EMPOWERING NIGERIAN YOUTH THROUGH DIGITAL SOCIAL INNOVATION: EXAMINING THE IMPACT OF THE YOUTH AGENCY MARKETPLACE ON SELF-EFFICACY, SKILLS DEVELOPMENT, AND SOCIAL IMPACT

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Abstract

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Nigeria has a significant youth demographic, with over 60% of the population being under the age of 25. This group encounters persistent unemployment, skills deficiencies, and restricted opportunities for civic engagement. Digital social innovation platforms offer potential scalable solutions; however, there is a lack of rigorous evaluations conducted on these platforms. This study evaluates the Youth Agency Marketplace (YOMA), a platform incubated by UNICEF that integrates micro-learning, tokenised incentives, and community projects.

It employs Zimmerman's three-dimensional empowerment theory to investigate the extent to which participation in YOMA predicts self-efficacy, skills development, and social impact among Nigerian youth. Bandura's Social Cognitive Theory, which explains the mechanisms linking platform engagement to self-efficacy, further supports the study's empowerment lens.

The researcher used a quantitative, cross-sectional survey design. A sample of 399 active users, aged 18–35, was randomly selected from YOMA's database, representing Nigeria's six geopolitical zones. The researcher used a digital survey to collect demographic

data and validate the Likert-scale items for each empowerment construct. The data underwent screening for normality and were analysed using SmartPLS structural equation modelling (SEM), which was chosen because of its robustness in handling latent variables and accommodating modest sample sizes.

The model fit demonstrated satisfactory performance, with a standardised Root Mean Square Residual (SRMR) value of 0.062. The researcher found that YOMA engagement was a significant predictor of SE ($\beta = 0.703$, $t = 21.593$, $p < .001$), SD ($\beta = 0.608$, $t = 12.261$, $p < .001$), and SI ($\beta = 0.651$, $t = 22.816$, $p < .001$). It accounted for 49%, 36%, and 42% of the variance in these outcomes, respectively. Diagnostics for multicollinearity, indicated by a Variance Inflation Factor (VIF) of less than 3, along with reliability indices showing a Cronbach's alpha (α) greater than 0.85 and a Heterotrait-Monotrait ratio (HTMT) of less than 0.90, validated the measurement integrity.

The results indicate that empowerment theory has been effectively applied within the digital domain, showing that a specifically designed platform can replicate and enhance traditional mechanisms for building agency. YOMA is positioned as a scalable complement to Nigeria’s Digital Economy Strategy, providing policymakers and industry with an evidence-based framework for youth programmes. The results highlight that platform designers should prioritise a balanced incentive mix, the clear visibility of microcredentials, and robust mentor networks as high-leverage features.

The cross-sectional design of the study and its reliance on self-reported engagement pose limitations that make the causal inference tentative. Future research should use longitudinal designs and stratified random sampling and incorporate objective performance data while also examining mediating pathways (e.g., skills → employment). The current evidence indicates that digital social-innovation ecosystems such as YOMA can significantly

improve the confidence, capabilities, and community contributions of Nigerian youths within a cohesive integrated environment.

Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgement, the work presented is entirely my own.

AI Acknowledgment

I acknowledge my use of ChatGPT (https://chat.openai.com/) to rewrite sentences that appear to be written in passive voice to active voice for all chapters of my thesis. This action was completed on 30.06.2025.

The prompts used included: Rewrite the text “ ” in active voice.

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Dedication

I dedicate this work to the amazing young people of Nigeria. Your strength, creativity, and never-ending drive inspire every page of this thesis. To the future leaders who work with YOMA: may your travels be full of chances, progress, and the faith to make a better future for yourself and your community.

I am deeply grateful to my wife, whose unwavering love, support, and patience have made this possible. During the trying times, your faith in me has been my most significant source of strength.

I am grateful to my mother for instilling in me the values of curiosity, hard work, and helping others. Your efforts and everlasting support in my ambitions have helped me reach this point.

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To my current line manager, Cindy McWhorter, whose support and encouragement kept YOMA's promise at the front of everyone's mind, your leadership has been invaluable. I want to thank the whole UNICEF YOMA team for your dedication, enthusiasm, and hard work to help young people become more powerful. Salma Muhammed and Joannes Paulus Yimbesalu worked tirelessly on YOMA and transformed our ideas into reality.

To my coworkers and friends who gave me advice, cheered me on, and told me to take breaks to celebrate my achievements along the way, your support kept me going.

Lastly, this study is yours since 399 YOMA members were kind enough to share their thoughts and experiences. Your voices shape the suggestions and consequences of this research, and I hope it helps you create new methods for young people to grow and learn.

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List of Abbreviations

Abbreviation	Full Term
SI	Social Innovation
YOMA	Youth Agency Marketplace
IT	Information Technology
UNICEF	United Nations International Children's Emergency Fund
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNDP	United Nations Development Programme
SDG	Sustainable Development Goals
OECD	Organisation for Economic Co-operation and Development
SEM	Structural Equation Modelling
EFA	Exploratory Factor Analysis
KMO	Kaiser–Meyer–Olkin Measure of Sampling Adequacy
SPSS	Statistical Package for the Social Sciences
PLS	Partial Least Squares (as in SmartPLS software)
UREC	University Research Ethics Committee

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CHAPTER 1: INTRODUCTION

Background of Study

Nigeria is currently experiencing a significant demographic shift, with over 64 million young people aged between 15 and 35 years. However, as of 2023, the unemployment rate among this youth demographic stands at 42.5% (NBS, 2023). The figure surpasses the Sub-Saharan African average of 23%, posing a risk of transforming the country's demographic dividend into a liability. Conventional active-labour programmes, including stipend schemes, physical skills centres, and intermittent grant competitions, have not adequately addressed the annual influx of 4.5 million entrants into the labour market .

Currently, Nigeria's digital ecosystem exhibits an uneven expansion: urban regions benefit from over 70% 4G coverage, whereas rural areas continue to face inconsistent service and data expenses that account for more than 3% of monthly income (GSMA, 2024). Entry-level smartphones, with a price under ₦100,000 (approximately $65), are inaccessible for numerous low-income households. In this context, the development of scalable and cost-effective digital solutions that enhance employability and promote civic responsibility has emerged as both an economic and social necessity (Onwuegbuchi & Okafor, 2020).

The Youth Agency Marketplace (YOMA), initiated by UNICEF and Generation Unlimited in 2020, aims to address the need for decent work and livelihood for Nigerian youths. YOMA serves as a blockchain-enabled platform that allows young Nigerians to engage in learning through micro-modules, earn ZLTO tokens by completing tasks, and participate in community challenges, all within a mobile-friendly ecosystem. Each completed learning unit and redeemed token is

recorded on-chain in real-time, resulting in a portable and tamper-proof digital CV. The minimum viable product (MVP) usage analytics indicate over 259,000 registrations and 8 million ZLTO issued (see Figure 10). However, there has been no peer-reviewed study that has rigorously assessed whether these digital interactions result in quantifiable empowerment outcomes on a national scale in Nigeria.

This study integrates Bandura's Social Cognitive Theory (SCT) with Zimmerman's empowerment framework to theorise how a platform may generate such outcomes. SCT suggests that self-efficacy is derived from mastery experiences, vicarious learning, social persuasion, and physiological feedback, all of which interact with a triad of people, behaviours, and environments (Bandura, 1997). Zimmerman expands this concept into a three-dimensional model of empowerment, encompassing intrapersonal elements (self-efficacy), interactional components (skills development), and behavioural aspects (social impact) (Zimmerman, 2018).

YOMA digitises each source of SCT efficacy: micro-learning streaks facilitate rapid mastery, public badge wallets provide vicarious role models, peer forums enable social persuasion, and gamified feedback loops adjust emotional states. These mechanisms are designed to facilitate user progression along Zimmerman's empowerment continuum, starting with confidence, followed by competence, and culminating in community contribution. However, empirical confirmation within the sparse internet and national context has not been established.

The study employs a weighted, cross-sectional survey design as its methodological approach. A simple random draw of 399 active YOMA users, stratified post-hoc by geopolitical zone and gender, ensures comprehensive coverage across Nigeria's six zones while addressing the common issues of male and urban over-representation found in voluntary platforms. The survey

items replicate validated scales for the dependent variables in Nigeria, which include self-efficacy, skills development, and social impact, as well as the independent variable of YOMA engagement.

The data is input into SmartPLS for SEM, selected for its ability to estimate latent-variable paths using small sample sizes and non-normally distributed indicators. The weighted SEM produces three significant, positive path coefficients (β = .70, .61, .65), indicating that digital mastery cues have the potential to effectively scale Zimmerman's empowerment sequence on a national level.

The study's positioning at the intersection of labour economics, behavioural psychology, and digital innovation results in two significant scholarly contributions. The initial step involves extending Zimmerman's model from localised, in-person environments to a national, platform-mediated framework. This adaptation illustrates that empowerment constructs continue to hold validity when assessed using blockchain-verified traces.

Secondly, it evaluates the efficacy mechanisms of SCT within a developing country's digital ecosystem, demonstrating that mastery, modelling, and social persuasion persist despite limitations in internet access and challenges related to device affordability. The results provide actionable evidence for policy and industry implementation: introducing YOMA badges in the National Youth Service Corps (NYSC) service and National Electronic Labour Exchange (NELEX) recruitment filters has the potential to convert statistical effect sizes into tangible labour-market benefits, while exempting YOMA online traffic from charges would enhance accessibility in areas with limited data resources.

The convergence of Nigeria's labour-market crisis, the uneven digital divide, and the potential of a blockchain-based youth platform describes the problem space and establishes the

research canvas (Shola, Adewale, Oke, & Samuel, 2021). This study integrates Zimmerman's empowerment dimensions with Bandura's efficacy engine and evaluates them through large-scale SEM, providing a structured, theory-based framework for digital youth empowerment in Nigeria.

The Concept of Youth Empowerment

Youth empowerment within the Nigerian context involves facilitating the belief in personal abilities among young individuals, equipping them with skills relevant to the market, and enabling the application of these competencies in ways that yield benefits for themselves and their communities (Ayub & Gbaa, 2020). The framework consists of three interrelated components: (i) self-confidence, which is the belief in one's ability to influence personal and societal results; (ii) competence, encompassing the practical and cognitive skills necessary for accessing quality employment; and (iii) civic agency, defined as the readiness and capacity to address community challenges.

