

Adoption of Open Distance and Flexible e-Learning to Enhance Learning in Kwara State Polytechnic, Ilorin, Kwara State

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ABSTRACT

This study examined the adoption of Open Distance and Flexible e-Learning (ODFeL) to enhance student learning at Kwara State Polytechnic, Ilorin. The research was based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), which describe technology adoption through perceived usefulness, ease of use, performance expectations, effort, social influence, and facilitating conditions. A descriptive survey design was used. The accessible population included 260 registered ODFeL students across five programmes: Accountancy (61), Business Administration and Management (72), Computer Science (43), Library and Information Science (30), and Marketing (54). A proportional sample of 130 students, representing 50% of the population, was selected via probability sampling, with 100 valid questionnaires returned and analysed. The instrument, named the Adoption of Open Distance and Flexible E-learning by Students in Kwara State Polytechnic Questionnaire (AODFESKPQ), was validated for face and content validity. Data analysis involved descriptive statistics and chi-square goodness-of-fit tests. Findings revealed that ODFeL provides flexible learning options for underserved groups, improving access to quality education and supporting human capital development. Despite this, adoption levels remain low, mainly due to limited awareness of platforms like Adobe Connect, Udemy, and Microsoft Teams, although platforms such as Zoom and Coursera garnered higher satisfaction. Factors influencing ODFeL adoption include institutional support, technological access, usability, funding, and content quality. Challenges comprise unreliable electricity, poor communication infrastructure, financial constraints, and limited faculty participation. To overcome these issues, increased funding, faculty training, clear e-learning policies, and strategic partnerships aligned with global standards are necessary. Recommendations include enhancing faculty digital literacy, improving infrastructure, and launching awareness campaigns to boost engagement. These efforts will help Kwara State Polytechnic strengthen its ODFeL framework, leading to higher adoption and improved educational outcomes aligned with international standards.

Keywords: Adoption, e-Learning, Open Distance and Flexible e-Learning, Learning, Kwara State Polytechnic

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1 Introduction

The rapid development of information and communication technology (ICT) has continued to reshape teaching and learning in higher institutions. Digital technology has increased learners' expectations for flexible, interactive and technology-mediated learning experiences. In this

context, higher education institutions are expected to respond to changing learner needs by integrating digital platforms into teaching, learning, assessment and learner support. Zou et al. (2025) observed that learners now expect digital responsiveness from educators, and that failure to meet these expectations may reduce the relevance and effectiveness of teaching practices.

Open Distance and Flexible e-Learning (ODFeL) refers to learning arrangements in which educational interaction is supported by ICT and physical contact between instructors and learners is reduced, without removing academic interaction, guidance, and feedback. It combines openness, distance learning and flexible delivery so that learners can access content, interact with instructors and peers, and complete learning activities through digital and blended media. This mode of learning is particularly important for students who are constrained by work, family responsibilities, distance, disability, financial limitations or other conditions that make full-time physical attendance difficult. ODFeL has gained attention in Nigeria for its potential to expand access, reduce geographical barriers, and support human capital development. It is relevant to technical and vocational education, as it can help polytechnics broaden access to skills-oriented education through flexible course delivery. The National Board for Technical Education (NBTE), in collaboration with the Commonwealth of Learning, has continued to promote ODFeL standards, accreditation tools and monitoring frameworks for technical and vocational education and training in Nigeria. These developments point to the increasing institutional relevance of ODFeL in the Nigerian polytechnic sector.

At Kwara State Polytechnic in Ilorin, ODFeL serves as a vital avenue for expanding learning opportunities. Its effectiveness relies not just on the existence of platforms but also on students' awareness, preparedness, technological access, institutional backing, and their satisfaction with the learning process. Therefore, it is important to assess how widely students use ODFeL platforms, identify the factors influencing their adoption, and understand the challenges impacting successful implementation.

2 Statement of the Problem

Open Distance and Flexible e-Learning (Odfel) can expand educational access for underserved groups and students needing flexible study options. However, ODFeL programmes often fall short of their goals due to low adoption rates, lack of awareness about relevant platforms, insufficient institutional support, and poor infrastructure that hampers stable online learning. While research on e-learning and open distance education has grown in Nigeria, there is limited focus on ODFeL adoption among polytechnic students, especially at Kwara State Polytechnic, Ilorin. Many existing studies are mainly descriptive and do not explicitly connect findings to technology acceptance models like TAM and UTAUT. This study thus examined ODFeL adoption at Kwara State Polytechnic, with a focus on adoption levels, student satisfaction, influencing factors, and challenges faced in implementation.

