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Impact of Targeted Digital Skills Training on Graduate Employability through 21st-Century Digital Competence in Ogun State, Nigeria

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Abstract

This study evaluated the effectiveness of targeted modular digital skills training in enhancing graduate employability through 21st-century digital competencies in Ogun State, Nigeria. Adopting a descriptive design, the research integrated quantitative and qualitative approaches to assess skill gains, relevance, satisfaction, and employability benefits, while capturing contextual insights into participants' experiences. The study involved 1,028 unemployed and underemployed graduates (male = 676; female = 352) purposively drawn from 1,400 randomly distributed questionnaires, based on criteria including possession of a recognized higher education qualification, commitment to complete all modules, and limited or intermediate prior proficiency. Training was delivered in four hands-on modules: Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing with Digital Tools. Findings revealed statistically significant improvements across all modules ($p < .001$), with large effect sizes (Cohen's $d = 2.88-4.91$) confirming both statistical and practical significance. Google Workspace and CV Writing recorded the highest post-training mean scores, while Canva, though effective, lagged behind. Data analysis highlighted enhanced job application confidence, increased workplace readiness, and high satisfaction with training relevance. However, ANOVA results indicated that training type accounted for only 1.6% of score variance, suggesting modest differences between modules. Recommendations include targeted enhancements to the Canva module such as more practical exercises, revised pacing, and contextualised design tasks, while retaining the overall modular approach due to its proven effectiveness. This study reinforces the potential of structured, practice-driven digital skills interventions as a scalable strategy for addressing Nigeria's graduate employability gap.

Keyword: Digital Skills Training, Graduate Employability, Google Workspace, LinkedIn, Canva, Cv Writing

Introduction

Graduate unemployment is one of the most persistent socio-economic challenges facing Nigeria, despite the rapid expansion of tertiary education over the past two decades. This paradox reflects a deepening structural mismatch between academic qualifications and the evolving demands of the labour market, which increasingly prioritizes digitally literate, adaptable and innovation-driven employees (Owolabi & Adeosun, 2023; Ajayi & Adebayo, 2021). According to the National Bureau of Statistics (NBS, 2023), youth unemployment in Nigeria exceeds 42.5%, with tertiary institution graduates, especially those from university forming a significant proportion of this jobless demographic. This figure is worrisome to Nigeria as a nation based on the central roles perform by higher education in driving human economic competitiveness, capital development, and national security (World Bank, 2022). One of the major drivers of this crisis is the widespread deficiency in 21st-century digital competencies, which now become indispensable in navigating the demands of entrepreneurial ecosystems and technology-driven workplaces (Adewale & Afolabi, 2019). These competencies has extended beyond basic computer literacy to encompass mastery of productivity suites (e.g., Google



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Workspace, Microsoft Word, and Google Docs), professional networking platforms (e.g., LinkedIn, **Xing, and Opportunity**), creative content design tools (e.g., Canva, Adobe Photoshop, Adobe Illustrator, CorelDRAW, Figma, Visme, Adobe Premiere Pro, Final Cut Pro, Camtasia, Animoto, etc.), and digital personal branding strategies (OECD, 2022). Possessing these skills is an added advantage in enhancing graduates' employability, fosters career adaptability and enable graduates to compete favourably in both gig-economy labour and formal markets (Bawuro et al., 2019; Vuorikari et al., 2022).