Effective empowerment extends beyond temporary stipends or isolated training courses; it integrates confidence, skills, and social contribution in a continuous cycle. Digital platforms, exemplified by the YOMA, present significant potential by providing access to learning, earning, and engagement opportunities with a simple screen tap. This capability has the potential to benefit millions of young Nigerians who are typically marginalised in formal programs. The literature review in chapter 2 contains a comprehensive theoretical discussion that includes Zimmerman's empowerment dimensions and Bandura's efficacy mechanisms.

The Rise of Digital Innovation in Nigeria

In the past ten years, Nigeria has established itself as the largest digital market in West Africa, driven by significant advancements in connectivity and access to devices. The Nigerian Communications Commission (NCC) indicates that 4G coverage has surpassed 70% in urban centres, including Lagos, Abuja, and Port Harcourt (NCC, 2022). Additionally, recent 4G rollouts have increased national broadband penetration to 48% as of Q1-2025, a significant rise from 22% in 2018. The Federal Government's Broadband Plan (2020-2025) aims for a 70% penetration rate and a target data cost of sub-US $0.20/GB by the end of 2025 (GSMA, 2024).

Recent spectrum auctions have resulted in a decrease in average data prices to ₦850/GB, indicating a downward trend, although prices remain relatively high. Entry-level Android smartphones are available in the price range of ₦70,000 to ₦150,000 (approximately US $50–$100).

However, recent socio-economic shifts have resulted in a significant increase in domestic digital services. The volume of e-payments experienced a 44% rise in 2024, and ventures in ed-tech and health-tech secured over US $500 million in venture funding (Azu, Hussaini, Chima, & Abdullahi, 2025). In this context, YOMA leverages nationwide mobile access and the growing fintech infrastructure in Nigeria to deliver microlearning, tokenised rewards, and civic challenges on a large scale. It takes advantage of these infrastructure improvements to address ongoing issues related to youth employment and skills shortages.

Social Innovation and Youth Agency

Social innovation signifies new approaches that address social issues with greater efficacy or reduced expenses compared to current methodologies (Fahrudi, 2020). YOMA aligns with this definition by integrating three essential components, such as learning, earning, and civic engagement, into a unified, blockchain-secured mobile platform. This approach not only enhances young people's development but also ensures scalability and verifiability, which traditional programmes fail to achieve.

In a country with few rural training centres, microlearning modules offer marketable skills without requiring physical classrooms. Secondly, tokenised rewards provide immediate economic value for skill acquisition, circumventing the delayed benefits that frequently discourage young job-seekers.

Third, the platform's challenge marketplace helps turn new skills into community projects, making sure that personal successes also help the public. YOMA establishes itself as a practical engine of social innovation by integrating these elements on devices commonly owned by urban youth and an increasing number of rural youths. This approach directly addresses Nigeria's need to transform digital adoption into labour-market opportunities and enhance civic vitality.

Research Questions

Research Question One: To what extent does engagement in YOMA predict self-efficacy among Nigerian youths?

Research Question Two: To what extent does engagement with YOMA predict skills development among Nigerian youths?

Research Question Three: To what extent does engagement with YOMA predict social impact outcomes among Nigerian youths?

Research Hypothesis

Table 1

Null and Alternative Hypotheses Aligned to the Three Research Questions

Pair	Null Hypothesis (H_0)	Alternative Hypothesis (H_1)
H_{01} / H_{11}	**H_{01}.** YOMA engagement does **not** significantly predict self-efficacy among Nigerian youth.	**H_{11}.** YOMA engagement **significantly** predicts self-efficacy among Nigerian youth.
H_{02} / H_{12}	**H_{02}.** YOMA engagement does **not** significantly predict practical-and-cognitive skills development among Nigerian youth.	**H_{12}.** YOMA engagement **significantly** predicts practical-and-cognitive skills development among Nigerian youth.
H_{03} / H_{13}	**H_{03}.** YOMA engagement does **not** significantly predict participation in social-impact activities among Nigerian youth.	**H_{13}.** YOMA engagement **significantly** predicts participation in social-impact activities among Nigerian youth.

Note. Each row presents a mutually exclusive hypothesis pair for one research question. Null hypotheses (H_0) suggest no predictive relationship between YOMA engagement and the specified empowerment outcome, whereas alternative hypotheses (H_1) suggest a significant positive relationship.

Statement of the Problem

Nigeria has a predominantly young population, with more than 50% under the age of 35. However, the labour market faces challenges translating this demographic potential into effective employment opportunities. The NBS indicates that youth unemployment stands at 42.5% in 2023, which is approximately twice the Sub-Saharan African average of 23% (NBS, 2023).

Annually, approximately 4.5 million youths completing their education seek employment; the majority face a crowded informal sector or unpaid internship opportunities that contribute minimally to the development of marketable skills (Akinbobola & Adeleke, 2021).

Conventional government-led programmes, including microcredit schemes, temporary stipends like N-Power, and intermittent entrepreneurial bootcamps, serve only a small population that requires assistance (Ayub & Gbaa, 2020). These initiatives incur costs amounting to tens of billions of naira for the treasury and frequently lose effectiveness once funding cycles conclude. The disparity between the size of the youth population and the extent of current interventions has resulted in an expanding opportunity gap, which threatens to transform Nigeria's demographic dividend into a potential liability.

Digital connectivity is expanding; however, this growth is not uniform across all regions. Urban centres like Lagos and Abuja have over 70% 4G coverage, whereas numerous rural areas continue to depend on inconsistent 3G connectivity (GSMA, 2024). Data costs continue to be a significant financial burden, accounting for over 3% of the monthly income for low-wage earners, which exceeds the 2% affordability standard established by the United Nations (Ishaq & Ajibesin, 2022). Entry-level smartphones are priced between 30,000 and 50,000 (approximately US $20 to

$35), presenting a financial obstacle for families whose income is close to the global poverty line of US $1.90 (Adeyemi & Hassan, 2022).

In light of these constraints, Nigeria's youth allocate approximately 4.2 hours each day to online activities (Obielumani & Udechukwu, 2022). This indicates a significant interest in digital engagement, which, if effectively harnessed, has the potential to enhance skills acquisition and civic participation at a reduced cost compared to traditional classroom-based methods.

In response to this context, YOMA, a collaboration spearheaded by UNICEF and Generation Unlimited, was launched in 2020 as a mobile-compatible platform. It incorporates micro-learning modules, tokenised rewards (ZLTO), and community-service challenges within a unified blockchain-secured ecosystem.

YOMA offers three key outcomes: (i) enhancing confidence via mastery-based learning streaks; (ii) enabling growth by transforming micro-credentials into income opportunities; and (iii) contributing to society through digitally coordinated civic projects. Usage analytics indicate initial traction, with 259,000 users and well over eight million tokens issued. However, there is a lack of rigorous peer-reviewed studies to assess whether these digital interactions result in quantifiable empowerment across Nigeria's six geopolitical zones.

The empirical gap arises in part due to theoretical fragmentation. Zimmerman’s empowerment framework describes three observable dimensions: intrapersonal (self-belief), interactional (skills and resource negotiation), and behavioural (civic action). However, the majority of validations are conducted in face-to-face, small-group environments. Bandura’s SCT describes the psychological sources of self-efficacy, which include mastery experiences, vicarious learning, social persuasion, and physiological feedback.

However, it seldom engages with large-scale digital environments in developing countries. As a result, researchers lack a comprehensive model that takes into account how platform-specific features, such as blockchain-verified badges or gamified feedback loops, might activate SCT mechanisms and spread through Zimmerman's empowerment dimensions on a national scale (Olubusoye, Salisu, & Olofin, 2023).

Previous evaluations of youth programmes in Nigeria exhibit several methodological shortcomings: the use of convenience samples restricts generalisability; basic pre/post designs fail to distinguish between maturation and treatment effects; and outcomes depend on self-reports lacking behavioural verification (Ayub & Gbaa, 2020).

Limited research uses SEM to estimate latent constructs or account for measurement errors, and there is a lack of studies that integrate subjective survey data with immutable on-chain behaviour logs. As a result, policymakers and donors do not possess reliable evidence regarding the return on investment for digital platforms compared to expensive, stipend-based programs.

The present study examines these gaps using a weighted, cross-sectional SEM approach involving 399 randomly selected YOMA users. The sample was stratified post-hoc by gender and geopolitical zone to mitigate digital-access bias. This approach aims to achieve the three interconnected research objectives based on SCT and Zimmerman's framework.

The study proposes a causal cascade by embedding these objectives within an integrated SCT–Zimmerman framework: digital mastery cues enhance self-efficacy, self-efficacy promotes sustained learning, and accumulated skills facilitate civic contribution. Evaluating this cascade at scale will determine if platform-mediated mastery experiences can address infrastructural

shortcomings and serve as a cost-effective supplement or substitute for conventional training programmes.

The problem is thus: Nigeria's youth are experiencing a significant employment shortfall; digital platforms present scalable yet unverified solutions; and current theoretical frameworks have not been modified to account for or assess empowerment within national, blockchain-enabled environments. In the absence of robust evidence, policymakers and industry face the potential of either insufficient funding for a transformative tool or excessive expenditure on unverified technology.

This study addresses the existing evidence gaps by offering statistical details about how YOMA engagement predicts youth empowerment outcomes. It presents a theoretically informed and data-supported foundation for future investments in digital education.

Purpose of Study and Aim

To avoid a sustained demographic crisis, the Nigerian labour market must transform a rapidly expanding, digitally connected youth population into effective human capital. Current government programmes offer stipends or brief boot camps; however, they seldom yield lasting confidence, transferable skills, or significant community impact. Additionally, these programmes have higher costs per beneficiary compared to emerging digital alternatives.

YOMA serves as an alternative solution: a blockchain-enabled platform designed to reward micro-learning through tokenised incentives while directing users towards social-impact projects. Policymakers, businesses, donors, and platform creators currently lack strong proof that online interactions lead to measurable empowerment results across Nigeria's six regions.

Purpose of the study

This research aims to address the existing evidence gap by combining Bandura's SCT with Zimmerman's empowerment framework into a cohesive empirical model. This model will evaluate the extent to which YOMA participation influences intrapersonal, interactional, and behavioural empowerment among Nigerian youths. SCT describes the psychological mechanisms (mastery, vicarious learning, social persuasion, and physiological cues) that YOMA implements via micro-learning streaks, public badge wallets, peer networks, and gamified feedback loops. Zimmerman describes the observable outcomes of empowerment, which include self-efficacy, skills, and social action. The study integrates these theories to explain both the process and the product of digital empowerment, providing a comprehensive analytical framework.

