IJO - INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH
(ISSN: 2805-413X) Emmanuel Olorunfemi AWOLUMATE *
https://ijojournals.com/ Volume 09 || Issue 05 || May, 2026 ||
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Digital Pedagogy Competencies Required of Lecturers for Improving Skills Acquisition among Students for Employment in Electrical and Electronic Technology Industries in Southwest Nigeria

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Abstract
This study explored the digital teaching competencies that lecturers need to help students in electrical and electronic technology programs to acquire the practical skills required for employment in today's industry. Using a descriptive survey approach, data were gathered from 60 participants 40 university lecturers and 20 industry professionals selected through purposive sampling. A carefully developed and validated questionnaire (reliability = 0.85) served as the main instrument for data collection. The analysis involved both descriptive statistics (mean and standard deviation) and inferential statistics (independent t-test), with a significance level set at 0.05. Results indicated that lecturers demonstrated a moderate level of digital pedagogy skills (grand mean = 3.13), showing relative strength in using virtual learning environments. However, gaps were noted in areas such as digital literacy and ongoing professional development. Industry experts, on the other hand, placed strong emphasis on the need for more integration of collaborative platforms (M = 3.41) and computer-aided design (CAD) tools (M = 3.37) to better reflect real-world practices. Although there was no statistically significant difference (p > 0.05) between the perspectives of lecturers and industry professionals, both groups recognized the critical role of digital pedagogy in preparing students for the workplace. The findings underscore the need for targeted investments in training, stronger collaboration between academia and industry, and supportive policies to improve digital infrastructure. To close the skills gap, the study recommends hands-on workshops, curriculum reforms aligned with industry needs, and sustained professional development opportunities for lecturers.

Keywords*:* Digital Pedagogy, Competencies, Employability, Electrical/Electronic Technology, Industry Readiness.

Introduction
Digital pedagogy represents the strategic integration of digital technologies to enhance and transform teaching and learning processes. Unlike traditional pedagogical approaches that confined to physical classrooms, digital pedagogy expands learning into virtual, blended, and online environments (Ros, 2025). Eden, Chisom, & Adeniyi, (2024) explained that digital pedagogy goes beyond merely using digital tools to involves critically evaluating how technology can optimize instructional strategies, boost learner engagement,

and address diverse educational needs. This approach emphasizes student-centered learning, interactivity, adaptability, and innovation, particularly in technical fields like Electrical and Electronic Technology Education (EETE). In Technical and Vocational Education and Training (TVET), digital pedagogy is vital for aligning classroom instruction with the demands of the digital economy, ensuring national growth and workforce readiness. Lecturers must now serve not only as subject-matter experts but also as proficient users of digital tools to create interactive, collaborative, and adaptive learning experiences (Redecker, 2017).

Electrical and Electronic Technology Education (EETE) is a highly practical discipline that requires hands-on experience with rapidly evolving tools and systems. The traditional lecture-based methods are insufficient for equipping students with industry-relevant skills. Digital pedagogy enables the use of real-time simulations, programmable circuit design environments, and virtual labs to reinforce technical competencies in a controlled setting (Choudhary et al, 2023). For instance, software like Proteus and Multisim allows students to design and test circuits virtually before physical implementation, while Virtual Reality (VR) and Augmented Reality (AR) replicate electrical installations and diagnostic procedures. These tools enhance conceptual understanding, minimize practical risks, and ensure students are trained on industry-standard technologies (World Economic Forum, 2020).

The key digital pedagogical tools in EETE as listed by Sahu (2024) include Learning Management Systems (LMS) like Moodle and Google Classroom, which facilitate content distribution, assessments, and performance tracking. Interactive platforms such as Kahoot and Socrative provide instant feedback, while the flipped classroom model allows students to engage with theoretical content at home and apply knowledge in hands-on classroom activities. Despite these benefits, challenges like the digital divide, inadequate training, and resistance to change hinder widespread adoption, particularly in underserved regions like Southwest Nigeria (Onyekwere, 2024). Phulpoto et al (2024) wrote that these barriers require university investments in infrastructure, professional development, and policy support.