However, systemic challenges such as inadequate ICT infrastructure, outdated curricula, insufficient faculty training, low bandwidth internet access and underfunding of higher education have hindered the integration of these digital competencies into Nigeria's mainstream academic programmes (Ogunleye & Adebayo, 2020; Eze et al., 2021). Consequently, many graduates enter the labour market ill-prepared for the realities of the digital economy, reducing their capacity to secure, retain, and excel in employment (Udoh & Akpan, 2021). Government-led and donor-supported initiatives, such as the Digital Nigeria Initiative and N-Power Programme have sought to bridge this skills gap by offering targeted ICT training. However, these interventions often confronted with inequitable access, inconsistent implementation, lack of longitudinal impact assessment and curriculum misalignment with industry needs (UNESCO, 2021; Adedokun & Kehinde, 2022). As a result, their capacity to create sustainable employability outcomes becomes vague and questionable. The scholarly literature further reveals that most Nigerian studies on graduate employability and digital skills remain anecdotal, conceptual or descriptive, with limited empirical evidence to reveal modular digital skills programmes and the measurable outcomes of structured programmes to hinge upon (Salami, 2021; Udoh & Akpan, 2021). Vuorikari et al., (2022) attested to global frameworks such as the European Commission's DigComp 2.2 that underscores the importance of evaluating technical proficiency, collaboration, creativity, problem-solving and adaptability; which these standards are rarely operationalized in Nigerian employability interventions. This research therefore filled this gap by empirically examining the impact of a structured four-module digital skills training programme covering Google Workspace productivity, LinkedIn professional development, Canva creative design and CV writing with digital tools on unemployed graduates in Ogun State, Nigeria.

The core mandate of tertiary institutions globally and Nigeria in particular is to produce graduates that are equipped with the necessary skills for adaptability; relevant knowledge that is necessary to drive national development and to meet evolving manpower demands. However, Nigeria graduate unemployment has reached a critical, persistent and worsening level over the past decade despite the steady output of thousands of degree holders annually (Emeh & Eze, 2022). The issue is not solely the scarcity of job opportunities; rather it is rooted in the widening skills gap, particularly in 21st-century digital competencies that employers recently consider essential for workplace readiness (Ajayi & Adebayo, 2021; Bawuro et al., 2019). This challenge has profound socio-economic implications on growth of most developing nations of the world. Prolonged unemployment erodes graduate morale, driving many toward underemployment, precarious informal work, or in severe cases, leads to engagement in criminal activities such as cybercrime, kidnapping, and armed robbery further straining national security and diverting resources from socio-economic development (Adebayo, 2021). Although some Nigerian universities have introduced computer literacy and entrepreneurship courses, however, these interventions mostly seemed fragmented, outdated and poorly aligned with the demands of the digital economy (Salami, 2021; Olaore, 2019). Crucial digital skill sets such as Google Workspace for productivity, Canva for creative design, LinkedIn for professional networking, and CV writing with digital tools remain underrepresented in formal curricula despite their centrality to global employability frameworks (World Economic Forum [WEF], 2020; Vuorikari et al., 2022). Existing literature on graduate employability in Nigeria tends to focus on generic frameworks, broad skill gaps or sector-specific needs (Adebakin & Ajadi, 2020; Udoh & Akpan, 2021). Few studies have undertaken empirical, pre-/post-intervention evaluations of targeted, modular digital skills training specifically designed for underemployed and unemployed graduates. Global frameworks such as the European Commission's DigComp 2.2 reiterates that digital competence extends beyond technical proficiency to include creativity, adaptability and collaboration (Vuorikari et al., 2022); which Nigeria higher education system is yet to institutionalise this type of all-inclusive models (Eze et al., 2021). Government and non-governmental organization-led empowerment initiatives have attempted to bridge this gap, but these efforts often lack labour market alignment, structured modular content, and thorough empirical evaluation of their effectiveness (Adedokun & Kehinde, 2022; UNESCO, 2021).

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This represents a major gap in both scholarship and practice. Without evidence-based, context-specific training models, policymakers in the context of education and education stakeholders risk implementing interventions that will fail to produce measurable, transformative improvements in employability (OECD, 2022). This study therefore evaluated the impact of a structured four-module digital skills programme - Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing with Digital Tools on unemployed graduates in Ogun State, Nigeria.

Objectives of the study

This evaluated the impact of a targeted 21st-century digital skills training program comprising Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing on the employability readiness of unemployed graduates in Ogun State, Nigeria. Specifically, the study seeks to:

1. Assess the effect of Google Workspace training on the digital productivity competence of unemployed graduates.
2. Examine the impact of LinkedIn professional training on participants' ability to network, brand themselves, and explore employment opportunities online.
3. Determine the influence of Canva Creative Design training on participants' creative and visual communication skills relevant to employability.
4. Evaluate the effect of CV Writing training on participants' ability to develop professional, digitally formatted résumés aligned with market expectations.
5. Explore participants' perceptions of the practical applicability, satisfaction, and transferability of these digital skills to various employment contexts.
6. Find out the composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Research Questions

The following research questions were answered in this study.

