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Cross-Country Differences in E-Learning Experiences: Insights from the Google–IYF Programme in Kenya, Nigeria, and South Africa

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Abstract

Purpose: This article evaluates learner experiences in soft skills e-learning programmes delivered through a partnership between Google and the International Youth Foundation (IYF). Implementation took place in South Africa via Infomage Rims Group and in Kenya and Nigeria through additional partners. The study examines whether learner perceptions of participation, use of technology, language accessibility, time investment, past learning experiences, and geographical location differed significantly across the three countries, with the aim of informing the design of more inclusive, data-driven digital education strategies in African contexts.

Materials and Methods: A quantitative research design was employed, using secondary data derived from Likert scale surveys distributed by IYF and Infomage to learners across three countries. The data was statistically analyzed to explore relationships between several independent variable participation, technological tools, language accessibility, time invested, geographic location, and past learning experiences and the dependent variable, academic performance. These analyses formed the basis for a conceptual framework to guide future e-learning development.

Findings: Results indicate that most constructs did not differ significantly across countries. Notable exceptions included participation impact (2021), where Kenyan learners reported higher benefits than Nigerian learners, and past learning experiences (2023), where South African learners scored higher than Kenyan learners. These findings suggest that learner experiences in the Google–IYF programme were broadly consistent across contexts, with only isolated differences emerging.

Unique Contribution to Theory, Practice and Policy: The study contributes to the theoretical understanding of e-learning in African contexts by demonstrating the relative consistency of learner experiences across diverse settings. For practitioners, it highlights the importance of monitoring learner perceptions to identify specific areas requiring adaptation, such as learner preparedness and programme contextualization. For policymakers, the findings reinforce the need for digital infrastructure investment and culturally responsive design to ensure equitable access and engagement.

Keywords: *E-learning effectiveness, soft skills development, African education, Digital inclusion, Technology in education.*

JEL Codes I21: *Analysis of Education, I25: Education and Economic Development, O33: Technological Change: Choices and Consequences; Diffusion Processes, O15: Human Resources; Human Development; Income Distribution; Migration, L86: Information and Internet Services; Computer Software*

1.0 INTRODUCTION

The purpose of this study is to evaluate learner experiences in soft skills e-learning programmes delivered through a partnership between Google and the International Youth Foundation (IYF), implemented by Infomage Rims Group (IRG) in South Africa and by additional providers in Kenya and Nigeria. Specifically, the research examines whether learners from these three countries differ in their perceptions of participation, technology use, language accessibility, time investment, prior learning experiences, and geographical context. By exploring these constructs, the study aims to inform the design and delivery of future e-learning programmes tailored to African learners.

Despite the global growth in online education, African learners continue to face structural and contextual challenges that affect their engagement and outcomes. These challenges include limited access to affordable data, underdeveloped digital infrastructure, language barriers, and varying levels of digital literacy. Lembani et al. (2019) emphasize the persistent disconnect between academic content and real-world application, particularly in low-resource environments. This study seeks to bridge that gap by drawing on empirical survey data to evaluate how contextual realities shape learner experiences across three African countries.

The programme under review offered short soft skills courses including Project Management, IT Support, and UX Design through Coursera. These courses, sponsored by Google and coordinated by IYF, were locally implemented by organizations such as IRG. Their aim was to equip unemployed youth with practical, job-relevant skills and thereby improve employability (Sullivan, 2019; Coursera, 2023). The central research question guiding this study was: Do learner experiences in soft skills e-learning programmes differ significantly across Kenya, Nigeria, and South Africa, and what lessons can be drawn for the design of inclusive e-learning in African contexts?

A quantitative research design was applied, using secondary survey data collected from 2021 to 2023. Responses were measured using Likert scales across six constructs related to learner experience. Because assumptions of normality were violated, the data were analyzed using Welch's ANOVA to test for cross-country differences, followed by Games-Howell post-hoc tests to explore significant pairwise effects.

Key stakeholders in this initiative include the learners themselves, IRG (as the South African training provider), IYF (as programme coordinator), and Google (as sponsor). The study places the learner's experience at the center, recognizing disparities in access and opportunity between urban and rural populations, and examining how digital inequality shapes participation and perceptions.

This introduction frames the study within the broader discourse on e-learning in Africa. It underscores the importance of contextualizing global educational initiatives within regional realities to ensure relevance, accessibility, and long-term impact. By comparing experiences across Kenya, Nigeria, and South Africa, the study contributes to a more nuanced understanding of how to design equitable and effective digital learning opportunities in low-resource contexts.