3 Objectives of the Study

The broad objective of the study is to investigate the adoption of Open Distance and Flexible e-learning to enhance learning by students in Kwara state polytechnic, Ilorin. The specific objectives are to:

1. determine the level of adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin;
2. examine students' level of satisfaction with selected Open Distance and Flexible e-Learning platforms in Kwara State Polytechnic, Ilorin;

3. identify the factors influencing the adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin; and
4. ascertain the significant challenges facing the adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin.

4 Research Questions

1. What is the level of adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin?
2. What is the level of students' satisfaction with selected Open Distance and Flexible e-Learning platforms in Kwara State Polytechnic, Ilorin?
3. What factors influence the adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin?
4. What challenges face the adoption of Open Distance and Flexible e-Learning among students in Kwara State Polytechnic, Ilorin?

5 Literature Review

5.1 Concept of Open Distance and Flexible e-Learning

ODFeL is a learner-centred approach to education that uses digital technologies to provide flexible and personalised learning experiences. It supports self-directed exploration, interaction with learning resources, and collaboration within virtual or blended learning environments (Tabe, 2025). Unlike conventional classroom instruction, ODFeL allows learners to participate in academic activities across time and space, provided that appropriate digital tools, connectivity and learner support systems are available.

ODFeL also promotes inclusive education by reducing barriers associated with distance, rigid timetables, and dependence on physical classrooms. Ahmad et al. (2018) noted that e-learning sustainability depends on critical success factors such as content quality, system quality, institutional readiness and learner support. Similarly, Alrefaie et al. (2020) argued that online learning environments became especially important during the COVID-19 pandemic because they helped maintain continuity of instruction when in-person learning was disrupted. Odfel's technical and vocational education demands adaptable access to theory, demonstrations, digital tools, communication methods, and assessments. Nevertheless, such flexible delivery depends on institutions having dependable infrastructure, qualified staff, prompt technical support, and clear policies for platform utilisation.

5.2 Theoretical Framework: TAM and UTAUT

This study relies on two key technology adoption theories: the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Developed by Davis (1989), TAM suggests that students are more likely to adopt and use technology if they find it useful and easy to operate. For students, this means that ODFeL might encourage them to use online learning platforms more, if they believe it enhances their learning, saves time, supports academic success, and allows for easy engagement in learning activities. Meanwhile, Venkatesh et al. (2003) introduced UTAUT, which offers a broader understanding of technology adoption by highlighting factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions that shape whether users adopt and continue using a technology.

Both theories offer valuable insights for this study by explaining ODFeL adoption from the learner's personal perspective and the broader institutional context. TAM primarily emphasises students' perceptions of usefulness and ease of use, whereas UTAUT underlines social influence and facilitating conditions. Together, they help understand that students' adoption of ODFeL is influenced not only by personal interest or willingness but also by institutional support systems, infrastructure, and learning culture.

5.3 Level of Adoption of ODFeL by Students

In the rapidly evolving education sector, the adoption of Open Distance and Flexible e-Learning (ODFEL) represents a significant transformation. Advances in technology and the proliferation of online platforms have shifted the focus away from traditional classroom instruction alone, as students increasingly prefer flexible e-learning options tailored to their specific needs and lifestyles (Salloum et al., 2019). This development signifies a major departure from conventional approaches and underscores the growing importance of adaptability and accessibility in education. ODFEL platforms offer accessible and affordable solutions that cater to diverse learning preferences. Through technology, educators can reach students who may not engage in traditional settings, promoting greater equity and variety in learning opportunities (Arifin et al., 2025).

The success of ODFEL depends on the quality of online learning resources and instructional design. While technology offers greater flexibility, it also prompts educators to reconsider their teaching methods and adapt to online settings. Creating engaging, interactive content that promotes active learning and collaboration is crucial for motivating students and achieving effective educational results. Implementing Open Distance and Flexible e-Learning marks a shift in education, providing students with unmatched flexibility, accessibility, and scalability (Emerengwa, 2022). By adopting ODFEL, students can take charge of their education, overcome geographical limitations, and access high-quality, personalised learning. Nevertheless, realizing ODFEL's full potential requires collaboration to overcome challenges like the digital divide and improve online learning quality. Ultimately, leveraging technology can transform education and empower learners globally. Salloum et al. (2019) argued that e-learning adoption depends on users' attitudes, social media use, system usefulness, and the overall learning environment. Eksail and Afari (2020) also found that the intention to use technology can be explained by acceptance factors. Discussions about e-learning implementation in emerging economies highlight that infrastructure, affordability, digital readiness, and policy are key factors influencing success (Barikzai, 2024; Muraina et al., 2025).