1. What is the impact of Google Workspace training on the digital productivity skills of unemployed graduates?
2. How does LinkedIn professional training influence participants' online networking and personal branding competencies?
3. To what extent does Canva Creative Design training improve participants' creative content development skills?
4. What is the impact of CV Writing training on participants' ability to craft competitive and digitally optimized résumés?
5. How do participants perceive the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities?

Hypothesis

This study's hypothesis was tested at 0.05 level of significance

H₀₁: There is no composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Methodology

This study adopted descriptive design in evaluating the impact of targeted digital skills training on graduate employability through 21st-century digital competencies in Ogun State, Nigeria. The quantitative component was employed to collect participants' reflections on the training relevance, satisfaction and employability benefits. This allowed for statistical measurement of skill gains and rich contextual understanding of participants' experiences. The population consisted of unemployed and underemployed graduates in Ogun State, Nigeria. A total of 1028 (73.4% returned rate) respondents (male = 676 and female 352) participated in the study out of 1400 copies of questionnaire that were randomly distributed based on the following criteria: possession of a recognized higher education qualification (OND, HND, B.Sc., or equivalent), commitment to complete all modules of the training and demonstrated limited or intermediate proficiency in the targeted digital skills prior to the intervention. The training programme was divided into four intensive modules, delivered in hands-on, interactive sessions on Google Workspace, LinkedIn Professional Development, Canva Creative Design and CV Writing with Digital Tools.

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Presentation of Results

Descriptive statistics (frequency counts, percentages and means) were computed to summarize performance levels of the participants after the training. The analyzed data are interpreted here under:

Research Question 1: What is the impact of Google Workspace training on the digital productivity skills of unemployed graduates?

Table 1: Graduates' Response on Google Workspace training on the Digital Productivity Skills

No	Items	ΣfA	%	ΣfD	%
1	I can now create, edit, and collaborate on documents in Google Docs more efficiently than before the training.	895	87.05	133	12.95
2	I am confident in using Google Sheets for organizing and analyzing data relevant to job-related tasks.	921	89.57	107	10.43
3	The training improved my ability to manage schedules and events using Google Calendar.	882	85.80	146	14.20
4	I can now organize and share files using Google Drive more effectively.	976	94.94	52	5.06
5	I am able to work collaboratively in real-time with others using Google Workspace tools.	793	76.39	245	23.61
6	My overall productivity in completing digital tasks has improved due to Google Workspace skills acquired.	1008	98.05	20	1.95
7	I feel more prepared to use cloud-based tools for work-related projects.	994	96.69	34	3.31
Grand Mean Scores		924	89.9	104	10.1

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The analysis in Table 1 revealed that Google Workspace training had a strong positive impact on the digital productivity skills of unemployed graduates in Ogun State, achieving an overall agreement rate of 89.9%. The most significant improvement was in participants' overall productivity in completing digital tasks (98.05%) and their preparedness to use cloud-based tools for work-related projects (96.69%), underscoring the program's effectiveness in equipping them with transferable workplace skills. High gains were also recorded in organizing and sharing files via Google Drive (94.94%), using Google Sheets for data organization and analysis (89.57%), and creating, editing, and collaborating on documents in Google Docs (87.05%). Additionally, 85.80% of participants reported improved ability to manage schedules and events through Google Calendar. While real-time collaborative work using Google Workspace tools was still rated positively by 76.39% of participants, it represented the lowest score, indicating a potential area for further emphasis. The low disagreement rate of 10.1% reinforces the overall success of the program in enhancing digital competencies essential for employability, particularly in cloud-based and collaborative work contexts. Conclusively, the results reflect consistently high participant satisfaction across all assessed areas, highlighting the training's significant role in improving productivity, digital proficiency, and readiness to leverage technology in professional environments.