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some scheduled their study sessions around times of lower data costs or more stable network availability, while others relied on offline downloads or shared devices with peers to reduce connectivity barriers. In multilingual contexts, learners often translated content informally for one another or used bilingual resources to improve comprehension. For those with limited prior computer literacy, progress was supported by trial-and-error learning, peer coaching, and the formation of WhatsApp or community-based study groups. These strategies reflect the creativity and determination learners brought to the Google–IYF programme, demonstrating that success was not only a product of institutional design but also of learner adaptability and resilience.

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Main Research Question

1. To what extent do learner experiences in the Google–IYF soft skills e-learning programme differ across Kenya, Nigeria, and South Africa?

Sub Questions

1. How do learners from the three countries perceive participation, language accessibility, and use of technology, and what strategies do they employ to overcome barriers such as limited network access, language challenges, or low digital literacy?
2. How do time investment, prior learning experiences, and geographical context influence engagement and outcomes, and are there notable differences in these effects across the three countries?

1.1 Problem Statement

The problem this study addresses is the limited analysis of learner experiences in the Google–IYF programme. While the programme provided valuable opportunities for unemployed youth in Kenya, Nigeria, and South Africa, the available data had not been fully utilized to examine how learners in different contexts perceived their participation and what implications these perceptions hold for future initiatives. Without such analysis, programme developers and sponsors risk overlooking important contextual differences that may shape learner engagement, satisfaction, and academic outcomes in African settings. From a theoretical perspective, this gap also reflects an underexplored area in digital pedagogy and adult learning theory. While adult learning frameworks emphasize the role of prior experience, motivation, and self-directed learning in online environments (Knowles, 1984), there is limited empirical evidence on how these factors manifest in low-resource African contexts. Similarly, theories of e-learning effectiveness often assume stable access to technology and high digital literacy, leaving a gap in understanding how learners innovate and adapt when structural constraints—such as poor network connectivity, language barriers, and limited computer literacy—are present. This study addresses that gap by examining not only learner perceptions but also the strategies learners employ to navigate these challenges, contributing to a more contextually grounded understanding of online adult learning in Africa.

The central question, therefore, is: What can programme developers and sponsors do differently in African contexts to maximize learner engagement and ensure the success of similar digital learning initiatives? With the growing imperative for technological integration in education across the continent, addressing this question is critical to designing adaptive, equitable, and context-sensitive e-learning programmes. This study leverages secondary survey data from the Google–IYF initiative, which was delivered through a collaboration between IRG, IYF, Google, and Coursera. The programme sought to equip unemployed youth with essential soft skills through short, job-oriented online courses. Using statistical analysis, this research compared learner perceptions across three countries, focusing on six key constructs: participation, use of technology tools, language accessibility, time investment, past learning experiences, and geographical location. The study's findings provide insights that can guide the development of more inclusive and effective digital education programmes across African contexts.

2.0 LITERATURE REVIEW

The study explored learning theories such as constructivism (Piaget, 1976, as cited in McLeod, 2024) and andragogy (Feder, 2022; Kelly, 2014) to understand their relevance to e-learning in Africa. Constructivism, as outlined by Piaget (1976, as cited in McLeod, 2024), suggests that learners build knowledge through active engagement with their environment, a crucial approach in digital learning where direct interaction with content fosters deeper understanding. Constructivism promotes critical thinking and problem-solving, leading to a more meaningful and lasting understanding of concepts. Andragogy is the practice of teaching adult learners, focusing on their self-directed nature, prior experiences, and the practical application of knowledge in real-life contexts (Drew, 2023). With e-learning, both constructivism and andragogy are underpinned by a system that advocates self-drive, motivation and action.

2.1 Learning Theory

Learning theory provides a foundation for understanding how learners engage with educational content, including in digital environments. Traditionally, three primary learning theories are considered: behaviorism, cognitivism, and constructivism (Kelly, 2012; Bonk & Graham, 2020). Behaviorism emphasizes learning as a response to stimuli, reinforced through repetition and feedback. While behaviorist approaches can support structured e-learning modules with clear outcomes, they may be less effective in low-resource African contexts were learners face connectivity interruptions or limited access to consistent instructional reinforcement. Cognitivism focuses on mental processes such as memory, comprehension, and problem-solving. This perspective highlights the importance of designing digital content that aligns with learners' prior knowledge and cognitive load. However, its emphasis on individual information processing may underplay the social and collaborative strategies that learners often adopt to overcome network and technological limitations.