Research aim

The aim is to assess the predictive capability of YOMA engagement, the composite count of completed micro-learning modules, and ZLTO token redemptions for self-efficacy, skill development, and social impact participation among Nigerian youth. To accomplish this objective, a simple random sample of 399 active YOMA users is drawn from the YOMA database. Post-hoc zone × gender weighting is applied to address digital-access bias and is analysed using SmartPLS structural-equation modelling. This design facilitates the concurrent estimation of latent constructs, path coefficients, and direct effects. It effectively addresses the methodological limitations observed in previous Nigerian studies that depended on bivariate statistics or convenience samples.

The investigation is grounded in established psychological theory, employs a nationally representative sampling frame, and uses mixed behavioural and perceptual measures. This study

generates industry-ready evidence regarding the cost-effective potential of digital platforms to promote Sustainable Development Goal 8: decent work and inclusive economic growth, specifically for Nigeria's growing youth population.

Study Objectives

Accordingly, this study pursues three interrelated objectives that operationalise Zimmerman's empowerment dimensions within a digital context.

1. First, to determine whether engagement with the Youth Agency Marketplace (YOMA) predicts self-efficacy among Nigerian youth, reflecting the intrapersonal component of empowerment.
2. Second, to evaluate the extent to which YOMA engagement predicts the acquisition of practical and cognitive skills, representing the interactional dimension of empowerment.
3. Third, to examine whether YOMA engagement is associated with participation in community or social-impact activities, capturing the behavioural expression of empowerment.

Together, these objectives translate a national policy and industry question, "*can a digital platform meaningfully empower the Nigerian youth?"* into measurable constructs that can be empirically tested using structural-equation modelling.

Significance of the Study

1. Technical and Statistical Significance: Establishing Trust in the Findings

At the most fundamental level, the credibility of any empirical study rests on the rigour of its design and the reliability of its statistical outcomes. The present research applies a weighted structural-equation model (SEM) to a nationally representative sample of 399 active YOMA users, drawn randomly and post-stratified by gender and geopolitical zone. This design overcomes the chronic limitation of convenience sampling that undermines most Nigerian youth-empowerment research. The study reports high internal consistency (Cronbach's $\alpha > 0.85$), strong convergent validity (AVE > 0.50), discriminant validity (HTMT < 0.90), and low multicollinearity (VIF < 3). The structural model achieved an excellent fit (SRMR = 0.062), confirming that the hypothesised relationships between YOMA engagement, self-efficacy, skills development, and social impact are statistically sound.

From a technical standpoint, these diagnostics confirm that the results are trustworthy, replicable, and generalisable within the Nigerian context. The significant path coefficients (β = 0.70, 0.61, 0.65; $p < 0.001$) demonstrate that digital interaction through YOMA exerts a measurable and consistent influence across all three empowerment dimensions. By maintaining statistical transparency, bootstrapping with 5,000 resamples and employing post-hoc weighting, the study sets a new empirical benchmark for research at the intersection of digital learning and youth development in emerging economies. Consequently, subsequent scholars and practitioners can rely on these results as a validated quantitative baseline for evaluating digital-empowerment platforms in similar contexts.

2. Research and Theoretical Significance: Advancing Knowledge in Empowerment and Digital Innovation

Beyond technical soundness, this thesis advances academic understanding by forging a conceptual bridge between Bandura's Social Cognitive Theory (SCT) and Zimmerman's Empowerment Theory within a digital-platform environment. Whereas prior empowerment research has largely examined small, face-to-face community programmes, this study validates that the same psychological mechanisms, mastery experiences, vicarious learning, social persuasion, and physiological feedback can operate effectively through digital affordances such as gamified micro-learning, peer mentoring, and blockchain-verified credentials.

This theoretical synthesis marks a major step forward for the field. It reframes empowerment not as a static community condition but as a dynamic, data-traceable process that can be activated, measured, and scaled within digital ecosystems. The model demonstrates that self-efficacy, skills development, and social impact are interlinked pathways rather than isolated outcomes, thereby enriching empowerment theory with a processual and technological dimension. In doing so, the study extends Zimmerman's framework from psychosocial contexts to platform-mediated agency, confirming that empowerment constructs retain validity when assessed through digital-behavioural evidence.

Moreover, the research contributes to measurement science by applying SmartPLS SEM to a youth-empowerment construct, an approach rarely seen in development studies. This methodological innovation introduces quantitative precision to a field long dominated by qualitative case descriptions. The study therefore not only validates theoretical constructs but also elevates methodological standards, encouraging future scholars to adopt mixed digital-behavioural metrics and robust latent-variable modelling in empowerment research.

3. Practical, Commercial, and Economic Significance: Creating Scalable Models for Youth Employment and Innovation

Translating research into action, the findings hold substantial economic and commercial relevance. Nigeria invests billions of naira annually in short-term youth programmes that deliver minimal sustained outcomes. This thesis provides empirical evidence that digital social-innovation platforms like YOMA can achieve comparable or greater empowerment effects at a fraction of the cost. By demonstrating statistically significant links between platform engagement and empowerment outcomes, the research offers policymakers and industry leaders a validated business case for reallocating resources from traditional stipends to scalable digital ecosystems.

For the private sector, the findings reveal new commercial opportunities in the emerging market of impact-driven EdTech and verification services. Blockchain-secured micro-credentials, such as YOMA's badges and tokenised rewards, can serve as verifiable signals of youth competence for employers, recruitment platforms, and vocational institutions. Businesses can integrate these digital credentials into their talent-acquisition systems, reducing recruitment costs and widening access to skilled youth beyond metropolitan centres. Telecom companies, payment providers, and social-impact investors can collaborate to monetise the token economy while advancing inclusive growth.

For programme implementers such as UNICEF, Generation Unlimited, and local startups, the study's validated empowerment model functions as a performance-monitoring tool that quantifies learning, earning, and civic outcomes simultaneously. This capacity transforms anecdotal "success stories" into measurable impact metrics, improving accountability to donors and opening doors for results-based financing in youth-empowerment projects.

4. Societal and Policy Significance: Transforming National Approaches to Youth Empowerment

At the societal level, the research has the potential to reshape Nigeria's approach to human-capital development. With youth unemployment exceeding 42%, evidence-based interventions are urgently required to convert the country's demographic bulge into productive capital. The study provides policymakers with empirical clarity that digital participation when structured through evidence-based design can build confidence, skills, and civic engagement at national scale.

By aligning with Sustainable Development Goals 8 and 9, the findings support policy transitions from grant-dependent programmes to self-sustaining digital ecosystems that reward learning and community service. The results justify integrating YOMA's micro-credential system into national institutions such as the National Youth Service Corps (NYSC) and the National Electronic Labour Exchange (NELEX). Such integration could institutionalise verified digital badges as official indicators of employability, thereby modernising Nigeria's labour-market infrastructure.

Furthermore, the research offers a governance innovation pathway: because YOMA transactions are blockchain-verified, programme accountability and transparency increase, reducing leakages and corruption associated with manual stipend schemes. At a broader level, embedding YOMA-like platforms in educational and civic systems could foster a generation of youths who see technology not merely as entertainment but as an instrument for agency, collaboration, and nation-building. This represents a significant shift in the country's socio-economic narrative from dependency to empowerment, from analogue welfare to digital opportunity.

5. Global, Ethical, and Human-Capital Significance: Setting a Template for Inclusive Digital Empowerment

The final layer of significance transcends Nigeria's borders. The research contributes to global debates on digital equity, youth agency, and responsible innovation by offering one of the first large-sample empirical validations of empowerment through a blockchain-enabled platform in the Global South. It demonstrates that well-designed digital systems can replicate the motivational and social processes that drive empowerment, even in low-bandwidth, resource-constrained environments.

Ethically, the study underscores the importance of designing digital ecosystems that balance incentive structures with autonomy and privacy. By validating YOMA's transparent token economy, it encourages future developers to embed ethical safeguards, data-minimisation principles, and community co-creation into platform design. This approach transforms the discourse around digital transformation from technology deployment to human-centred empowerment architecture.

On a human-capital level, the thesis presents a replicable framework for other developing nations seeking to bridge education, employment, and civic participation. It provides empirical evidence that digital empowerment can be both equitable and economically viable, challenging the notion that high-impact innovation must be resource intensive. In this sense, the Nigerian case becomes a living laboratory for re-imagining how technology, psychology, and social policy intersect to create opportunity ecosystems across the Global South.

6. Integrative Synthesis: From Empirical Credibility to Transformative Impact

Taken together, the multiple layers of significance establish this thesis as both **methodologically rigorous and socially consequential**. Statistically, it proves that empowerment outcomes can be reliably measured within a digital context; theoretically, it expands the boundaries of empowerment and learning science; economically, it identifies scalable models for impact-oriented entrepreneurship; socially, it informs national policy reform; and globally, it defines a replicable blueprint for equitable digital innovation.

In bridging these domains, the study transforms YOMA from a promising pilot into a **validated instrument of digital social change**. It provides the academic community with a replicable quantitative framework, the private sector with verifiable incentive mechanisms, and policymakers with actionable evidence for systemic reform. The cumulative effect is a reframing of digital social innovation from isolated experiments into a measurable, theory-driven engine for youth empowerment.

Ultimately, the significance of this thesis lies not merely in what it measures, but in what it **makes possible**: a world in which young people in developing economies can convert online engagement into tangible confidence, competencies, and community contributions proving that empowerment in the digital age is not accidental but architected, evidence-based, and scalable.

Scope and Delimitations

Geography and demographics: The scope of this inquiry is limited to the Federal Republic of Nigeria, focusing specifically on individuals aged 18 to 35 who engaged with the YOMA during the COVID-19 lockdown in 2020. A simple random sample of 399 users was drawn from YOMA's verified registry. The data was then weighted by geopolitical zone and gender to reflect national variation in digital access. This approach excludes minors and users outside Nigeria, as their socioeconomic conditions differ significantly from the context of the study.

Definition of conceptual boundaries: The analysis centres on three latent constructs: self-efficacy, skills development, and social-impact participation. Bandura's SCT elucidates these constructs, which correspond to Zimmermann's intrapersonal, interactional, and behavioural dimensions. Activities on other platforms, such as forum posts and passive browsing, are excluded from our measurement framework due to the absence of validated connections to empowerment outcomes.