5.4 Factors Influencing ODFeL Adoption

Factors influencing ODFeL adoption include institutional support, access to technology, platform usability, technical support, funding, content quality, peer influence, flexibility, accessibility, perceived ease of use, and government policy. These factors align with TAM and UTAUT because they reflect both user perception and facilitating conditions. Students are more likely to adopt ODFeL when they can access devices and internet connectivity, when platforms are easy to use, when lecturers use the platforms consistently, and when the institution provides structured technical and academic support.

Cost-effectiveness is another important factor. ODFeL can reduce transportation and accommodation costs, but it may also create new costs related to internet data, devices and electricity. For students in developing contexts, affordability remains central to adoption. Social interaction and peer engagement also matter because online learning environments may reduce face-to-face contact. Discussion forums, live classes, collaborative documents and group chats can help reduce isolation and increase participation.

5.5 Challenges Facing ODFeL Adoption

The adoption of Open, Distance and Flexible e-Learning (ODFeL) in developing countries is often affected by several practical and institutional challenges. Some of these challenges include irregular power supply, limited access to technological gadgets, and inadequate training, among others (Akaeze & Akaeze, 2024). Similarly, Muraina et al. (2025) noted that the adoption of ODFeL has faced challenges such as unreliable electricity supply, poor internet access and infrastructural problems. These barriers are especially serious for ODFeL because learners depend on stable electricity, affordable internet access and functional digital devices to attend online lectures, submit assignments, join discussions and download learning materials.

In addition, Itasanmi and Mampane (2025) also noted that access-related problems, students' digital literacy levels, low participation, technical difficulties and content-related weaknesses can limit effective use of learning management systems. Another important challenge is the level of participation and commitment among teaching staff. ODFeL does not depend on technology alone; it also requires lecturers to prepare digital content, engage students online, give timely feedback and use learning platforms effectively.

6 Methodology

The study adopted a descriptive survey design. The design was considered appropriate because the study sought to describe students' level of adoption, satisfaction, influencing factors and challenges relating to ODFeL at Kwara State Polytechnic, Ilorin.

The accessible population comprised 260 registered ODFeL students for the 2024/2025 academic session across five programmes: Accountancy (61), Business Administration and Management (72), Computer Science (43), Library and Information Science (30), and Marketing (54). The earlier population figure of 360 was corrected because the programme-level population reported in the study sums to 260. A proportionate probability sampling procedure was used to select 130 students, representing 50% of the accessible population. A total of 130 copies of the questionnaire were administered, of which 100 were returned and deemed usable, yielding a response rate of 76.9%.

The research instrument was a structured questionnaire titled Adoption of Open Distance and Flexible E-learning by Students in Kwara State Polytechnic Questionnaire (AODFESKPQ). The questionnaire was organised into sections covering demographic information, ODFeL platform adoption, satisfaction with platforms, factors influencing adoption and challenges affecting adoption. Adoption was measured using the responses Always, Sometimes, Rarely, and Never. Satisfaction was measured using Very Satisfied, Satisfied, Dissatisfied and Very Dissatisfied. Factors and challenges were measured using the responses Strongly Agree, Agree, Disagree, and Strongly Disagree.

The instrument underwent face and content validation by specialists in educational technology and research methods to ensure clarity, relevance, and coverage of the constructs. To test for Reliability, 30 copies of the questionnaire were distributed among ODFeL students in Federal Polytechnic Offa, which is outside the scope of the study. Cronbach's alpha coefficient (α) was used to determine the Reliability and internal consistency of the 4-item Empathy scale. The results indicated that the scale Empathy has good Reliability and internal consistency (Cronbach's alpha coefficient = 0.834).

Data were analysed using frequency counts, percentages and chi-square goodness-of-fit tests. Descriptive statistics were used to present response patterns, while chi-square goodness-of-fit tests were used to determine whether aggregate response distributions differed significantly

across response categories. The chi-square tests were based on aggregate frequency distributions from the questionnaire tables because item-level raw data were not available for regression, t-test or ANOVA. Therefore, the inferential analysis was interpreted as evidence of uneven response distribution rather than causal prediction.