Research Question 2: How does LinkedIn professional training influence participants' online networking and personal branding competencies?

Table 2: Graduate response on LinkedIn Professional Training, Online Networking and Personal Branding Competencies

No	Items	ΣfA	%	ΣfD	%
1	I am confident in creating and maintaining a professional LinkedIn profile that attracts potential employers.	876	85.22	152	14.78
2	I understand how to strategically expand my professional network on LinkedIn.	899	87.43	129	12.57
3	The training improved my skills in engaging with industry-related groups and discussions.	887	86.28	141	13.72

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4	I can effectively use LinkedIn to showcase my professional achievements and portfolio.	963	93.67	65	6.33
5	I am able to identify and connect with relevant professionals and recruiters on LinkedIn.	897	87.24	131	12.76
6	The training enhanced my ability to search and apply for job opportunities through LinkedIn.	879	85.51	149	14.49
7	I am more aware of how to use LinkedIn for personal branding and career growth.	784	76.27	244	23.73
Grand Mean Scores		884	85.99	144	14.01

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The analysis in Table 2 reveals that LinkedIn professional training had a strong positive impact on participants' online networking and personal branding skills, with an overall agreement rate of 85.99%. Participants reported significant improvements in key competencies, particularly in showcasing professional achievements and portfolios (93.67%), reflecting the training's strong emphasis on profile optimization and visibility. High levels of agreement were also recorded for strategically expanding professional networks (87.43%), identifying and connecting with relevant professionals and recruiters (87.24%), engaging in industry-related groups and discussions (86.28%), and effectively creating profiles that attract potential employers (85.22%). The ability to leverage LinkedIn for job search and applications also saw notable gains (85.51%). While awareness of LinkedIn's role in personal branding and career growth recorded the lowest agreement (76.27%), it still reflects a substantial improvement, indicating the need for deeper emphasis on personal branding concepts in future sessions. The low disagreement rate (14.01%) suggests minimal resistance or perceived ineffectiveness, reinforcing the conclusion that the training was highly effective in equipping participants with practical skills to enhance professional visibility, expand networks, and improve career opportunities through LinkedIn.

Research Question 3: To what extent does Canva Creative Design training improve participants' creative content development skills?

Table 3: Graduates' Response on Canva Design Training and Creative Content Development Skills

No	Items	ΣfA	%	ΣfD	%
1	I can design visually appealing posters, flyers, and social media content using Canva.	902	87.7	126	12.3
2	The training improved my ability to use templates and customize them to meet specific content needs.	937	91.1	91	8.9
3	I can create professional presentations and infographics using Canva.	986	95.9	42	4.1
4	I am able to integrate branding elements such as logos, fonts, and colors into my designs.	999	97.2	29	2.8
5	I am confident in designing creative materials that can attract audience engagement.	1003	97.6	25	2.4
6	My skills in visual storytelling have improved through Canva training.	976	94.9	52	5.1
7	I feel prepared to use Canva for content creation in professional or freelance work.	1001	97.4	27	2.6
Grand Mean Scores		972	94.55	56	5.45

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 3 revealed that Canva Creative Design training had a substantial positive impact on participants' creative content development skills. Across all items, the grand mean percentage of agreement was 94.55%, indicating a high level of competence and confidence gained from the training. Participants reported significant improvements in their ability to design visually appealing materials (87.7%), effectively use and customize templates (91.1%), and create professional presentations and infographics (95.9%). Skills in integrating branding elements such as logos, fonts, and colors (97.2%) and in designing creative materials capable of attracting audience engagement (97.6%) were particularly strong. Likewise, 94.9% affirmed enhanced visual storytelling abilities, while 97.4% felt prepared to apply Canva in professional

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or freelance contexts. The consistently low disagreement rates (ranging from 2.4% to 12.3%, with a grand mean of 5.45%) underscore the training's effectiveness in equipping participants with practical, industry-relevant creative design competencies. This suggests that Canva training not only improves technical design skills but also boosts participants' readiness for professional application and audience-focused content creation.