Temporal scope: All variables are captured in a cross-sectional manner; user tracking does not occur prior to platform entry or beyond the six-month period. As a result, the study assesses predictive relationships rather than causal ones and is unable to observe the long-term decay or amplification of effects.

Methodological delimitations: SmartPLS SEM is used to manage modest sample sizes and non-normal data. The current design does not incorporate qualitative interviews, longitudinal panels, or randomised experiments. There is no triangulation with employer records, income statements, or offline civic registers. Variables including household income, internet-bundle cost,

and parental education, while potentially influential, are also excluded, thereby maintaining model parsimony.

Theoretical delimitations: The scope is intentionally confined to SCT and Zimmerman's empowerment framework. Alternative lenses, such as the Capability Approach, Self-Determination Theory, and Technology Acceptance Models, are recognised in Chapter 2; however, they are not integrated empirically to prevent theoretical dilution.

Exclusions: Youths who do not use YOMA, minors under the age of 18, and Nigerians residing outside the country are excluded. Additionally, other digital skills platforms and programmes, such as N-Power, are also excluded due to the non-comparability of their engagement metrics and token systems. Macroeconomic variables, including inflation, exchange rates, and Covid-19 shocks, fall outside the defined scope.

The established boundaries facilitate the testing of a focused set of theory-driven hypotheses under stringent, nationally representative conditions. They also describe specific areas: longitudinal durability, income verification, and cross-platform comparison for future research endeavours.

Conceptual and Theoretical Framework Overview

Zimmerman's empowerment theory serves as the foundation for this study, offering a multifaceted framework for conceptualising, measuring, and analysing youth's developmental outcomes. The study aligns this approach both theoretically and strategically, particularly in the areas of human capital development, platform strategy, and social innovation performance monitoring. This study uses empowerment theory to assess the digital platform YOMA, therefore

enhancing theoretical understanding of the practical design and strategic use of scalable, technology-driven solutions aimed at youth in developing economies.

Empowerment Theory, as articulated by Marc Zimmerman, is based on three principal dimensions: intrapersonal, interactional, and behavioural. This study focuses on these three analytically manageable dimensions of empowerment theory. Self-efficacy denotes the platform's capacity to enhance user confidence and autonomy, while skills development pertains to the development of competencies pertinent to employment and entrepreneurial achievement. Social impact engagement acts as an indicator of civic involvement, illustrating the role of digital platforms in enhancing societal participation, an evolving measure within platform-centric business models with social objectives (Zimmerman, et al., 2018).

SCT, developed by Albert Bandura in 1986, asserts that individuals acquire knowledge and modify their behaviours through an interactive process involving personal beliefs, actions, and environmental stimuli (Bandura, 1997). The fundamental principles encompass self-efficacy, which refers to the belief in one's ability to perform actions necessary for handling future scenarios; observational learning, where individuals imitate behaviours they observe; and reciprocal determinism, highlighting the interdependent relationship among the individual, behaviour, and environment. Meta-analyses conducted in Psychological Review provide confirmation that self-efficacy serves as a strong predictor of motivational and performance outcomes across various domains.

Zimmerman’s empowerment theory outlines the dimensions of youth agency, which include intrapersonal (self-belief), interactional (resource negotiation), and behavioural (civic action). In contrast, SCT provides an explanation of the psychological processes that contribute to

the development of these dimensions. Zimmerman describes the characteristics of empowerment, while SCT provides a framework for understanding the process of empowerment, especially as it occurs through digital platforms. Thus, Bandura's SCT supplements Zimmerman's framework by detailing how digital platforms cultivate agency through observational learning and mastery experiences (Bandura, 1997).

This study's conceptual framework positions YOMA as a strategic platform intervention that links young users to curated learning, earning, and career opportunities via blockchain-enabled profiles and gamified experiences. Using business model logic, the researcher characterises YOMA as a multi-sided value platform that not only provides digital services but also stimulates latent potential in marginalised youth demographics. The researcher, therefore, regards the assessed empowerment outcomes in this study as performance metrics of YOMA's value proposition.

The conceptual model emphasises the proposed relationship between platform participation (an independent variable) and the three empowerment outcomes (dependent variables): self-efficacy, skill development, and social impact. The researcher empirically tests these correlations using SEM, which measures latent components and assesses causal pathways within the model.

This framework has several benefits:

- The uptake of YOMA corresponds with early adopters in diffusion models, thereby facilitating the growth of self-efficacy.

- It facilitates evidence-based decision-making, assisting digital product teams, funders, and policymakers in evaluating intervention efficacy.
- It maintains theoretical rigour while providing business-relevant information about the efficacy and scalability of empowerment-focused platforms.

This study does not introduce mediators or moderators nor incorporate supplementary ideas unrelated to the empowerment logic. It maintains a clear, testable, and relevant theoretical framework, guaranteeing that the study stays concentrated and coherent. Overall, Zimmerman's Empowerment Theory offers a conceptual framework and a strategic evaluative perspective for this study (Ugwu, Ayogu, & Onyishi, 2025). It connects the theoretical rigour of psychological empowerment research with the practical demands of platform innovation, allowing this study to concurrently advance academic theory, managerial practice, and digital policy formulation.

Methodological Overview

A cross-sectional, explanatory design was adopted to evaluate the predictive relationship between YOMA engagement and empowerment outcomes. A simple random sample of 399 Nigerians aged 18–35 was drawn from the platform's verified user database. Post-hoc weights for gender and geopolitical zone were then applied to correct for access bias. The data collection process involved an online questionnaire that incorporated validated Likert scales to measure engagement, self-efficacy, skills development, and social impact.

Reliability and validity were evaluated using Cronbach's α, composite reliability, average variance extracted (AVE), and the heterotrait-monotrait ratio (HTMT); all constructs surpassed the .70/.50 thresholds. The weighted dataset was analysed using SmartPLS 4, a variance-based

SEM tool that is appropriate for small sample sizes and non-normally distributed indicators. Bootstrapping with 5,000 resamples yielded path coefficients, confidence intervals, and tests for indirect effects, allowing for the evaluation of the study's three hypotheses within a unified model.

Methodology for Search and Inclusion Standards

The literature study employed a systematic search technique that used academic databases, including Scopus, Web of Science, Google Scholar, JSTOR, ScienceDirect, and university-provided repositories like ProQuest. The researcher obtained supplementary grey literature and institutional reports from Nigeria, UNICEF, the World Bank, GSMA, and the Nigerian Ministry of Youth and Sports Development to guarantee pertinence to policy and practice.

The inclusion criteria focused on:

- Peer-reviewed journal papers, reports, and policy documents released from 2018 to 2024
- Empirical research concerning youth development, empowerment, digital inclusion, platform strategy, or innovation in low- and middle-income countries (LMICs)
- Literature that provides a distinct theoretical or evaluative contribution to comprehending empowerment results or digital transformation in developing situations.

The factors for exclusion comprised

- Research focused only on adult demographics, disparate geographical contexts (e.g., affluent Western settings), or theoretical philosophical discourse without empirical constructs.
- Redundant or anecdotal accounts lacking scientific rigour
- Preference was given to Nigerian studies or those directly applicable to Nigeria's socio-political and technical context, if feasible.

CHAPTER 2: LITERATURE

Purpose and Structure of Review

The purpose of this chapter is to establish the conceptual and theoretical foundation for analysing how YOMA enables youth empowerment in Nigeria through digital social innovation. It critically evaluates how empowerment has been theorised, measured, and applied in relation to technology-driven learning and participation, drawing on global and Nigerian evidence. The review identifies theoretical, methodological, and contextual gaps that justify the development of the Unified Digital Empowerment Framework (U-DEF), which integrates Zimmerman's Empowerment Theory (ET) and Bandura's Social Cognitive Theory (SCT).

An analysis focused on Nigeria is crucial because youth opportunities, digital access, and labour market signals vary significantly across geopolitical zones and genders. These variations influence how young people translate platform interactions into personal agency. National programmes such as the National Youth Service Corps (NYSC) and public recruitment portals create policy-specific pathways that shape youth engagement, yet they are rarely incorporated into international empowerment literature. Anchoring this chapter in Nigeria's digital and institutional realities ensures that theory is interpreted through locally meaningful constructs namely, YOMA engagement, self-efficacy, skills development, and social impact and validates the study's decision to employ zone × gender weighting for generalisation.

The chapter performs two main interconnected functions. First, it situates empowerment within Nigeria's digital transformation, linking national youth policies with behavioural models of learning and agency. Second, it evaluates theoretical foundations, positioning Zimmerman's

Psychological Empowerment Theory as the structural core and Bandura's Social Cognitive Theory as the supporting mechanism that explains *how* empowerment develops. This cumulative critique clarifies the research gap: the absence of nationally representative, theory-driven assessments of digital empowerment within a developing-country context.

In addressing this gap, the study adopts a cross-sectional, weighted SEM approach to test three hypotheses predicting that YOMA engagement positively influences self-efficacy, skills development, and social impact. The review thus progresses logically from conceptual exploration to empirical specification. It shows how the integration of SCT's mechanisms such as mastery experiences, vicarious learning, social persuasion, and emotional regulation within Zimmerman's empowerment dimensions, namely intrapersonal, interactional, and behavioural creates a coherent theoretical architecture ready for operationalisation in subsequent chapters.

In summary, this chapter positions YOMA within Nigeria's socio-digital landscape and establishes the intellectual pathway linking digital participation to measurable empowerment outcomes. It bridges context and theory, advancing a framework that is both globally informed and locally grounded, ready for empirical validation in the chapters that follow.

Introducing the Youth Agency Marketplace Digital Platform

YOMA is a social innovation and digital platform that promotes connectivity among youths in Nigeria's urban, rural, and remote regions, enabling them to access equitable socioeconomic and educational prospects. YOMA also encourages youths to improve their skills and competencies by completing curated tasks and social impact assignments, using a positive

reinforcement mechanism that relies on digital tokens for incentives (Osimen, Etoroma, Pokubo, & Adi, 2025).

Upon completing a task, users use the digital tokens to redeem incentives on the website's digital marketplace or partner with physical and online shops. The platform partners with many social impact entities, including NGOs, United Nations (UN) agencies, private sector organisations, and governmental bodies.

The COVID-19 pandemic created a demand for cutting-edge technological solutions, and the integration of digital capabilities into youth development is rapidly becoming essential, significantly contributing to the impressive growth of YOMA. In 2020, the likelihood of being jobless was three times higher for young people than for adults. Young people will need a specific set of skills and competencies to meet the changing demands of the labour market, which will enable them to compete both locally and globally as well as access local and global employment markets. UNICEF, its partners, and young Africans came up with the idea of YOMA as an all-encompassing strategy to handle the difficulties of skill development and employment.