Constructivism, by contrast, views learning as an active process of knowledge construction grounded in personal experience (Fosnot, 2013; Daniels *et al.*, 2021). In low-resource e-learning contexts, constructivist principles align well with learners' adaptive strategies—such as forming peer study groups, translating content, or experimenting with technology—to make sense of material in ways that are meaningful and contextually relevant. Complementing constructivism, andragogy, or adult learning theory, emphasizes self-directed learning, practical relevance, and leveraging prior experience (Knowles, 1984; Merriam & Bierema, 2014). These principles are particularly suitable for unemployed youth engaging in

short, skills-focused online courses, where learners must navigate structural barriers and take initiative to complete learning tasks successfully.

Other contemporary theories, such as connectivism (Siemens, 2005) and transformative learning (Mezirow, 2000), are also relevant for online adult education. Connectivism foregrounds learning through networks and digital communities, while transformative learning emphasizes critical reflection and perspective shifts. While these frameworks offer valuable insights, they were considered less central for this study because the focus was on individual learner adaptation and engagement with constrained resources, rather than on large-scale networked learning or deep personal transformation. Constructivism and andragogy, therefore, provided a more practical lens to interpret how learners in Kenya, Nigeria, and South Africa actively constructed knowledge and employed strategies to overcome barriers in real-world e-learning contexts.

2.2 Hard and Soft Skills

Kenton (2023) defined soft skills as interpersonal attributes vital for achieving personal and organizational goals, while hard skills refer to technical knowledge. In this study, the team integrated these concepts, advocating for the T-shaped skills model combination of broad, cross-disciplinary skills and deep specialization. Understanding both types of skills was crucial in assessing the effectiveness of the Google IYF (2024) program in equipping learners with the necessary competencies for the modern workforce.

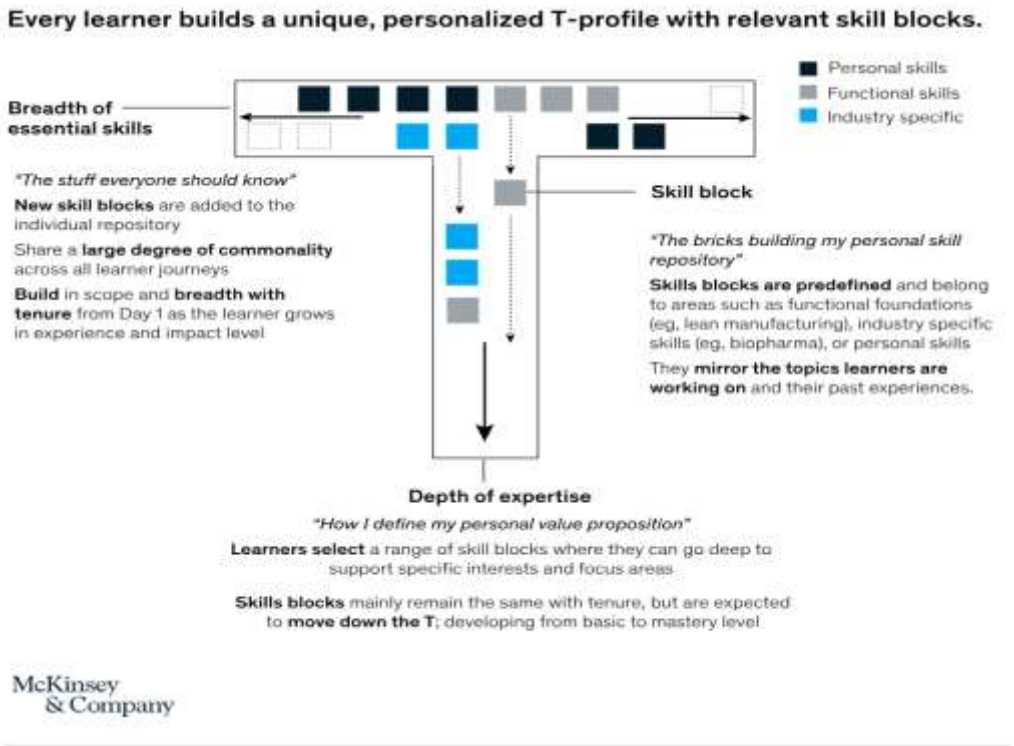

Figure 1: T-Shaped Model explained (Hammer, et al., 2021; Wale, 2023)