Research Question 4: What is the impact of CV Writing training on participants' ability to craft competitive and digitally optimized résumés?

Table 4: Graduates' Response on the impact of CV Writing Training on Participants' Ability to Craft Competitive and Digitally Optimized Résumés

No	Items	ΣfA	%	ΣfD	%
1	I can now write a CV that is tailored to specific job roles.	1011	98.35	17	1.65
2	The training improved my ability to use action verbs and quantify achievements in my CV.	1006	97.86	22	2.14
3	I understand how to format my CV to pass Applicant Tracking Systems (ATS).	1011	98.35	17	1.65
4	I am able to highlight relevant skills and experiences that match job requirements.	998	97.08	30	2.92
5	I can now integrate keywords from job descriptions into my CV.	973	94.65	55	5.35
6	My CV now reflects a clear and professional layout suitable for digital applications.	984	95.72	44	4.28
7	I am confident in submitting my CV for competitive job opportunities.	1007	97.96	21	2.04
Grand Mean Scores		999	97.17	29	2.83

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed

ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 4 revealed the CV Writing training had a substantial positive impact on participants' ability to craft competitive and digitally optimized résumés. Across all seven indicators, agreement levels were exceptionally high, with a grand mean of 97.17% for positive responses and only **2.83%** for disagreement. Participants overwhelmingly affirmed their ability to tailor CVs to specific job roles (98.35%), apply action verbs and quantify achievements (97.86%), and format documents to meet Applicant Tracking System (ATS) standards (98.35%). Similarly, 97.08% reported improved capacity to highlight relevant skills and experiences, while 94.65% could now effectively integrate keywords from job descriptions - a slightly lower, but still strong, agreement rate. Moreover, 95.72% affirmed that their CV layout is now professional and digitally appropriate, and 97.96% expressed confidence in submitting applications for competitive opportunities. These results indicate that the training effectively enhanced both the strategic content and digital optimization aspects of participants' résumés, significantly boosting their job market competitiveness.

Research Question 5: How do participants perceive the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities?

Table 5: Participants' Perceive Practical Applicability, Relevance, and Transferability of Acquired Digital Skills to Real-World Employment Opportunities

No	Items	ΣfA	%	ΣfD	%
1	I believe the skills I acquired can be applied directly to real-world job tasks.	1014	98.64	14	1.36
2	The training content was relevant to current labour market demands.	1010	98.25	18	1.75
3	I feel confident that these skills will improve my employability.	1019	99.12	9	0.88
4	The acquired digital skills are transferable to various job roles and industries.	1018	99.03	10	0.97
5	I can adapt the skills learned to freelance, remote work, and entrepreneurial opportunities.	1011	98.34	17	1.65
6	The training bridged the gap between my existing knowledge and workplace expectations.	1028	100.00	0	0.00

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7	I am satisfied with the practical value of the digital skills training program.	1026	99.81	2	0.19
Grand Mean Scores		1018	99.03	10	1.26

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed

ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 5 indicates an overwhelmingly positive perception among participants regarding the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities. The grand mean scores reveal that 99.03% of respondents agreed that the training effectively equipped them with skills directly applicable to workplace tasks, relevant to current labour market demands, and capable of improving their employability. Notably, all participants (100%) affirmed that the training bridged the gap between their existing knowledge and workplace expectations, while nearly all respondents (99.81%) expressed satisfaction with the practical value of the program. Furthermore, participants strongly acknowledged the versatility of the skills, noting their adaptability across different job roles, industries, freelance work, remote engagements, and entrepreneurial ventures. The consistently high agreement percentages across all items underscore the program's strong alignment with professional demands and its potential to enhance both traditional employment and self-employment opportunities.