Digital technology has revolutionised organisations and society over the last few years, and these technologies have significantly altered how we work, cooperate, and socialise, mainly due to the rapid spread caused by the pandemic (Obielumani & Udechukwu, 2022). YOMA is a digital platform that enables young people to improve their abilities, discover opportunities, and make a difference while engaging with their peers in a supportive community.

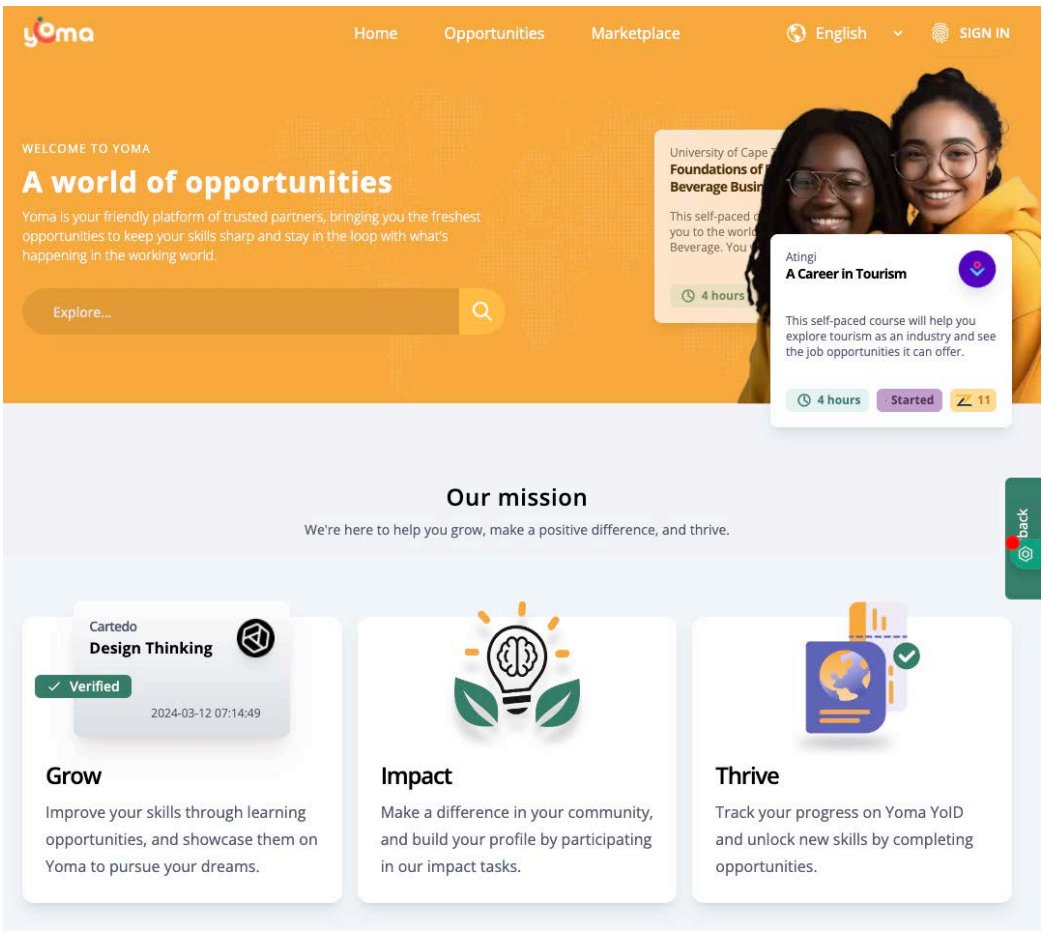
The digital marketplace enables young people to shape their futures through engagement in social impact jobs, as well as opportunities for learning and earning. It is an ecosystem solution that connects young people with the possibilities offered by various partners, such as private

businesses, organisations focused on social impact, and potential future employers (Onwuegbuchi & Okafor, 2020).

YOMA nurtures and connects youths with personalised learning-to-earning routes using ethical and privacy-preserving machine learning algorithms, artificial intelligence, and psychometric tools. In Nigeria, YOMA established a digitally enabled ecosystem with some public and private sector organisations centred around youth, connecting them with career opportunities and personalised entrepreneurial pathways (Olowookere, Akinbode, & Olaolu, 2019).

Figure 1

YOMA Website Homepage



Note: The landing page greets users with a search bar framed by the tagline “A world of opportunities”, inviting exploration of paid challenges, learning modules, and social-impact tasks.

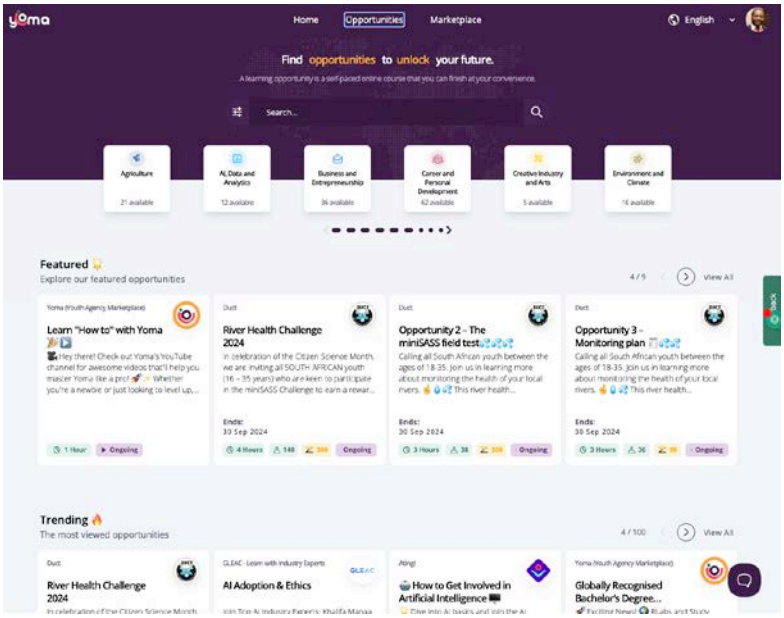
Growing with YOMA

Developing digital skills strategically and methodically is one of the most promising potential solutions to the problem of youth unemployment. Because every industry is now heavily dependent on technology, competitive digital abilities have become more critical (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021). YOMA offers opportunities from digital skill service providers and allows young people to choose a learning pathway that is favourable to them (see Figure 3).

It encompasses various competencies, including computational thinking, app development, transcribing, content production, editing, cognitive functioning, and digital media literacy, among many others. In addition to that, YOMA provides learning opportunities for abilities in coding, data mining, artificial intelligence, spreadsheets, word processing, presentation software, and digital marketing. In general, studies suggest that having abilities related to digital technology increases the likelihood of better career opportunities for youths of diverse groups (Adeoye & Adeoye, 2017).

Figure 2

YOMA Opportunity Dashboard – Web Interface Snapshot



Note: The screenshot displays YOMA's "Opportunities" tab, where users can browse micro-learning modules, paid challenges, and community projects. This layout illustrates how YOMA integrates discovery, gamified tagging, and real-time status indicators to steer users toward skill-building and income-earning activities.

Thriving with YOMA

The rapid digitisation of economies has led to the emergence of a thriving digital gig economy, defined by platform-mediated, temporary, and adaptable employment options. In Nigeria, where youth unemployment and underemployment remain elevated, the digital gig economy provides an essential means of survival as well as a novel avenue for skill development, revenue production, and economic engagement (Odumosu, Binuyo, & Adesoga, 2020).

Although internet connection is a facilitating factor, it is inadequate for the sustainable scaling of digital business or gig participation. Ongoing issues, such as unreliable energy sources, high data costs, and a lack of digital skills, continue to prevent many young people, especially in

rural or less advantaged areas, from fully participating in the digital economy (David-West, Umukoro, & Onuoha, 2018). The information and communication technology (ICT) industry in Nigeria expanded by more than 18.44% in the second quarter of 2022, positioning it as a significant contributor to the national GDP (GSMA, 2024).

The appeal of the digital gig economy is in its minimal entrance requirements, adaptability, and income diversification. Many Nigerian youths prefer "portfolio livelihoods", which include informal labour. This tendency intensified during the COVID-19 pandemic, when lockdowns hampered traditional employment while simultaneously promoting digital adoption and platform participation.

Platforms such as Upwork, Fiverr, and Africa-centric solutions like Lynk in Kenya and YOMA in Nigeria have facilitated the emergence of new income opportunities for youth. Such platforms provide youths with opportunities for short-term contracts in fields like software development, marketing, creative content, and digital services (Okoye & Omeje, 2019). YOMA transcends conventional gig-matching by integrating work-based learning, gamified credentials, and digital CVs; therefore, it facilitates skills development and career preparedness.

Furthermore, YOMA facilitates micro-tasking by enabling youth to undertake small digital tasks (e.g., data labelling, transcription, and content moderation) that require minimal infrastructure and provide an initial entry point into the digital labour market (Curtis, Ngcobo, Sithole, & Brownell, 2025). These opportunities might be especially empowering for youths with no formal education and significant digital aspirations.

However, gig labour comes with a set of drawbacks. Numerous digital jobs provide inadequate compensation, lack employee safeguards, and intensify gender inequalities. Young

women, specifically, have obstacles in obtaining high-value opportunities owing to insufficient STEM education, time scarcity, and gendered digital conventions (Eze & Aroh, 2021). Moreover, disjointed regulatory structures and a lack of worker rights pose significant issues regarding the long-term viability of gig labour as a primary source of income.