In practice, the T-shaped skills model directly informed the design of the curriculum, ensuring that each course balanced deep technical content with broader, transferable soft skills. During analysis, the model also guided the categorization of survey responses, distinguishing between learner perceptions of specialized competencies (vertical bar of the

"T") and cross-disciplinary or interpersonal skills (horizontal bar). This coding approach enabled the research team to examine not only whether learners mastered technical skills, but also how effectively they developed broader capabilities such as communication, teamwork, and problem-solving, which are critical for employability. By linking the T-shaped framework to both programme design and analytical coding, the study provides a nuanced understanding of how learners perceive and acquire complementary hard and soft skills (Hammer et al., 2021; Wale, 2023).

2.3 Enablers and Impediments to Learning

Krueger (2022) identified enablers in online education, including digital collaboration tools and broadband access, which enhance learning. Conversely, Falout et al. (2009) explored impediments such as a lack of motivation, outdated teaching methods, and limited access to technology, which negatively affect learner engagement. Understanding these enablers and impediments was essential for evaluating the factors influencing learner performance in African contexts.

2.4 Historical Context and Policies

The historical review contextualized e-learning within South Africa, Kenya, and Nigeria. For instance, South Africa's Skills Development Act (1998) (South African Government, 2023) and Kenya's National Qualifications Framework (The Republic of Kenya, 2014) provided a legislative backdrop for skills development initiatives. Nigeria's Educational Reform Act (Nigeria Education Ministry, 2023) underscored the importance of education reform, positioning these countries as leaders in promoting digital learning. Understanding these legislative frameworks was vital for aligning the Google IYF (2024) program with national goals.

While each country has legislative support for skills development and digital learning, the policy environments differ in ways that influenced learner experiences. South Africa's Skills Development Act emphasizes structured workplace learning and public–private partnerships, which facilitated the integration of local training providers like IRG and supported learners with relatively consistent access to course materials and guidance. In Kenya, the National Qualifications Framework promotes competency-based education and lifelong learning, encouraging flexible, modular approaches that allowed learners to navigate the Google–IYF programme according to their individual schedules. However, uneven internet infrastructure and varying digital literacy levels required Kenyan learners to employ adaptive strategies, such as offline downloads and peer study groups, to complete the courses successfully.

Nigeria's Educational Reform Act underscores broad education reform but places less emphasis on digital learning implementation. Consequently, Nigerian learners often faced greater variability in access to technology, reliable internet, and structured support. These policy differences shaped learners' engagement and perceptions: South African learners benefited from more organized institutional support, Kenyan learners demonstrated flexibility and self-directed problem-solving, and Nigerian learners relied heavily on innovation and personal initiative to overcome infrastructural challenges. By comparing these environments, the study highlights how national policy contexts interact with programme design to influence learner experiences in digital skills initiatives across African settings.

2.5 Empirical Studies

The empirical literature review identified key factors affecting African online learning, such as low digital literacy (Acledan & Pepito, 2022), language barriers (Masunungure &

Maguvhe, 2024), and the digital divide (Asiegbu, 2022; Massey, 2021). Mpungose (2020a) highlighted that many learners in South Africa preferred using familiar platforms like WhatsApp over more formal e-learning tools, pointing to the need for enhanced digital literacy. Adeleke (2020) and the World Bank Group (2021) underscored the impact of limited internet access on rural learners, exacerbating the digital divide. These findings stressed the need for tailored interventions, including localized content and flexible delivery methods, to improve engagement and accessibility across diverse learning environments.

Accessibility and Digital Literacy

Several studies emphasized the digital divide as a significant barrier to effective online learning. Adeleke (2020) and the World Bank Group (2021) noted low internet uptake in rural areas of Nigeria and Kenya, which hindered the potential of online education. Mpungose (2020b) further highlighted platform familiarity, showing that learners gravitated towards more familiar tools like WhatsApp over more formal learning platforms like Moodle.

Language Proficiency

Language barriers pose significant challenges in e-learning. Cox (2021) found that African learners often scored lower in English linguistic skills compared to their peers (who are proficient in English). Kafu (2018) advocated teaching in learners' mother tongues to improve academic performance and social mobility. These insights highlighted the need for culturally and linguistically accessible e-learning content, particularly in multilingual regions like South Africa, Nigeria, and Kenya.