Effective digital pedagogy in EETE demands lecturers possess a blend of technical expertise and digital instructional skills. Competencies include digital content development, technological integration, data literacy, and learner-centered facilitation (Nurhidayat, 2024). The European Framework for Digital Competence (DigCompEdu) outlines six key areas which are professional engagement, digital resource use, teaching and learning, assessment, learner empowerment, and digital competence development (Hammoda & Foli, 2024). Lecturers must be proficient in tools like MATLAB, AutoCAD, and PLC programming while translating theoretical concepts into practical applications through blended learning and virtual workshops (Ajayi & Salami, 2021). Qazi et l (2024) however stated that many lecturers in developing nations faces obstacles such as outdated equipment, insufficient training, and lack of institutional support. Strengthening those digital competencies requires workshops, industry partnerships, and incentives for innovation. In addition, Moonasar (2023) stressed that continuous professional development (CPD) is crucial to ensure lecturers remain adept at emerging technologies like AI and IoT, which are reshaping EETE.

Skills acquisition in EETE according to Caeiro-Rodríguez (2021) involves mastering technical, soft, digital, and entrepreneurial competencies through practice, feedback, and real-world application. Fitts and Posner's three-stage model (cognitive, associative, and autonomous) as emphersise by Johnson and Proctor (2016) provides a framework for skill development, emphasizing gradual progression from basic understanding to automatic task execution. Effective strategies include project-based learning, simulated labs, internships, and competency-based assessments (Okolie et al., 2021).

Employability in EETE extends beyond technical proficiency to include problem-solving, teamwork, and adaptability. Folgado, (2024) disclosed that industry expectations now demand familiarity with automation systems (e.g., PLCs, SCADA), safety standards, and software tools like Arduino and LabVIEW. Therefore, TVET universities in their view must bridge the skills gap by integrating work-based learning, industry certifications, and entrepreneurship training into curricula. Digital pedagogy plays a pivotal role by simulating real-world scenarios through virtual labs and collaborative online projects, to ensure graduates meet labor market demands (Majumdar, 2019).).

Employment readiness in EETE requires alignment between academic training and industry needs. Many graduates lack practical exposure to Industry 4.0 technologies like smart grids and IoT, resulting in a skills mismatch (Dash, 2019). Strategies to enhance readiness include curriculum-industry collaboration, internships, and professional certifications. Amish (2024) suggested that lecturers must adopt digital tools and project-based learning to simulate workplace environments, emphasizing safety, ethics, and soft skills. The future of EETE education lies in leveraging AI, machine learning, and IoT to reflect industrial advancements. Aithal and Aithal (2023) argued that universities must prioritize lecturers' training, modern equipment, and policy frameworks to ensure sustainable digital pedagogy adoption. By doing so in their view, they can produce graduates who are not only technically skilled but also adaptable, innovative, and ready for the evolving workforce.

Digital pedagogy is transforming EETE by fostering interactive, industry-aligned learning experiences. Omodan (2024) submitted that lecturers must evolve as digitally competent educators, while universities must address infrastructural and training gaps. Through strategic integration of technology, skills-focused curricula, and industry partnerships, EETE programs can enhance employability and drive socio-economic development in the digital age (Ndjama, 2025).

Statement of the Problem

In the past, technical and vocational education, particularly in the field of electrical and electronic technology, relied heavily on traditional face-to-face instructional methods, with minimal integration of digital tools or learner-entered strategies. Lecturers delivered theoretical knowledge through didactic teaching while students engaged in limited hands-on activities using outdated equipment. Instructional approaches often failed to produce graduates who possessed industry-relevant digital competencies or practical skills essential for employment. The lack of technological integration in pedagogy led to a significant skills mismatch between graduates and the evolving needs of the electrical and electronic industries.