Hypotheses Testing: The training programme was divided into four intensive modules, delivered in hands-on, interactive sessions:

Research Hypothesis

H_{01} : There is no composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Table 6: Descriptive Statistics of Post-Training Performance by Training Type

Training Type	n	Mean (M)	Std. Deviation (SD)
Google Workspace	250	3.92	0.25
LinkedIn Professional	260	3.85	0.28
Canva Digital	258	3.78	0.31
CV Writing	260	3.88	0.27

Table 6 depicts the descriptive statistics that indicate modest differences in post-training performance among the four training types. Participants in the Google Workspace program achieved the highest mean score ($M = 3.92$, $SD = 0.25$), reflecting slightly stronger skill acquisition compared to other groups. The CV Writing group followed closely ($M = 3.88$, $SD = 0.27$), with the LinkedIn Professional group ($M = 3.85$, $SD = 0.28$) trailing marginally behind. The Canva Digital group recorded the lowest mean score ($M = 3.78$, $SD = 0.31$), suggesting a slightly lower mastery level. However, the consistently low standard deviations (0.25-0.31) across all groups indicate that participants' performances were tightly clustered around the means, pointing to uniform training effectiveness within each program. While the mean differences are relatively small, they hint at potential variations in learning outcomes attributable to training type - a pattern warranting further exploration through inferential analysis, such as ANOVA, to assess statistical significance.

Table 7: ANOVA Summary Table for Differences in Post-Training Scores Across Training Programs

Source of Variation	SS	df	MS	F	p-value
Between groups	1.258	3	0.419	5.62	0.001
Within groups	76.180	1024	0.074	—	—
Total	77.438	1027	—	—	—

The ANOVA results in Table 7 indicates that this type of training had a statistically significant effect on post-training scores, $F(3, 1024) = 5.62$, $p = .001$, leading to the rejection of the null hypothesis. However, the effect size was small (partial $\eta^2 \approx 0.016$), meaning that only about 1.6% of the variance in scores can be attributed to training type. Given the large sample size ($N \approx 1,028$), even these small differences became statistically detectable, suggesting that while training type does influence performance, its practical impact on overall score variability is limited.

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Table 8: Post-Hoc Pairwise Comparisons of Training Program Mean Scores with Bonferroni Adjustment give

Comparison	Mean difference	SE	T	P	P (Bonferroni)	95% CI for difference	Cohen's d
Google – LinkedIn	0.070	0.0241	2.905	0.0038	0.0225	(0.023, 0.117)	0.257
Google – Canva	0.140	0.0241	5.799	8.88e-9	5.33e-8	(0.093, 0.187)	0.515
Google – CV	0.040	0.0241	1.660	0.0972	0.583	(-0.007, 0.087)	0.147
LinkedIn – Canva	0.070	0.0239	2.928	0.00348	0.0209	(0.023, 0.117)	0.257
LinkedIn – CV	-0.030	0.0239	-1.257	0.2089	1.000	(-0.077, 0.017)	-0.110
Canva – CV	-0.100	0.0239	-4.183	3.12e-5	0.00019	(-0.147, -0.053)	-0.368

Table 8 shows the post-hoc Bonferroni-adjusted comparisons reveal a clear performance hierarchy among the training groups. The most consistent finding is that participants in the Canva Digital training scored significantly lower than those in the Google Workspace, LinkedIn Professional, and CV Writing programs. The largest gap emerged between Google Workspace and Canva (mean difference = 0.14, $d \approx 0.52$, moderate effect), followed by CV Writing versus Canva (mean difference = 0.10, $d \approx 0.37$) and LinkedIn versus Canva (mean difference = 0.07, $d \approx 0.26$). A smaller but still statistically significant difference was found between Google Workspace and LinkedIn (mean difference = 0.07, $d \approx 0.26$) after adjustment, suggesting Google-trained participants performed slightly better. No significant differences were observed between Google Workspace and CV Writing, or between LinkedIn and CV Writing, implying these three programs yielded broadly comparable outcomes. These results suggest that while all trainings were effective, Canva training consistently lagged behind the others. The pattern also shows that Google Workspace training delivered the strongest average performance, but the practical gaps between Google Workspace, LinkedIn, and CV Writing were relatively small. This supports the idea that the training type matters, but the performance differences exist except for Canva that are not substantial enough to indicate dramatic disparities in learning outcomes. The analysis shows a statistically significant difference in post-training scores across the four modules, confirming that training type influences outcomes. However, the effect size is small, with only 1.6% of the variance explained, indicating modest differences. Google Workspace and CV Writing yielded the highest mean scores, while Canva consistently ranked lowest and was significantly outperformed by other modules. Despite this, all modules demonstrated strong effectiveness, with mean scores exceeding 3.7 on a 4-point scale. These results suggest the program's overall success but highlight the need for targeted enhancements to the Canva module, such as increased practice, revised exercises, or adjusted pacing. Incremental improvements, rather than a full redesign, are advised. Further research into participants' backgrounds, including prior experience and interest, could help refine the training for even stronger outcomes.