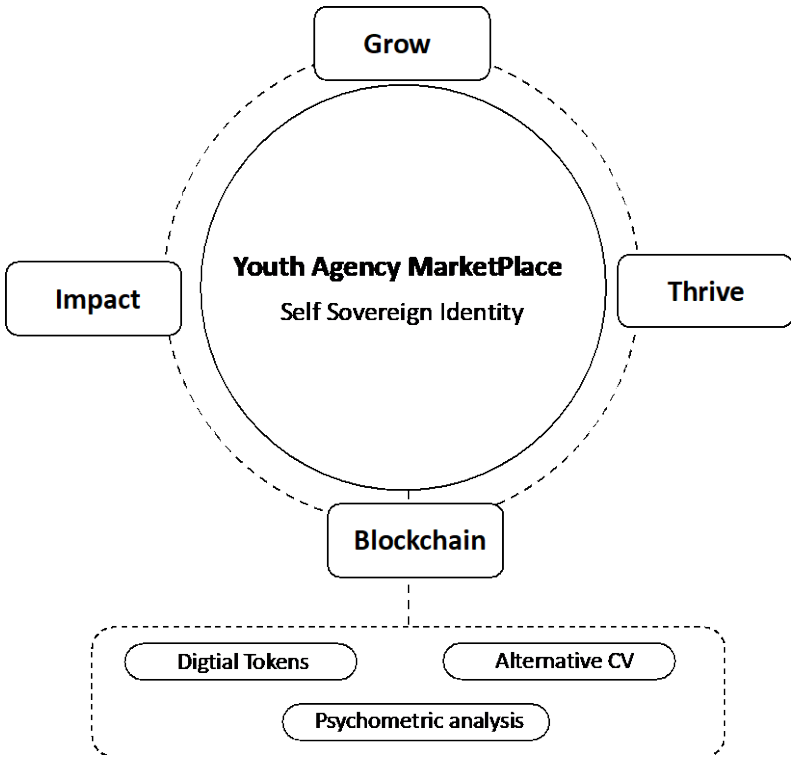
To realise the potential of digital gig labour for empowerment, platforms are designed not only for transactions but also for change. This design includes the integration of financial inclusion elements, social protection systems, and career advancement capabilities. Public-private collaborations are crucial for establishing the requisite digital infrastructure and fostering an atmosphere conducive to the success of gig employment (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019).

In this context, YOMA's model, which integrates skill development, credentialing, and micro-earning, presents a persuasive argument for the reconfiguration of gig platforms as instruments of youth empowerment rather than mere labour commodification. YOMA enables youths to participate from anywhere, regardless of their location in Nigeria, thereby promoting opportunities for youth employment without geographical boundaries (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

YOMA offers structured learning to earn routes relevant to local culture, generates possibilities for intergenerational cooperation, and equips youths to design and execute the community change they want to see. Using the empowerment theory to drive content, YOMA employs an active learning strategy structured around thriving areas such as youth as leaders, improving the community, building intergenerational partnerships, planning for change, and advocacy (Zimmerman, 2018).

Figure 3

Core Pillars of the YOMA Ecosystem



Note. The diagram positions Grow**,** Thrive**,** Impact**,** and Blockchain, illustrating how YOMA's platform strategy rests on a balanced interplay of personal development (Grow), sustainable livelihoods (Thrive), measurable community benefit (Impact), and transparent credentialing infrastructure (Blockchain).

Networks and Key Stakeholders in YOMA

YOMA functions within a multifaceted multi-stakeholder framework. Key partners include global programmes like Generation Unlimited and Fondation Botnar, development agencies such as GIZ, private tech and service companies like DiDx, RLabs, Goodwall, and Cartedo, the National Youth Service Corps (NYSC), and most importantly, the youth of Nigeria. Each entity contributes

unique resources, capabilities, and interests. In the following section, the researcher categorises stakeholders across three dimensions: role, influence/interest, and engagement. This categorisation aims to inform a focused partnership strategy that enhances YOMA's reach, relevance, and impact in addressing the skills-employability gaps among youth.

Table 2

Stakeholder Identification & Assessment

Stakeholder	Primary Role in YOMA	Engagement Strategy
Generation Unlimited (GenU)	Co-designs youth-led digital skills interventions; mobilises public-private youth networks	Maintained steering committee membership; co-lead quarterly strategy reviews
Fondation Botnar	Provides grant funding for digital health & youth innovation	Engaged through annual grant reporting; co-fund targeted innovation pilots
DiDx	Supplies DID/SSI identity framework underpinning YOMA credentials	Monthly technical working group; integrate feedback loops on UX/security
GIZ Nigeria	Technical advisory on digital economy policy and capacity building	Biannual policy-alignment workshops; joint capacity-building sessions

Stakeholder	Primary Role in YOMA	Engagement Strategy
RLabs	Innovation hub incubating YOMA's challenge-based learning model	Weekly operational sync-ups; share co-creation methodologies
Goodwall	Provides the mobile platform for youth portfolios and community networking	Quarterly UX/UI retrospectives; co-develop feature roadmaps
NYSC (National Youth Service Corps)	Validates national recognition of YOMA participation as part of the Service year	Yearly MoU renewal; embed YOMA into NYSC orientation modules
Cartedo	Data analytics partner enabling impact measurement and dashboarding	Monthly data-share & insights meetings; co-author impact briefs
Young People (YOMA users)	End users, learners, earners, and social innovators	Biweekly user-feedback sprints; youth advisory board involvement

Note. The stakeholder engagement matrix outlines the roles and responsibilities of various entities involved with YOMA, specifying the frequency of their involvement.

Stakeholder Engagement and Partnerships Overview

Generation Unlimited: GenU serves as a prominent UNICEF initiative that integrates public, private, and youth partnerships, directing YOMA's strategic focus on digital skills and employment opportunities. The convening power facilitates the assembly of heads of state, CEOs,

and youth leaders to develop scalable, challenge-based solutions collaboratively. GenU's steering committee membership guarantees alignment with other national youth initiatives, such as school connectivity through Airtel Nigeria. Due to its significant influence and vested interest, YOMA must retain GenU as a governance co-lead. This arrangement requires YOMA to conduct quarterly progress reviews and adjust implementation modalities as needed (Maria & Grey, 2023).

Fondation Botnar: Fondation Botnar has allocated more than CHF 30 million towards global initiatives that enhance digital health and foster youth innovation, aimed at shaping the future of young individuals within digital economies. Some of the grants enabled the implementation of psychometric-driven pathways and blockchain credentialing, facilitating exploration without the immediate need for return on investment. Their moderate influence and significant interest position them as suitable co-funders for targeted sub-projects, such as mental health modules, with participation through annual impact reporting and collaboratively funded innovation sprints (Ferretti, Vayena, & Blasimme, 2023).

DiDx: DiDx provides essential decentralised identifier (DID) and self-sovereign identity (SSI) technology, enabling YOMA users to store tamper-proof credentials on their smartphones securely. Despite being a medium-sized technology vendor, their solutions serve as the foundation for YOMA's trust architecture. It is advisable to conduct monthly technical working syncs to address integration challenges and facilitate rapid iteration on user experience and security concerns (DIDx, 2021).

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): GIZ uses its mandate to enhance Nigeria's digital economy policy and vocational training systems. GIZ's advisory services align YOMA with national strategies, including Nigeria's 2020–2030 Digital

Economy Policy. Semi-annual policy-alignment workshops enable YOMA to disseminate information and receive updates regarding the evolving regulatory frameworks (James, 2024).

RLabs: South Africa's RLabs facilitated the development of YOMA's challenge-based learning approach through the implementation of co-creation labs and community-driven design methodologies. Their moderate influence originates from their role as the initial implementers in Nigeria and South Africa. Weekly operational syncs maintain adherence to the model while allowing localised adjustments (Wills, Parker, & Wills, 2015).

Goodwall: Goodwall, as a vetted youth-networking platform, provides a mobile interface designed for YOMA's "earn" activities, facilitating connections between youth and opportunities for micro-grants and gig work. Regular UX/UI retrospectives and collaborative feature roadmaps guarantee that Goodwall's modules integrate effectively with YOMA's extensive challenge library (Maria & Grey, 2023).

The Nigerian National Youth Service Corps (NYSC): The statutory role of NYSC in deploying every university graduate for a year-long service establishes an official channel for the recognition of YOMA certifications as part of that service. The integration of YOMA into the NYSC orientation process, along with the alignment of digital credentialing with NYSC postings, enhances the legitimacy and adoption of YOMA among more than 180,000 corps members each year (Dickson, 2022).

Cartedo: Cartedo's analytics dashboards provide a visual representation of engagement, skill acquisition, and social impact metrics. Data-insight workshops and collaborative impact reports facilitate YOMA's ability to adapt based on real-time evidence (Maria & Grey, 2023).

YOMA Users: The primary stakeholders, specifically the youth demographic, significantly influence usage patterns, platform virality, and the validation of concepts. The significance of their adoption and word-of-mouth, along with their interests in career aspirations and community change, provides structured feedback (Maria & Grey, 2023).

In short, YOMA's success in Nigeria's changing youth scene depends on carefully coordinating the roles of different partners; guidance from GenU and NYSC; organised funding from Fondation Botnar and GIZ; strong technology partnerships with DiDx, Goodwall, and RLabs; and valuable data insights from Cartedo and the youth themselves. By customising how they work with each partner and encouraging a teamwork-focused atmosphere where feedback is valued, YOMA not only meets the changing needs of young people but also builds strength and sustainability as digital and job training systems grow. Through this holistic approach, YOMA is well-positioned to create a meaningful, lasting impact for Nigeria’s next generation.

Development Life Cycle of YOMA

The model of the life cycle of social YOMA is a useful tool for both practitioners and policymakers, and it has the potential to justify the requirement for resources. The concept of a life cycle or stages for building the YOMA digital platform is not discussed in the existing body of research on social innovation.

Investigation

Innovation experts from UNICEF, GiZ, RLabs, DiDx, and the Botnar Foundation (design team) used various approaches to design the platform with stakeholders to identify and resolve the most pertinent issues of youth unemployment and comprehend youths' behaviour, backgrounds,

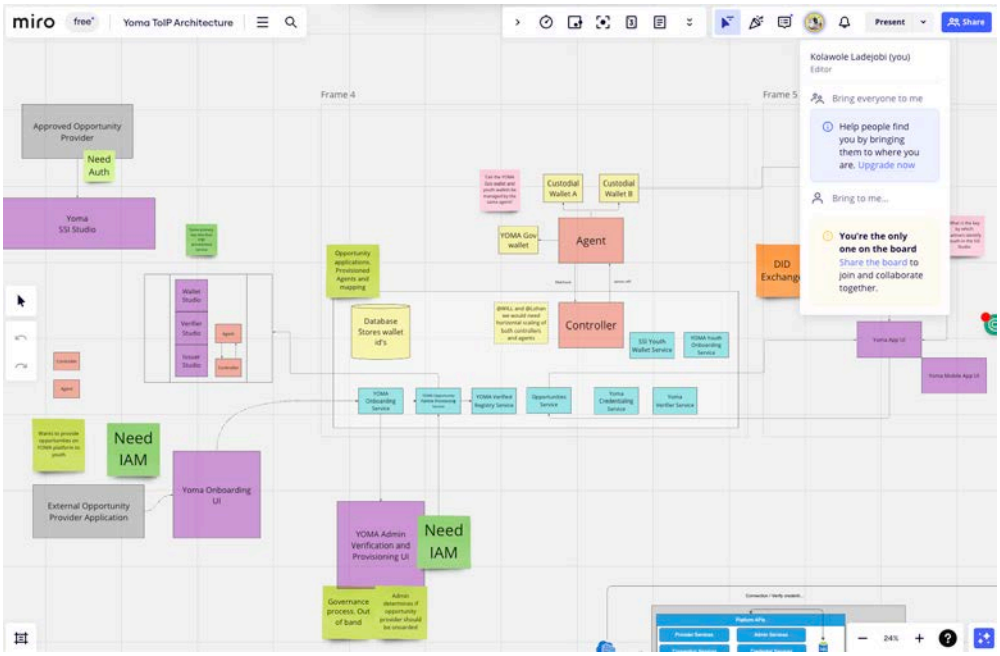
and perspectives (Adeyemi & Hassan, 2022). During the investigation phase, the design team engaged youths in discussions regarding their experiences through user-friendly, text-based dialogues.