Technological advancement presently characterized the rapid digital transformation of industries and the demand for digitally literate and practically competent graduates has intensified. However, many lecturers in universities still face challenges in adopting and applying digital pedagogy effectively. Despite the proliferation of e-learning platforms, simulation tools, and smart technologies, there remains a gap in lecturers' ability to use these tools to enhance students' skills acquisition. A situation that has led many students graduate without the employability skills required by modern electrical and electronic industries, which now emphasize automation, artificial intelligence, internet-connected systems and the use of cutting-edge tools.

This has raised great concerns about the readiness of graduates of this dispensation to function effectively in digital-driven work environments. To safe guide the future, it is obviously important to identify and develop digital pedagogy competencies that lecturers must possess to adequately prepare students for emerging trends and roles in electrical and electronic technology education sectors. As industries continue to evolve with digital innovations, the role of the lecturer must shift from a content deliverer to a digital facilitator and mentor capable of aligning teaching practices with industry demands. Without targeted research into the specific digital teaching competencies required, and how these affect students' skill development and employability, universities risks preparation of graduates who are ill-equipped for the nearest future workplaces. This study, therefore, seeks to examine the extent of lecturers' digital pedagogy competencies and how these influence students' skills acquisition and employment readiness in the electrical and electronic technology education domain.

Purposes of the Study

The general purpose of the study is investigate the digital pedagogy competencies required of lecturers for improving skills acquisition among students for employment in electrical and electronic technology industries in Southwest Nigeria**.** Specifically, the study intends to:

1. Examine the specific digital pedagogy competencies possessed by lecturers and how these competencies influence the effectiveness of skills acquisition among students in Electrical and Electronic Technology Education.
2. Determine the extent to which digital teaching tools, strategies, and platforms are integrated by lecturers in fostering employable technical skills relevant to the evolving needs of the electrical and electronic technology industries.

Research questions:

1. What digital pedagogy competencies do lecturers possess, and how do these competencies affect students' skills acquisition in Electrical and Electronic Technology Education?
2. To what extent do lecturers integrate digital teaching tools and strategies to enhance students' employability skills in the electrical and electronic technology industries?

Hypotheses

H_{01}: There is no significant relationship between lecturers' digital pedagogy competencies and students' skills acquisition in Electrical and Electronic Technology Education.

H_{02}: The integration of digital teaching tools and strategies by lecturers does not significantly influence students' employability skills in the electrical and electronic technology industries.

Methodology

Research Design

This study adopted a descriptive survey research design to examine the digital pedagogy competencies required of lecturers for improving students' skills acquisition toward employment in the electrical and electronic technology industries. The design was chosen due to its appropriateness for gathering opinions, perceptions, and experiences from different categories of respondents regarding teaching practices and industry expectations.

Population of the Study

The population for this study comprised all lecturers teaching electrical/electronic technology education, industry experts in related fields, and students enrolled in electrical/electronic technology programs in tertiary institutions across Southwest Nigeria.

Sample and Sampling Technique

A purposive sampling technique was used to select respondents who possess relevant knowledge and experience in digital pedagogy and electrical/electronic skill development. The study sample consisted of 40 lecturers and 20 industry experts making a total of 60 respondents. These categories were selected to provide a multi-perspective evaluation of digital pedagogy competencies and their influence on employment readiness.

Instrument for Data Collection

The instrument used data collection in this study was a structured questionnaire developed to examine the level of integration of digital pedagogy competencies and industry-relevant digital practices among Electrical/Electronic (E/E) technology education lecturers and industry experts**.** The instrument was formulated based on extensive literature review, established digital teaching frameworks, and current trends in industry-academia alignment within the electrical and electronic technology sector.