The Value of Soft Skills

Soft skills are essential in professional and educational settings, particularly preparing learners for the workforce. Beltran (2021) highlighted the increasing demand for soft skills (e.g., active listening, empathy, critical thinking, and time management) in modern employment. Choi et al. (2020) emphasized that digitalization in Africa would not replace jobs but instead provide opportunities for soft skills acquisition. This reinforced the importance of integrating soft skills into the Google IYF (2024) program to equip learners with the competencies needed for global employability.

E-learning Successes and Failures

The successes and failures of e-learning programs in Africa highlight the importance of adaptability in educational practices. Ramnund-Mansingh et al. (2020) argued that digital learning platforms offered opportunities to address infrastructural deficits, but institutional unpreparedness limited their impact. Similarly, studies from South Africa, Kenya, and Nigeria (Asiegbu. 2022; Zubane et al., 2022) identified the need for government investment in technological infrastructure to ensure the success of e-learning programs (see Figure 1).

Figure 1 illustrates the theoretical framework, outlining the relationship between learning theory, skills development, and enablers versus impediments for African learners in the Google IYF (2024) program. It shows how learners process, receive, and retain knowledge, influenced by cognitive, emotional, and environmental factors like tools and resources. These influences shape the acquisition of hard and soft skills through accredited programs and short courses.

The framework in Figure 1 also highlights external factors impacting learning outcomes. Enablers, such as fast networks, low data costs, and improved computer literacy, support learning, while impediments, including poor internet connectivity, language barriers, and low

computer literacy, create challenges. Together, these elements offer insights into enhancing online education for African learners.

The literature reviewed highlights the complex interplay of learner characteristics, digital infrastructure, policy environments, and skill development in shaping e-learning experiences across African contexts. Insights from learning theories, including constructivism and andragogy, emphasized the importance of self-directed learning, experiential engagement, and adaptive strategies, particularly in low-resource settings. Empirical studies identified practical barriers and enablers—such as digital literacy, language proficiency, access to technology, and socio-geographical factors—that directly affect learner participation and outcomes. The T-shaped skills framework further underscored the need to assess both hard and soft skills acquisition. Collectively, these findings informed the selection of the study's six constructs: participation, use of technology tools, language accessibility, time investment, past learning experiences, and geographical location, providing a theoretically grounded and contextually relevant framework to evaluate learner experiences in the Google–IYF programme across Kenya, Nigeria, and South Africa.

2.2 Conceptual Framework

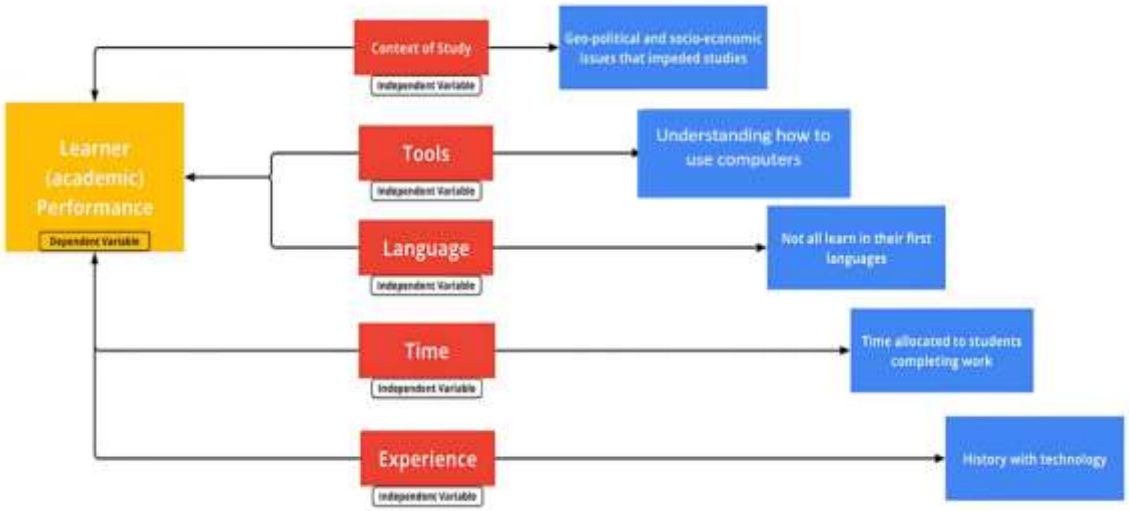

Figure 1: Conceptual Framework Source; Researcher (2025)

2.3 Research Gaps

Although numerous studies have examined e-learning in African contexts, there remains a lack of focused research comparing learner perceptions across countries in short, non-accredited, soft skills programmes. Much of the existing literature either generalizes findings across higher education systems or focuses on accredited academic programmes, overlooking the specific challenges faced by learners in employment-oriented, short-term online training.