7 Results

7.1 Demographic Information of Respondents

Table 1 shows that 40 respondents (40.0%) were female, while 60 respondents (60.0%) were male. Most respondents were between 21 and 25 years of age (40.0%), followed by those aged 26–30 years (35.0%). The marital status distribution shows that 78 respondents (78.0%) were single, while 22 respondents (22.0%) were married.

Table 1: Demographic Information of Respondents

Gender	Frequency	Percentage (%)
Female	40	40%
Male	60	60%
Total	100	100.0%
<i>Age Range</i>		
16 – 20 years	-	0%
21-25 years	40	40%
26-30 years	35	35%
31-35 years	20	20%
36 years and above	5	5%
Total	100	100.0
<i>Marital status</i>		
Single	78	78%
Married	22	22%
Total	100	100.0%

7.2 Level of Adoption of ODFeL Platforms

Table 2 indicates low adoption of ODFeL platforms. Zoom and Google Classroom were the most recognised platforms, although use remained largely occasional or rare. Adobe Connect, Microsoft Teams, FutureLearn, Canvas and Blackboard recorded 100.0% non-use. Aggregated across the ten platforms, 745 out of 1,000 responses (74.5%) fell under “Never”, while only 5 responses (0.5%) fell under “Always”. A chi-square goodness-of-fit test showed that the distribution of adoption responses was statistically uneven, $\chi^2(3) = 1350.20$, $p < .001$. This supports the conclusion that ODFeL adoption among students was generally low.

Table 2: Level of Adoption of ODFeL Platforms

S/N	Statement	A	S	R	N	Total
1	Zoom	-	25(25%)	70(70%)	5(5%)	100(100%)
2	Adobe connect	-	-	-	100(100%)	100(100%)
3	Coursera	5(5%)	25(25%)	10(10%)	60(60%)	100(100%)
4	Google classroom	-	40(40%)	50(50%)	10(10%)	100(100%)
5	Udemy	-	5(5%)	10(10%)	85(85%)	100(100%)
6	Microsoft Teams	-	-	-	100(100%)	100(100%)
7	LinkedIn learning	-	5(5%)	10(10%)	85(85%)	100(100%)
8	FutureLearn	-	-	-	100(100%)	100(100%)
9	Canvas	-	-	-	100(100%)	100(100%)
10	Blackboard	-	-	-	100(100%)	100(100%)

7.3 Students' Satisfaction with Selected ODFeL Platforms

Table 3 shows that respondents were satisfied with Zoom (70.0%), Coursera (60.0%) and LinkedIn Learning (70.0%). Google Classroom produced a mixed response, with 40.0% satisfied, 50.0% dissatisfied and 10.0% very dissatisfied. Udemy recorded high dissatisfaction. Across the selected platforms, 240 of 500 responses (48.0%) were "Satisfied", while 260 (52.0%) were "Dissatisfied" or "Very Dissatisfied". A chi-square goodness-of-fit test indicated a statistically significant deviation from the expected distribution of satisfaction responses, $\chi^2(3) = 309.60$, $p < .001$. The findings, therefore, suggest selective satisfaction with familiar platforms rather than general satisfaction with ODFeL as a whole.

Table 3: Students' Satisfaction with Selected ODFeL Platforms

S/N	Statement	VS	S	D	VD	Total
1	Zoom	-	70(70%)	30(30%)	-	100(100%)
2	Adobe connect	-	-	-	100(100%)	100(100%)
3	Coursera	-	60(60%)	10(10%)	30(30%)	100(100%)
4	Google classroom	-	40(40%)	50(50%)	10(10%)	100(100%)
5	Udemy	-	-	80(80%)	20(20%)	100(100%)
6	Microsoft Teams	-	-	-	100(100%)	100(100%)
7	LinkedIn learning	-	70(70%)	30(30%)	-	100(100%)
8	FutureLearn	-	-	-	100(100%)	100(100%)
9	Canvas	-	-	-	100(100%)	100(100%)
10	Blackboard	-	-	-	100(100%)	100(100%)

7.4 Factors Influencing ODFeL Adoption

Table 4 shows that the major factors influencing ODFeL adoption were institutional support, access to technology, technical support, funding, flexibility and accessibility, platform usability, perceived ease of use, government policy, peer influence and quality of content. Aggregated across all items, 870 out of 1,000 responses (87.0%) were in the agreement

categories. The chi-square goodness-of-fit test showed that the response distribution was statistically uneven, $\chi^2(3) = 755.60$, $p < .001$. The findings are consistent with TAM and UTAUT because perceived ease of use, usefulness, facilitating conditions, institutional support and social influence were central to students' adoption decisions.