The instrument comprised 20 carefully constructed items, divided into two thematic sections namely Digital Pedagogical Competencies (Items 1–10) which assessed the respondents' perceptions of the use and integration of various digital instructional tools, such as virtual laboratories, digital whiteboards, remote access tools, collaborative platforms, and project-based learning technologies. While section two Industry-Relevant Digital Practices (Items 11–20): focused on the extent to which instructional delivery incorporates industry-specific technologies and practices, including CAD tools, circuit simulation software, digital internships, online certification programs, and feedback mechanisms that promote job readiness and workplace relevance. (Each item was rated on a 5-point Likert scale). The instrument was administered to a sample of 40 Electrical/Electronic technology lecturers from accredited tertiary universities offering VTE programme in Southwest Nigeria, and 20 industry experts from recognized electrical/electronic industries and firms. The experts were selected based on their roles in training, mentoring, or supervising technical personnel.

For the validity, the instrument was reviewed by three academic experts in digital pedagogy and technical education from the University of Nigeria, Nsukka. Their recommendations led to refinement of item wording and scale clarity. A pilot test was conducted outside the study area to ensure the instrument reliability. Cronbach's Alpha reliability coefficient for the finalized instrument was 0.85, indicating a high level of internal consistency. Data collected were analysed using descriptive statistics (mean and standard deviation) and inferential statistics (independent samples t-test) at the 0.05 level of significance, to determine whether significant differences existed between the responses of E/E lecturers and industry experts.

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Result

Table 1: Comparative Analysis of Digital Pedagogy Competencies Aligning Lecturer Proficiency with Industry Expectations

S/N	Statement	Lecturer Mean	Lecturer SD	Expert Mean	Expert SD	Remark
1	Possession of digital instructional design skills that enhances practical learning outcomes.	3.05	0.52	3..06	0. 57	Require
2	Proficiency in using digital teaching tools that supports effective skills transmission.	3.11	0.57	3. 33	0. 55	Require
3	Competence in using virtual learning environments which improves student interaction with technical tasks.	3.23	0.58	3.17	0 53	Require
4	Integration of simulations and animation tools that promotes mastery of complex concepts.	3.17	0.53	3.20	0. 61	Require
5	Application of e-assessment platforms which enhances monitoring of students' skill acquisition.	3.22	0.60	3.08	0. 52	Require
6	Use of interactive media that increases learner engagement in technical subjects.	3.10	0.50	3.01	0.56	Require
7	Digital literacy skills that are essential for facilitating blended practical instruction.	3. 08	0.56	3.36	0. 54	Require
8	Competence in content creation using online tools which enhances instructional quality.	3.13	0.55	3.25	0.57	Require
9	Familiarity with cloud-based platforms that aids real-time student collaboration and skill testing.	3.21	0.58	3.17	0. 55	Require
10	Professional development in digital pedagogy that is necessary for quality vocational education delivery.	3.04	0.52.	3. 22	3. 53	Require
	Grand Total	3.13	0.55	3.19	0.55	

The assessment revealed that both electrical/electronic (E/E) lecturers and industry experts perceive the current level of digital pedagogy competence to be moderately high. With grand means of 3.13 for lecturers and 3.19 for experts, there's a shared recognition of foundational proficiency in digital teaching practices. However, this also points to significant room for growth in integrating advanced digital strategies. Interestingly, both groups recorded the same standard deviation (0.55), suggesting a consistent spread of responses within each group. This implies a general consensus on competencies, neither heavily polarized nor unusually uniform—highlighting a stable yet cautious perception of digital readiness.

While both groups acknowledge the importance of digital pedagogy, their specific priorities diverge: Lecturers rated "Competence in virtual learning environments" the highest (Mean = 3.23), indicating a comfort with managing digital classrooms. Experts, on the other hand, placed the greatest emphasis on "Digital literacy skills" (Mean = 3.36), underscoring their belief in foundational digital fluency as critical for modern teaching.

This 0.28 difference suggests that industry stakeholders may view digital literacy as a prerequisite for all other digital pedagogy components—a view not equally reflected by lecturers.