Limited attention has been paid to whether learners in different African contexts experience such programmes in similar or divergent ways, especially in relation to factors such as participation, access to technology, language accessibility, time investment, prior learning experiences, and geographical location. Furthermore, while several studies highlight barriers like infrastructure or language, few employ quantitative methods that systematically test differences across multiple countries.

This study addresses these gaps by leveraging secondary data from the Google–IYF programme and applying robust statistical techniques (Welch's ANOVA and Games-Howell post-hoc tests) to compare learner experiences in Kenya, Nigeria, and South Africa. By focusing on cross-country differences, the study contributes new insights into how contextual factors shape learner perceptions, offering practical implications for designing more inclusive and effective e-learning programmes in African contexts.

3.0 MATERIALS AND METHODS

This study adopted a quantitative, cross-sectional research design and was conducted across three African countries South Africa, Kenya, and Nigeria within the context of the Google–IYF soft skills programme. The target population included unemployed youth enrolled in non-accredited short courses in project management, IT support, and UX design, delivered via Coursera and facilitated by local training providers such as Infomage Rims Group (IRG).

The dataset comprised approximately 500 learners per country per year, totalling around 4,500 participants across three programme phases (2021–2023). A purposive sampling strategy was applied, including only those learners who had completed the courses and provided usable responses to structured Likert scale questionnaires. These questionnaires captured learner perceptions across six domains (LQ1–LQ6), covering participation, technology access, language accessibility, time investment, geographical context, and prior experience.

Secondary survey data were analysed using Welch's one-way ANOVA, which is more robust to violations of the normality assumption, as confirmed by Shapiro–Wilk tests. Where statistically significant differences were found, Games–Howell post hoc tests were used to identify which groups (countries) differed from one another.

The analysis was guided by the following hypotheses:

- **H_1:** There are statistically significant differences in learner perceptions across countries (South Africa, Kenya, and Nigeria).
- **H_0:** There are no statistically significant differences in learner perceptions across countries.

This approach allowed for a systematic comparison of learner experiences across multiple contexts, providing evidence to inform the development of a contextualised framework for e-learning in African settings.

4.0 FINDINGS

To assess differences in learner perceptions across South Africa, Nigeria, and Kenya, six constructs were examined:

1. Participation Impact (LQ1)
2. Technology Tools Use (LQ2)
3. Multilingual Availability (LQ3)
4. Time Investment (LQ4)
5. Past Learning Experiences (LQ5)
6. Geographical Location Influence (LQ6)

4.1 Assumption Checks

Before conducting inferential tests, the assumption of normality was assessed using the Shapiro–Wilk test. For all three years (2021–2023), all constructs violated the assumption of normality, with W values ranging from 0.655 to 0.854 ($p < .001$ across all measures). Additionally, sample sizes and variances differed across countries. Given these violations, Welch's One-Way ANOVA was selected, as it is robust to non-normal distributions and unequal variances. When Welch's ANOVA indicated significant differences, Games–Howell post hoc tests were conducted to identify which countries differed.

Table 1: Welch's One-way ANOVA Analysis and Games-Howell Post-hoc esults

Year	Construct	Welch's F (df1, df2)	p	R	Post-Hoc Significant Comparisons
2021	LQ1	3.33 (2,293)	0.037	Yes	Kenya > Nigeria (p = 0.028)
	LQ2	0.129	0.879	No	—
	LQ3	0.542	0.582	No	—
	LQ4	0.434	0.649	No	—
	LQ5	0.833	0.436	No	—
	LQ6	1.251	0.288	No	—
2022	LQ1	1.796 (2,211)	0.169	No	—
	LQ2	1.597	0.205	No	—
	LQ3	0.046	0.955	No	—
	LQ4	1.364	0.258	No	—
	LQ5	0.028	0.973	No	—
	LQ6	2.033	0.134	No	—
2023	LQ1	1.638 (2,46.1)	0.206	No	—
	LQ2	1.223	0.304	No	—
	LQ3	0.278	0.758	No	—
	LQ4	1.552	0.223	No	—
	LQ5	5.383	0.008	Yes	South Africa > Kenya (p = 0.007)
	LQ6	2.406	0.102	No	—