During the investigation stage, the design team conducted interviews with focus groups to help deepen their understanding of the challenges faced by youths during COVID-19. The design team then transformed the feedback received into well-defined design problem statements, which provided the knowledge necessary to thoroughly comprehend the unique challenges the youths faced.

The design team also used UReport Nigeria, a UNICEF SMS-based platform, to send out questionnaires to its subscriber base of over 3.5 million Nigerian youth across the 36 states and 774 local governments and wards (Osah, Isikalu, Doma, & Irmiya, 2025). The design team used personas and journey maps to help determine the most critical issue areas the youths faced due to COVID-19 (Okuboyejo, Adekanye, & Ayeni, 2025). As a result, the designer team created a journey map that showed a walkthrough of the user's journey step-by-step for every interaction, touchpoint, and emotion (see Figure 5).

Figure 4

Preliminary System-Architecture Whiteboard (Miro Workspace)



Note. This Miro board captures an early architecture workshop for the YOMA platform.

A Design Thinking Approach for YOMA development

The design team employed Design Thinking (DT), a nonlinear, exploratory, human-centred problem-solving approach. The DT comprised four steps: discovery, definition, development, and delivery. The design team used DT to visually outline the divergent and convergent stages, stimulate innovative concepts, and develop user-centric features throughout the construction of YOMA (Amaechi-Udogu & Amaeze, 2025).

Empathy Stage: The design team began with a user-centric approach to meticulously understand the pains and frustrations of the youths during the COVID-19 lockdown (Onuka, 2021).

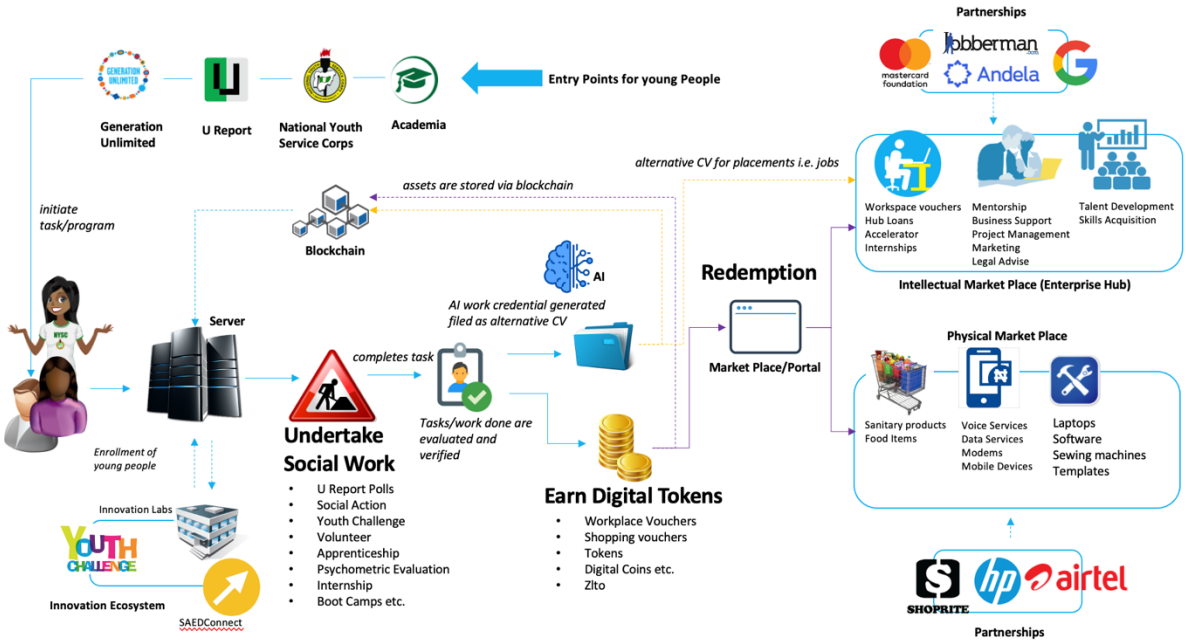
Define Stage: In the definition stage, the design team systematically collected data from the empathy phase and conducted a thorough analysis of observations to pinpoint underlying

challenges. The team focused on youth empowerment opportunities during the formulation of the problem statements (Daniel, William, & Fredrick, 2025).

Ideation Stage: Consequently, the design team created innovative solutions to address the empowerment opportunities identified in the definition stage, using brainstorming techniques. The creative problem-solving sessions prioritised creativity, problem definition, and solution discovery, ultimately leading to the final outcome (Inegbedion, 2022).

Figure 5

YOMA Ecosystem: Learn–Earn–Redeem Flow

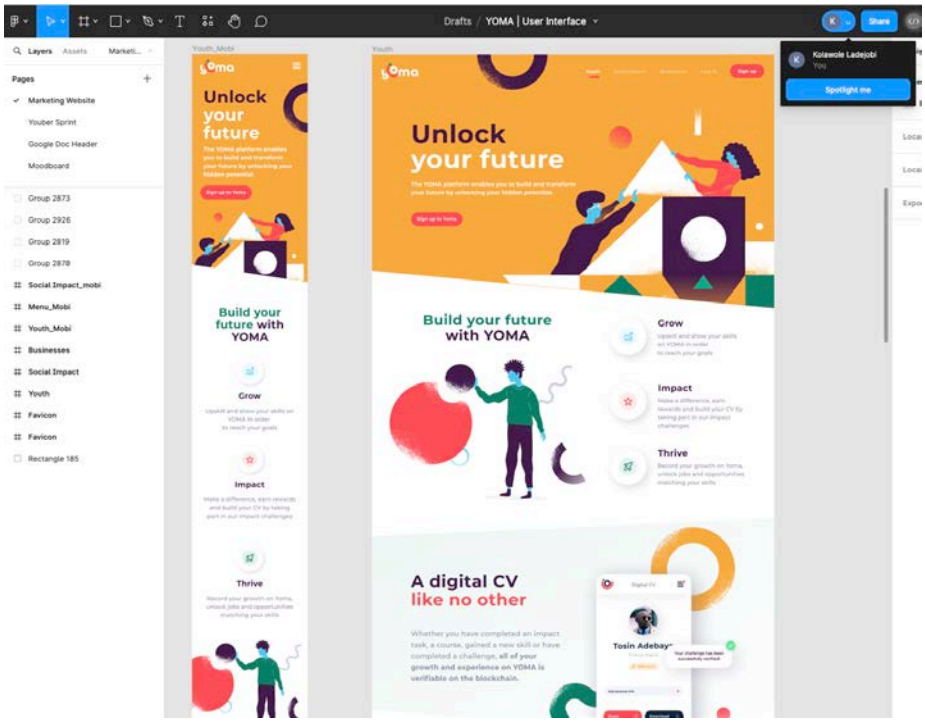


Note. This diagram illustrates how the concept would address unemployment

Prototype Stage: The design team progressed, developed and tested clickable mock-ups, followed by iterative improvements. The design team conducted several experiments using Figma to help shape and define the optimal solution for the problem identified in the first three phases (see Figure 7) (Inegbedion, 2022).

Figure 6

YOMA Landing-Page Design (Figma Draft)



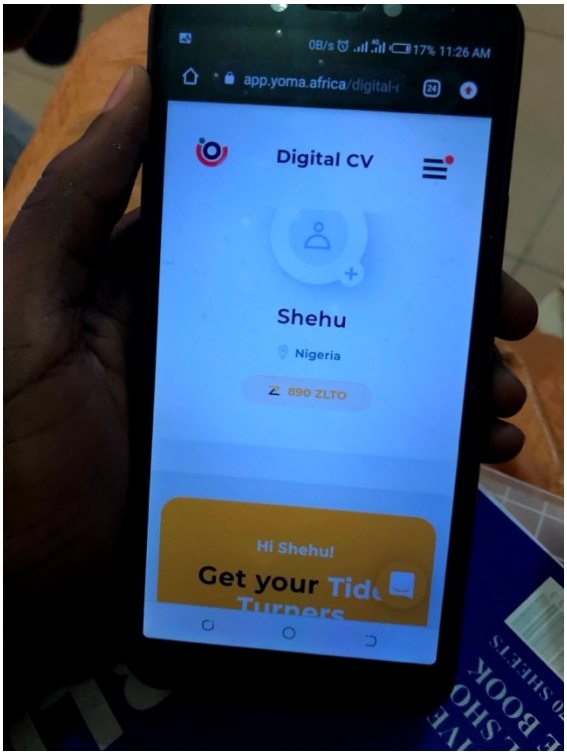
Note. The Figma mock-up showcases YOMA's marketing landing page.

Testing: Testing enabled the design team to validate the appeal and functionality of solutions, starting with low-fidelity models and gradually increasing the fidelity as the process advanced. The design team tested the prototypes with volunteer youths to obtain feedback.

The team conducted extensive evaluations of the entire product, using the most effective solutions identified during the prototype stage. Through continuous product testing with young people, the design team repeatedly refined and adjusted the design, eliminating less impactful solutions (Mohammed, Saidu, & Adegoke, 2025).

Figure 7

YOMA Mobile "Digital CV" Screen Showing ZLTO Balance



Note: The photo captures a user holding a smartphone open to YOMA's mobile web app.