Table 4: Factors Influencing ODFeL Adoption

S/N	Statement	SA	A	D	SD	Total
1	Institutional support	20(20%)	80(80%)	-	-	100(100%)
2	Access to technology	30(30%)	70(70%)	-	-	100(100%)
3	Platform usability	20(20%)	65(65%)	10(10%)	5(5%)	100(100%)
4	Technical support	40(40%)	60(60%)	-	-	100(100%)
5	Funding	80(80%)	20(20%)	-	-	100(100%)
6	Quality of content	20(20%)	60(60%)	15(15%)	5(5%)	100(100%)
7	Peer influence	25(25%)	55(55%)	20(20%)	-	100(100%)
8	Flexibility and Accessibility	40(40%)	60(60%)	-	-	100(100%)
9	Perceived ease of use	20(20%)	60(60%)	15(15%)	5(5%)	100(100%)
10	Government policies	20(20%)	65(65%)	10(10%)	5(5%)	100(100%)

7.5 Challenges Facing ODFeL Adoption

Table 5 shows that erratic power supply, poor telecommunication facilities, lack of access, inadequate finance, high cost of e-content development, funding constraints, low teaching staff commitment and low learner acceptability were the main challenges affecting ODFeL adoption. However, most respondents disagreed that limited e-learning knowledge among stakeholders and lack of clear policy direction were major challenges. Across all items, 700 of 900 responses (77.8%) were in the agreement categories. The chi-square goodness-of-fit test indicated a statistically significant departure from uniformity in the distribution of responses, $\chi^2(3) = 348.22$, $p < .001$. This suggests that infrastructural and financial constraints were perceived as stronger barriers than policy or stakeholder-knowledge issues in the context of this study.

Table 5: Challenges Facing ODFeL Adoption

S/N	Statement	SA	A	D	SD	Total
1	Erratic and epileptic power supply	30(30%)	70(70%)	-	-	100(100%)
2	Poor telecommunication facilities and lack of access	60(60%)	40(40%)	-	-	100(100%)
3	lack of enough finance to facilitate e-learning technology and infrastructures	45(45%)	55(55%)	-	-	100(100%)
4	Cost of development e-content is high	20(20%)	80(80%)	-	-	100(100%)
5	Funding	60(60%)	40(40%)	-	-	100(100%)

S/N	Statement	SA	A	D	SD	Total
6	Lack of e-learning knowledge to most education stakeholders	10(10%)	20(20%)	60(60%)	10(10%)	100(100%)
7	Lack of interest and commitment among the teaching staff to use e-learning	30(30%)	40(40%)	25(25%)	5(5%)	100(100%)
8	Lack of clear cut policy instruction affects the proper implementation of e-learning.	10(10%)	20(20%)	60(60%)	10(10%)	100(100%)
9	Low-level of ODL Programme acceptability by learners	30(30%)	40(40%)	25(25%)	5(5%)	100(100%)

8 Discussion of Findings

The findings revealed that the adoption of ODFeL at Kwara State Polytechnic, Ilorin was generally low. This low level of adoption was reflected in the high proportion of “Never” responses recorded across several digital learning platforms. The finding suggests that the availability of digital platforms alone does not automatically translate to their actual use by students. This aligns with the Technology Acceptance Model, which posits that learners are more likely to adopt a technology when they perceive it as useful and easy to use (Davis, 1989; Sefriani et al., 2022).

Regarding satisfaction with ODFeL, some respondents expressed contentment with familiar platforms such as Zoom, Coursera, and LinkedIn Learning. However, this should not be taken as an overall indication of satisfaction with ODFeL itself. Instead, the satisfaction seems limited and selective, mainly involving platforms respondents recognised or had used before. This distinction matters because students might be happy with a few known platforms but still have low overall adoption of Odfel. Similar research indicates that students’ acceptance of e-learning tools is often shaped by familiarity, perceived usefulness, ease of use, and the quality of the user experience (Sefriani et al., 2022; Idkhan & Idris, 2023). Therefore, partial satisfaction does not necessarily mean that ODFeL is fully adopted or well-integrated into the institution’s learning culture.