4.3 Narrative Findings

- 2021: Only Participation Impact (LQ1) showed significant differences across countries. Post hoc analysis revealed that learners in Kenya rated participation impact higher than learners in Nigeria (p = 0.028). No significant differences were found for technology use, language, time, experience, or geographical context.

- 2022: No statistically significant differences were observed across any of the six constructs, suggesting relatively consistent learner perceptions in this programme year.
- 2023: Only Past Learning Experiences (LQ5) produced a significant effect. Learners in South Africa reported more positive past learning experiences compared to learners in Kenya ($p = 0.007$). No other constructs differed significantly between countries.

4.4 Summary of Key Findings

Across the three programme years, country-level differences were limited. Out of 18 possible construct–year comparisons, only two significant differences emerged:

1. Kenya > Nigeria for participation impact (2021).
2. South Africa > Kenya for past learning experiences (2023).

This suggests that while learners generally reported similar experiences regardless of national context, participation and prior experience may be shaped by country-specific factors. These findings indicate the importance of considering contextual learning histories and participation dynamics when designing future e-learning interventions.

4.5 Theoretical Interpretation of Findings

The observed patterns in learner experiences can be interpreted through constructivist and andragogical frameworks (Knowles, 1984; Merriam & Bierema, 2014). Across most constructs, learner experiences were broadly consistent, suggesting that participants in Kenya, Nigeria, and South Africa were able to actively construct knowledge and engage in self-directed learning despite contextual constraints, consistent with constructivist principles that emphasize knowledge building through interaction with content and environment (Fosnot, 2013; Daniels et al., 2021).

The higher participation impact reported by Kenyan learners in 2021 can be viewed through a constructivist lens, reflecting how learners adapted to challenges such as limited connectivity or platform familiarity by forming peer networks, engaging collaboratively, and applying problem-solving strategies. This aligns with the literature highlighting that African learners often innovate to overcome digital and infrastructural barriers (Mpungose, 2020a; Adeleke, 2020). Similarly, the more positive past learning experiences among South African learners in 2023 may reflect the influence of andragogical principles, where prior exposure to structured digital learning and self-directed engagement enhances learner confidence and perception of programme value (Knowles, 1984; Drew, 2023).

These interpretations underscore that the six constructs participation, use of technology tools, language accessibility, time investment, past learning experiences, and geographical context not only capture learner perceptions quantitatively but are also grounded in established learning theory. The findings demonstrate that constructivism and andragogy provide a useful lens for understanding both the commonalities across contexts and the subtle, context-specific variations in how learners engage with e-learning programmes in low-resource African settings.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study examined learner perceptions across South Africa, Kenya, and Nigeria within the Google–IYF soft skills program, focusing on six constructs: participation, technology usage,

language accessibility, time investment, past learning experiences, and geographical context. Normality checks confirmed that the data did not meet parametric assumptions, leading to the application of Welch's ANOVA and Games–Howell post hoc tests. The findings revealed few statistically significant differences across countries. In 2021, Kenyan learners reported a higher participation impact compared to Nigerian learners, while in 2023, South African learners reported stronger past learning experiences than their Kenyan counterparts. Across all other constructs and years, no meaningful differences were detected, indicating that learners generally shared similar experiences regardless of country.

These results suggest that while African learners face common challenges and opportunities in online education, specific contextual factors such as prior exposure to digital learning and country-level engagement dynamics still influence perceptions and outcomes. The study contributes to the literature by highlighting that e-learning program design in Africa should focus on both shared regional needs (e.g., digital access, language inclusivity) and country-specific nuances (e.g., learning histories, motivational drivers). By doing so, the proposed framework (Figure 2) underscores the need for responsive and adaptable e-learning systems that move beyond simple content delivery to consider learners lived realities. This approach strengthens the potential of non-accredited soft skills training to provide equitable, high-impact opportunities for youth across diverse African contexts.