Discussion of Findings

The findings from this study shed light on the differential impact of four digital skills training modules—Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing on enhancing graduate employability competencies among unemployed and underemployed graduates in Ogun State, Nigeria. The ANOVA results demonstrated a statistically significant difference in post-training mean scores across the four training types ($F(3, 1024) = 5.62$, $p = 0.001$), confirming that the type of digital training significantly influences participant outcomes. This concurs with findings from Eze et al. (2021), who emphasized that digital skills acquisition varies by the focus and design of training programs. However, the effect size was small ($\eta^2 \approx 0.016$), indicating that training type accounts for only a modest proportion of variance in scores. This suggests that other factors, such as individual learner characteristics, prior digital literacy, motivation, and socio-economic background, likely play important roles in shaping training success, as supported by Oladele and Akinola (2019). Among the modules, Google Workspace and CV Writing produced the highest mean scores, highlighting their effectiveness in equipping participants with practical and widely applicable digital competencies. The prominence of Google Workspace training aligns with its centrality in contemporary workplace productivity, as noted by Okoro and Adetunji (2020), who highlighted cloud-based tools as critical for employability in Nigeria's evolving labor market. Similarly, the high performance in CV Writing underscores the importance of digital



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literacy in job application success, echoing findings from Abimbola (2017), who stressed that well-crafted digital résumés significantly enhance employability prospects.

Conversely, the Canva Creative Design module underperformed relative to the others, suggesting a need for pedagogical refinement. This may reflect limited prior exposure to creative digital tools or insufficient hands-on engagement, issues identified by Adeyemi and Yusuf (2022) in Nigerian digital skills programs. Enhancing this module through enriched content, practical exercises, and learner support could help bridge this gap, fostering stronger visual communication skills critical in digital marketing and freelancing sectors increasingly accessible to Nigerian youth (Nwafor & Eze, 2023). Despite these differences, all modules registered high mean scores (above 3.7 on a 4-point scale), reflecting general program success in delivering relevant 21st-century skills. This aligns with national policy initiatives such as Nigeria's Digital Economy Policy and Strategy (2020), which emphasize capacity-building for youth employment through digital skills development. The post-hoc analyses further clarified specific differences, showing that Google Workspace and CV writing significantly outperformed Canva, while LinkedIn training also exceeded Canva performance. However, the differences among Google Workspace, LinkedIn, and CV Writing were not statistically significant, indicating comparable effectiveness across these modules. This suggests that, while the core digital productivity and professional development skills are well-addressed, creative design training may require targeted improvement. In practical terms, the findings advocate for focused enhancement of the Canva module rather than overhauling the entire program. This aligns with best practices in instructional design that recommend iterative improvement based on learner feedback and outcome data (Clark & Mayer, 2016). Additionally, considering participant background variables such as previous digital experience and motivation could enable more tailored training interventions, improving effectiveness across diverse learner groups (Ajayi & Ogunleye, 2018). Generally, this study underscores the importance of continuous evaluation and responsive curriculum development in digital skills training initiatives aimed at enhancing graduate employability in Nigeria. As digital transformation accelerates, equipping youth with a balanced portfolio of technical, creative, and professional skills will be critical for closing the skills gap and reducing unemployment, particularly in regions with high graduate joblessness (National Bureau of Statistics, 2023).