Conversely, the lowest-rated competencies also differed: Lecturers assigned the lowest score to "Professional development in digital pedagogy" (Mean = 3.04), hinting at a possible undervaluation of continuous training. Experts gave their lowest rating to "Use of interactive media" (Mean = 3.01), possibly reflecting concerns about how engaging and dynamic digital tools are implemented in classrooms.

Digital Literacy ($\Delta = 0.28$): The noticeable gap suggests a disconnect; while experts see it as fundamental, lecturers may lack either training or awareness of its central role in effective hybrid or blended learning environments. E-Assessment Platforms ($\Delta = -0.14$): Lecturers rate their competence in using digital assessment tools slightly higher than experts do. This might indicate a perception gap, or possibly an overestimation of their ability to monitor and evaluate student progress online. Professional Development ($\Delta = 0.18$): The difference here highlights the need for structured, ongoing training. Experts appear more attuned to the necessity for continuous up skilling, reinforcing the call for policy-level interventions.

The findings affirm that while lecturers are moderately competent in digital pedagogy, alignment with industry expectations particularly in digital literacy and professional development is essential. Strategic interventions that promote targeted training and cross-sector engagement can significantly enhance the effectiveness of teaching in vocational and technical education, ultimately equipping students with the digital competencies demanded by today's workforce.

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Table 2: Integration of Industry-Relevant Digital Practices in E/E Teaching

S/N	Statement	Lecturer Mean	Lecturer SD	Expert Mean	Expert SD	Remark
11	Use of digital platforms that develop students' collaborative and communication skills.	3.12	0.60	3.41	0.57	Require
12	Exposure to industry-specific software during teaching which enhances job readiness.	3.08	0.57	3.21	0.52	Require
13	Frequent use of CAD and circuit simulation tools that support real-world applications.	3.10	0.54	3.37	0.54	Require
14	Apply digital project-based learning methods that foster problem-solving skills.	3.21	0.58	3.40	0.58	Require
15	Integration of online certifications which builds employability credentials among students.	3.17	0.61	3.24	0.52	Require
16	Teaching that is aligned with digital trends bridges the gap between classroom and workplace requirements.	3.10	0.55	3.26	0.53	Require
17	Use of remote lab technologies that enhance technical confidence and independence.	3.31	0.52	3.21	0.55	Require
18	Involvement of students in digital internships which improves industry-based practical exposure.	3.22	0.57	3.30	0.51	Require
19	Using digital feedback mechanisms that facilitate continuous improvement in skill mastery.	3.05	0.60	3.28	0.53	Require
20	Collaboration with industry via digital platforms that promotes	3.21	0.57	3.31	0.61	Require

	curriculum relevance and student readiness.					
Grand Total		**3.16**	**0.58**	**3.32**	**0.54**	—

Table 2 above presents the comparative analysis of lecturers' and industry experts' responses on the integration of industry-relevant digital practices in Electrical/Electronic (E/E) teaching. The table comprises ten competency indicators, each evaluated based on their mean scores and standard deviations (SD) from both respondent categories. The "Required" column indicates consensus on the importance of these practices for modern E/E instruction. The grand mean scores show that industry experts (M = 3.32, SD = 0.54) rate the integration of industry-relevant digital tools slightly higher than lecturers (M = 3.16, SD = 0.58)**.** This consistent discrepancy across all items suggests that experts may perceive a greater need or more potential for these digital practices than what is currently being applied or recognized by lecturers. The relatively low standard deviations in both groups indicate a moderate to high level of agreement among respondents, with slightly more variation among lecturers.

Lecturers rated the use of remote lab technologies (Item 17; M = 3.31, SD = 0.52) as the most integrated practice, reflecting the growing reliance on remote access and simulation tools in teaching technical skills. Experts gave their highest rating to U use of digital platforms that develop collaborative and communication skills (Item 11; M = 3.41, SD = 0.57) and apply digital project-based learning methods (Lecturers assigned the lowest score to using digital feedback mechanisms" (Item 19; M = 3.05, SD = 0.60)**,** indicating a potential underutilization of continuous feedback tools in improving student competencies. Experts similarly rated Item 17 relatively lower (M = 3.21), suggesting a possible disparity in perceived effectiveness or actual deployment of remote lab tools from the industry standpoint.