This study identified institutional and technological factors affecting ODFeL adoption. Participants emphasised institutional support, access to technology, technical assistance, funding, flexibility, user-friendliness, perceived ease of use, government policies, peer influence, and content quality as key drivers. These findings align with TAM and UTAUT models, showing that both personal perceptions and external influences shape adoption. Itasanmi and Mampane (2025), in their research on LMS use in Nigerian open and distance learning, highlighted digital readiness, literacy, flexibility, system features, support systems, and institutional policies as essential for student engagement with learning platforms. Similarly, Muraina et al. (2025) observed that Nigerian undergraduates’ e-learning adoption depends on digital infrastructure, internet connectivity, power supply, institutional support, and students’ digital skills.

The challenges identified in this study are also consistent with the realities of e-learning implementation, including poor internet connectivity, unreliable power supply, and financial constraints. This is in line with the findings of Muraina et al. (2025), who noted that weak internet penetration, unreliable power supply and inadequate digital infrastructure remain major barriers to e-learning adoption in Nigerian higher education.

9 Summary of Major Findings

- 1 The study revealed that the level of adoption of Open, Distance and Flexible e-Learning (ODFeL) among students of Kwara State Polytechnic was generally low.
- 2 The findings also showed that students' satisfaction with ODFeL was not general, but selective. The students are more satisfied with familiar platforms such as Zoom, Coursera, Google Classroom and LinkedIn Learning.
- 3 The study further found that ODFeL adoption was influenced by funding, flexibility, peer influence, perceived ease of use, among others.
- 4 The major challenges affecting ODFeL adoption included erratic power supply, poor telecommunication facilities, inadequate finance, high cost of e-content development, low commitment among teaching staff and low learner acceptability.
- 5 The inferential analysis, using chi-square goodness-of-fit tests, showed that the response distributions across adoption, satisfaction, influencing factors and challenges were statistically uneven at $p < .001$. This means that the observed responses did not occur by chance, but reflected clear patterns in students' adoption, satisfaction, influencing factors and perceived challenges of ODFeL.

10 Conclusion

In conclusion, the study emphasises the limited adoption of Open Distance and Flexible e-Learning (ODFeL) at Kwara State Polytechnic, Ilorin, Nigeria, mainly due to students' unfamiliarity with digital platforms. Although students express satisfaction with popular tools like Zoom, Coursera, and LinkedIn Learning, their overall engagement with ODFeL resources remains low. Key barriers include limited access to institutional and technological support, usability issues, funding challenges, and content quality concerns. Major obstacles such as unreliable electricity, inadequate communication infrastructure, financial hurdles, and low faculty interest further impede progress. To enhance adoption, the study suggests improving faculty digital skills, developing effective e-learning policies, increasing funding, and forming international partnerships. Addressing these areas can help Nigerian polytechnics meet global e-learning standards, improve educational outcomes, and build a stronger Information Society.

11 Recommendations

1. The institution should develop a clear ODFeL policy that specifies approved platforms, minimum standards for online course delivery, responsibilities of lecturers and students, quality assurance processes and technical support procedures.
2. The institution should conduct awareness campaigns to improve students' understanding of the benefits, requirements and available platforms for ODFeL.
3. Power and internet constraints should be addressed through alternative power sources, campus internet hotspots, subsidised data plans and low-bandwidth learning materials.
4. Lecturers should be encouraged through incentives, recognition and professional development opportunities to integrate ODFeL platforms into course delivery, assignments, feedback and communication.
5. Partnerships with national and international organisations should be pursued to improve ODFeL standards, staff capacity, content development and quality assurance.
6. Future studies should use item-level data to conduct regression, t-test, ANOVA or structural equation modelling so that predictors of ODFeL adoption can be examined more robustly.

12 Limitation of the Study

The study relied on questionnaire data and aggregate frequency tables. Because item-level raw data were not available for this revision, reliability could not be independently recomputed, and advanced inferential analyses such as regression, t-tests, or ANOVAs could not be conducted. The chi-square goodness-of-fit tests reported in this paper, therefore, provide evidence of uneven response distributions but do not establish causal relationships. Future research should include validated scales, pilot testing for reliability, larger sample sizes, and item-level data to permit stronger inferential analysis.

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