5.2 Recommendations

Based on the study's findings, several recommendations can be made to strengthen the effectiveness and inclusivity of e-learning programs in African contexts, with clear guidance on the stakeholders responsible for implementation.

1. Strengthen learner participation: The study highlighted participation as a critical factor for learner success, with Kenyan learners reporting significantly higher participation impacts than their Nigerian peers in 2021. Program designers should prioritize active engagement through peer-to-peer collaboration, mentorship, interactive multimedia, and gamification. Additionally, funders can support initiatives that provide incentives for participation, while policymakers can create frameworks that encourage inclusive and interactive online learning environments. Building a sense of community in online platforms enhances both retention and performance.
2. Leverage past learning experiences: South African learners in 2023 benefited more from prior e-learning exposure than their Kenyan peers. Programme designers should incorporate reflection tasks, applied projects, and portfolio-based assessments to help learners connect prior skills to new material. Funders can support resources for these activities, while policymakers can encourage accreditation or recognition of prior learning to validate and motivate learners.
3. Maintain language accessibility as a design priority: Although not statistically significant in this dataset, prior research underscores language barriers as a major impediment. Programme designers should offer multilingual content and localized examples to improve comprehension and inclusivity. Funders can allocate resources for translation and adaptation, while policymakers can support regulatory frameworks that promote culturally and linguistically accessible digital content.
4. Address digital and geographic inequities: Learners in rural or under-resourced areas face unstable connectivity, high data costs, and limited device access. Programme designers should optimize platforms for mobile devices, low-bandwidth use, and offline access. Funders can provide subsidies for devices or data costs, and

policymakers should invest in digital infrastructure and ensure equitable access to technology across regions.

5. Support effective time management: Time management remains a known enabler of learning success. Programme designers can offer structured learning pathways, scheduling tools, and guidance on setting achievable milestones. Funders can support learning aids or apps that help learners organize their time, and policymakers can integrate digital learning skills into broader educational policy initiatives to reinforce consistent study habits.

Taken together, these recommendations highlight that participation and prior learning experiences emerged as the strongest performance drivers, while other dimensions language, geography, and time remain essential design considerations supported by existing literature. A holistic framework (see Figure 2) is therefore proposed to guide future e-learning initiatives, ensuring that programs are both evidence-informed and contextually grounded for African learners.

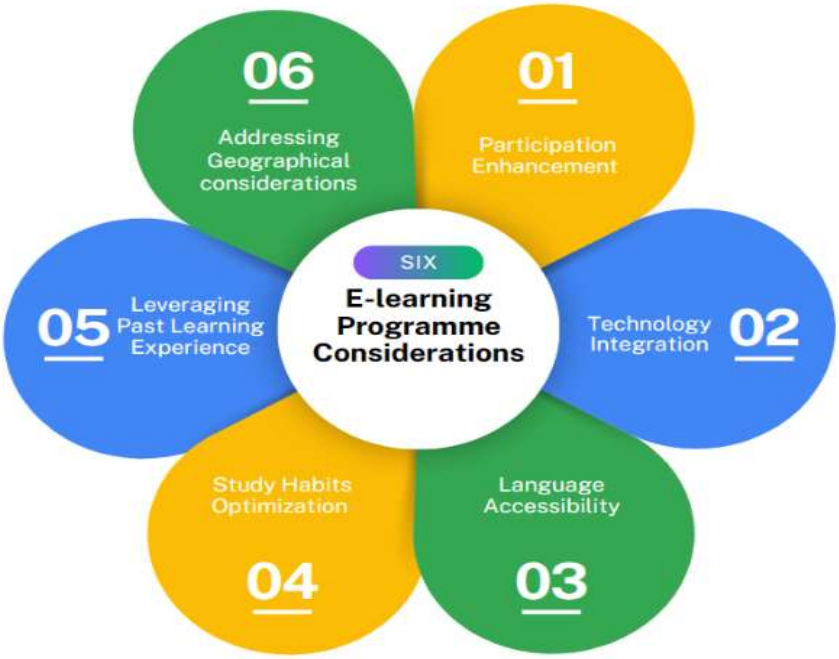

Figure 2: Visualization of recommendations – suggestive model; Researcher (2025)

Acknowledgments and Conflicts of Interest Declaration

Acknowledgments

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Conflicts of Interest Declaration

The author declares that there are no conflicts of interest related to this research. This study was conducted objectively and independently, with no financial or personal relationships that could have influenced the outcomes or interpretations of the findings.

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