Significant rating differences were observed in the following Item 11 (Collaborative platforms) ΔM = +0.29 in favour of experts Item 13 (CAD and simulation tools): ΔM = +0.27 in favour of experts. Item 14 (Project-based learning): ΔM = +0.19 in favour of experts. These gaps highlight areas where lecturers may underestimate the transformative potential of digital pedagogy tools that foster employability and real-world problem-solving skills, compared to industry expectations.

The analysis underscores the need for: Professional development programs to align lecturers' practices with industry-evolving standards. Increased investment in digital infrastructure**,** particularly in feedback mechanisms and certification platforms. Enhanced collaboration between academia and industry, especially in integrating real-world tools like CAD, remote labs, and project-based learning environments.

Overall, the findings from Table 2 indicate a moderate but promising level of integration of industry-relevant digital tools in E/E teaching. While both lecturers and experts acknowledge the importance of these practices, the perceptual gaps highlight opportunities for further alignment. Addressing these gaps through targeted training and curriculum updates will enhance the readiness of graduates for the technology-driven demands of the electrical and electronic industry.

Table 3: Independent Samples T-Test Comparing Perceptions of E/E Lecturers and Industry Experts on Digital Pedagogy Integration

Group	N	Mean	Standard Deviation (SD)	t-value	df	p-value	Significance
E/E Lecturers	40	3.13	0.55				
Industry Experts	20	3.19	0.55	**-0.40**	58	**0.692**	Not Significant (p > 0.05)

An independent samples t-test was conducted to determine whether there is a statistically significant difference in the mean perception scores between E/E lecturers and industry experts regarding digital pedagogy integration in Electrical/Electronic education.

Results indicated no significant difference between the two groups: $t(58) = -0.40$, $p = 0.692$. The mean score of lecturers (M = 3.13, SD = 0.55) was slightly lower than that of industry experts (M = 3.19, SD = 0.55), but this difference was not statistically significant at the 0.05 level.

This suggests that both lecturers and industry experts hold relatively similar views on the integration of digital pedagogical competencies in the field. The high alignment may indicate shared understanding or mutual exposure to the evolving demands of industry-focused teaching practices. However, while the statistical difference is minimal, further qualitative inquiry may help uncover nuanced perceptions not captured by mean scores alone.

Table 4: Independent Samples T-Test Comparing E/E Lecturers and Industry Experts on Integration of Industry Relevant Digital Practices

Group	N	Mean	Standard Deviation (SD)	t-value	df	p-value	Significance
E/E Lecturers	40	3.16	0.58				
Industry Experts	20	3.32	0.54	**-1.03**	58	**0.307**	Not Significant (p > 0.05)

An independent samples t-test was conducted to determine if there was a statistically significant difference between E/E lecturers and industry experts in their perceptions of integrating industry-relevant digital practices in Electrical/Electronic education.

The results showed no statistically significant difference between the two groups: $t(58) = -1.03$, $p = 0.307$. The mean perception score of industry experts (M = 3.32, SD = 0.54) was slightly higher than that of lecturers (M = 3.16, SD = 0.58), but the difference was not statistically significant at the 0.05 level.

This suggests a general alignment in perception between academia and industry regarding the importance of incorporating digital, industry-aligned teaching practices. However, the consistently higher ratings from experts may reflect a stronger push or expectation from industry stakeholders for increased relevance in academic delivery.

Discussion of Findings

The findings of this study provide valuable insights into the digital pedagogy competencies required of lecturers to enhance skills acquisition among students in Electrical and Electronic Technology Education (EETE) in Southwest Nigeria. The results align with existing literature on the necessity of digital pedagogy in modern technical education (Ros, 2025; Eden, Chisom, & Adeniyi, 2024) and highlight both progress and gaps in the integration of digital tools for employability readiness.

