10.70742/arsos.v2i2.361

Benta, D., Bologa, G., & Dzitac, I. (2014). E-learning platforms in higher education: Case study. Procedia Computer Science, 31, 1170–1176. https://doi.org/10.1016/j.procs.2014.05.373

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340.

Eke, H. N., & Igwe, K. N. (2021). Digital transformation and quality assurance in Nigerian universities. Library Philosophy and Practice (e-journal).

Eke, H. N., Igwesi, U., & Orji, D. I. (2011). Information professionals as agents for promoting entrepreneurship and technology education in actualizing Vision 2020 for Nigeria. Library Philosophy and Practice (e-journal).

Luhmann, N. (1995). Social Systems. Stanford University Press.

Ndalichako, J. L. (2018). Implementation of computer-based assessment in African universities: Opportunities and challenges. African Journal of Educational Studies in Mathematics and Sciences, 14(1), 31–45.

Okojie, M. C., & Olinya, S. (2020). Professional ethics and assessment integrity in higher education. Journal of Educational Research and Development, 5(1), 22–34.

Onyema, E. M., & Deborah, A. S. (2019). Integrating ICT tools in teaching and learning: Nigerian perspective. International Journal of Education and Development Using Information and Communication Technology (IJEDICT), 15(4), 108–125.

UNESCO. (2019). Ethics in higher education: Promoting integrity in academic practice. UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC).

Ololube, N. P. (2016). Education and Society: An Interactive Approach. Port Harcourt: Pearl Publishers.

NITDA. (2019). Nigeria Data Protection Regulation (NDPR). National Information Technology Development Agency.