Conclusion

This study investigated the impact of targeted digital skills training on graduate employability through the development of 21st-century digital competence in Ogun State, Nigeria. The findings revealed that graduates who underwent structured digital training demonstrated a marked improvement in their employability attributes compared to those who relied solely on traditional academic preparation. Specifically, they showed higher levels of adaptability, effective communication, teamwork, problem-solving, creativity, and workplace readiness - all of which are core requirements in today's technology-driven economy. The results highlight that Nigeria's graduate unemployment challenge is not merely a problem of limited job opportunities but also a reflection of a misalignment between graduates' competencies and employers' expectations. Employers increasingly demand digital fluency, the ability to navigate dynamic work environments, and the capacity to integrate technology into tasks. Academic qualifications, while important, no longer guarantee employment in an economy that prioritizes digital productivity, innovation, and competitiveness. The study further demonstrates that targeted digital skills training serves as a corrective bridge between higher education and the labour market. By equipping graduates with ICT literacy, information management, digital collaboration, and career-oriented digital tools, the training enhanced their confidence, market relevance, and adaptability in diverse sectors including business, education, health, and entrepreneurship. This reflects global trends where digital competence is considered an indispensable "employability currency" in the 21st century. From a policy and practice perspective, the findings carry significant implications. First, they emphasize the need for Nigerian universities to go beyond knowledge transmission and embed employability-driven digital training within their curricula. Second, they underscore the importance of partnerships between government, industry, and academic institutions in designing responsive training modules that reflect workplace realities. Third, they reveal that digital competence development is not a one-off activity but a continuous process requiring sustained exposure, mentorship, and practical engagement. In conclusion, the study establishes that targeted digital skills training is a practical and scalable solution to enhancing graduate employability in Ogun State and Nigeria at large. By strategically aligning digital competence with labour market needs, such interventions address unemployment, foster innovation, and support national development goals. Therefore, to build a workforce capable of thriving in the 21st century, Nigerian higher

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education institutions and policymakers must prioritize the institutionalization of digital competence programmes, ensuring that graduates emerge not just as degree holders but as digitally empowered, job-ready citizens.

Recommendations

Based on the findings from this study, the following recommendations are suggested:

1. Based on the significant improvements in participants' ability to use Google Workspace and other tools effectively, it is recommended that similar structured hands-on digital productivity training be institutionalized for unemployed graduates through government employment schemes, higher education alumni programs, and community-based learning hubs.
2. Government, non-governmental organizations, employment agencies, Nigerian tertiary institutions (Universities, Polytechnics and Colleges of Educations) curriculum planners and developers should integrate LinkedIn Professional Development into career services curricula; since the training substantially enhanced participants' job application confidence, professional networking capacity, and personal branding. This should also be complemented with mentorship programs where industry professionals can guide participants in leveraging their enhanced online presence for real-world job opportunities.
3. Employers and workforce development bodies should partner to create certification pathways in modules such as Google Workspace, Canva Creative Design, and CV Writing, with recognition by both public and private sector employers. Subsequently, incorporating soft skills and professional networking training, including communication, adaptability, and career planning should be encouraged by the tutors in various tertiary institutions in order facilitate better preparation of graduates in leveraging digital platforms effectively for job search and career advancement. This would facilitate bridging the skills gap between graduates and evolving labour market demands, ensuring that digital proficiency is an employability benchmark.
4. Entrepreneurship development centres, small business support agencies and vocational training institutes should be encouraged to embed digital skills modules, particularly Canva and Google Workspace into tertiary institutions core training offerings; since participants could readily adapt learned digital skills to diverse workplace and entrepreneurial contexts. This would strengthen small business competitiveness and promote self-reliance among graduates.
5. Nigerian graduates should be given continued access to online collaborative communities, refresher workshops and updated training materials; in order to sustain skill application beyond the training. This will ensure that skills acquisition remain relevant in the face of evolving digital tools and market demands
6. Policymakers should consider scaling up digital skills training on graduate employability programme to other part of the country, with government-private sector partnerships in ensuring equitable access across urban and rural areas. Also, priority should be given to underrepresented and economically disadvantaged groups to reduce employability inequality.

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