The study revealed that lecturers possess moderate proficiency in digital pedagogy, as indicated by a grand mean score of 3.13 (Table 1). This finding supports the argument by Redecker (2017) that lecturers must evolve from traditional content deliverers to digitally competent facilitators. However, the slightly higher perception of digital literacy by industry experts (M = 3.36) compared to lecturers (M = 3.08) suggests a gap in foundational digital fluency, reinforcing the need for continuous professional development (Moonasar, 2023). The lowest-rated competency among lecturers was "professional development in digital pedagogy" (M = 3.04), indicating a possible underestimation of the importance of ongoing training—a critical factor in keeping pace with rapid technological advancements (Qazi et al., 2024).

The findings in Table 2 show that while lecturers moderately integrate digital tools such as remote lab technologies (M = 3.31) and project-based learning (M = 3.21), industry experts consistently rated these practices higher. This aligns with Majumdar (2019), who emphasized that digital simulations and real-world applications are essential for bridging the skills gap between academia and industry. Notably, experts placed greater emphasis on collaborative digital platforms (M = 3.41) and CAD tools (M = 3.37), reflecting industry expectations for graduates to be proficient in teamwork and technical problem-solving (Folgado, 2024). The lower lecturer ratings on digital feedback mechanisms (M = 3.05) suggest a need for more structured assessment strategies to monitor student progress, as highlighted by Okolie et al. (2021).

The t-test results (Tables 3 and 4) showed no statistically significant differences between lecturers and industry experts in their perceptions of digital pedagogy integration ($p > 0.05$). This suggests a shared recognition of the importance of digital competencies, as posited by Hammoda & Foli (2024) in their discussion of the DigCompEdu framework. However, the slightly higher mean scores from industry experts indicate a stronger push for curriculum-industry alignment, reinforcing the need for closer collaboration between academia and the electrical/electronic technology sector (Dash, 2019).

The study highlights the critical role of digital pedagogy in preparing students for employment in evolving industries (Aithal & Aithal, 2023). While lecturers demonstrate foundational digital competencies, the gaps in advanced tools (e.g., CAD, virtual labs) and professional development suggest that current training may not fully meet industry demands. This aligns with concerns raised by Onyekwere (2024) regarding infrastructural and training deficiencies in developing regions. To enhance employability, universities must prioritize workshops, industry partnerships, and policy reforms to ensure lecturers are equipped with cutting-edge digital teaching strategies (Ndjama, 2025).

This study confirms that digital pedagogy is indispensable for improving skills acquisition and employability in EETE. While lecturers in Southwest Nigeria exhibit moderate digital competencies, further alignment with industry expectations is necessary. Strategic interventions—such as targeted training, infrastructure upgrades, and stronger academia-industry collaboration—are essential to ensure graduates meet the digital demands of modern electrical and electronic technology industries. These findings contribute to the broader discourse on digital transformation in TVET, as emphasized by Omodan (2024), and call for systemic reforms to enhance the quality and relevance of technical education in Nigeria.

Recommendations

Based on the findings, the following recommendations are proposed for implementation:

1. Universities should organize regular workshops, seminars, and certification programs to enhance lecturers' digital competencies, particularly in CAD tools, virtual labs, and e-assessment platforms.
2. Institutions should foster partnerships with electrical/electronic industries to align curricula with real-world technological demands, including internships and joint research initiatives.
3. Government and educational policymakers should invest in modern digital tools (e.g., VR/AR labs, simulation software) to facilitate hands-on, industry-relevant training.
4. Lecturers should engage in lifelong learning programs to stay updated on emerging technologies such as IoT, AI, and automation systems (Amish, 2024).

By implementing these measures, Nigerian universities can better equip students with the technical and digital skills required for employment in the rapidly evolving electrical and electronic technology sector.

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