Implementation

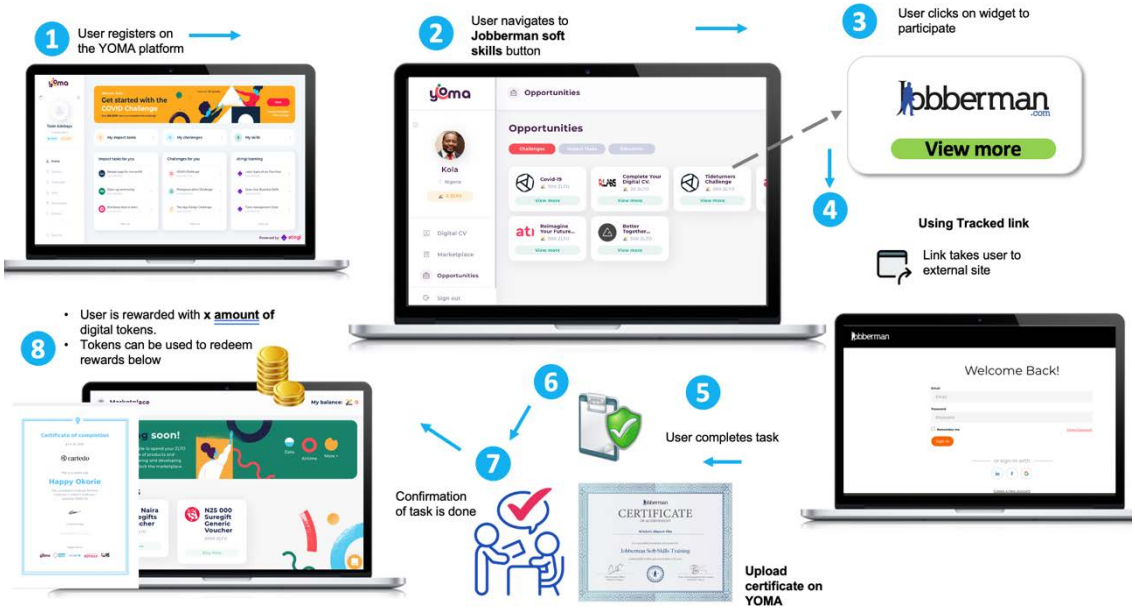
The team recognised that developing a complete product without first testing the idea in the market was a risky endeavour, especially given the high level of uncertainty in startup environments. Hence, the design team launched a Minimum Viable Product (MVP) of YOMA with only the essential functionality required to satisfy early users and gather feedback for future improvements (Inegbedion, 2022).

This approach was rooted in agile methodology and allowed the design team to collect the most valuable information about users. The design team built YOMA's core capabilities, deployed it, and provided access to early adopters (Magaji, Umar, & Yahaya, 2024).

The design team actively collected feedback and ensured that the MVP solved all user issues and answered all questions raised. The feedback also comprised preliminary market analytics that identified initial users and established strategies to motivate them to interact with the MVP and share their suggestions even more.

Figure 8

Step-by-Step User Journey: Completing a Jobberman Soft-Skills Task on YOMA

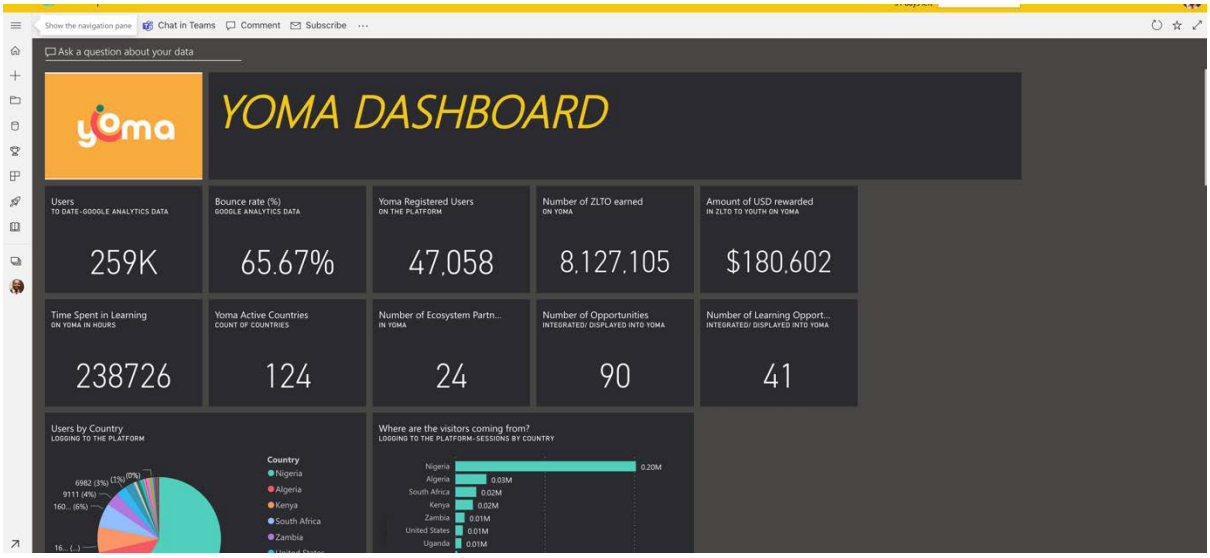


Note. This diagram illustrates the user journey in YOMA

The design team focused on the concept of an MVP to enhance development efficiency and accelerate entry into the target audience. They emphasised reducing inefficiencies, such as wasted development resources, by rapidly launching YOMA as the MVP (Inegbedion, 2022).

Figure 9

YOMA Analytics Dashboard: Key Platform Metrics at a Glance

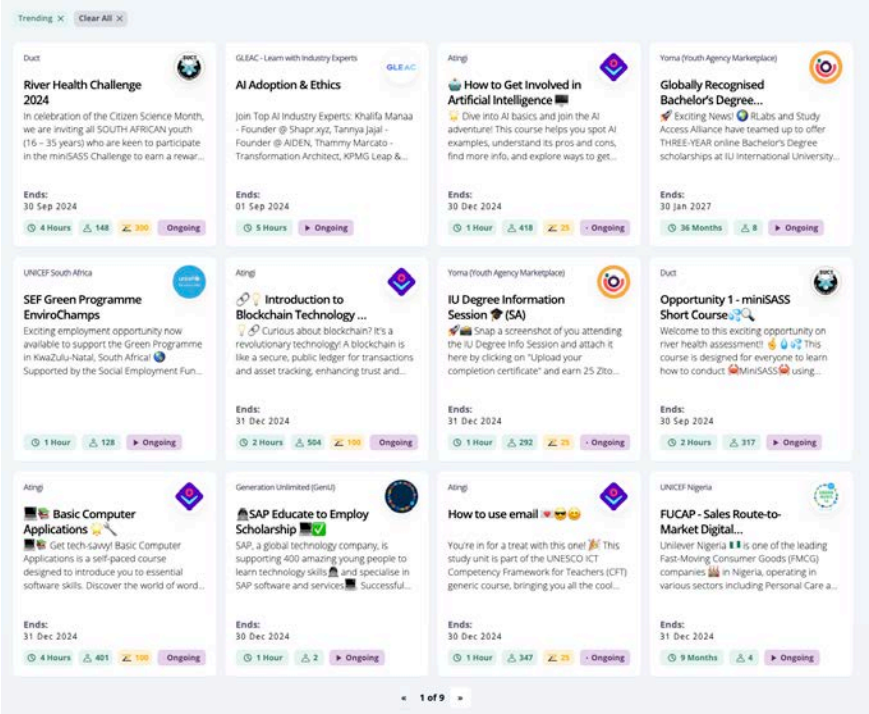


Note. This Power BI–style dashboard aggregates live operational metrics for YOMA, including total registered users (259 K), average activity rate (65.6%), ZLTO tokens issued (8.1 M), and the cumulative value of rewards redeemed (≈ $180 K).

Overall, the design team developed YOMA with blockchain technology, gamification, and a network of partners, with three interconnected empowerment tracks: micro-learning modules for skill development, assignments and challenges with tangible rewards, and participation in social good initiatives. This structure aligns with Zimmerman's youth empowerment by fostering self-efficacy, skills development, and social impact in Nigerian youths (Achimugu & Okolo, 2025).

Figure 10

Cross Section of Opportunities in YOMA



Note. This image is a screenshot showing curated challenges in YOMA

Nigerian Youth Context: Labour, Skills, and Digital Access

Youth Unemployment

Researchers describe youth as the transitional phase between childhood and maturity in an individual's life, comprising the visible qualities, liveliness, energy, enthusiasm, etc., typical of a young person (Olowookere, Akinbode, & Olaolu, 2019). 'Youth in Nigeria' refers to those who are citizens of the Federal Republic of Nigeria and fall between the age range of 18 and 29 years (Ehimomen, Nwosa, & Ugwu, 2020). In many developing countries like Nigeria, youth unemployment remains a significant concern. Records indicate that Nigeria's young workers are not taken advantage of, which does not help in advancing the country, thereby contributing to unemployment (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). In addition, when youths who are

physically and mentally capable of working cannot obtain employment at the going rate, they are also referred to as unemployed (Larry & Effiong, 2023).

Likewise, youth unemployment has persisted worldwide, and unfortunately, records show the global labour market can only accommodate 40% of new job seekers by 2030 (Ehimomen, Nwosa, & Ugwu, 2020). As a result, many youths have difficulty breaking into the job market since they do not have the requisite work experience (Olubusoye, Salisu, & Olofin, 2023). YOMA seeks to contribute to addressing the youth unemployment crisis and preventing its social and economic downsides in Nigeria. Therefore, undertaking empirical research like this aims to help strengthen the existing initiatives.

Youth Underemployment

Underemployment has been a continual and escalating issue in Nigeria during the past ten years. Although Africa's largest economy has a substantial and young labour population, the nation faces structural unemployment and underemployment challenges that hinder sustainable economic growth and development (Oduwole & Alabi, 2020). Underemployment is a condition in which youths are engaged in work below their willingness or capability, often in positions that inadequately leverage their abilities or potential. This is especially evident in Nigeria, where the economy exhibits a disparity between the labour force and available job opportunities due to structural constraints (Adeniran & Onuoha, 2020).

Underemployment is different from unemployment because it includes those who work but not to their desired extent or in suitable jobs. Underemployment has emerged as a more pressing concern than outright unemployment in Nigeria, especially among the substantial young

population (Arejiogbe, et al., 2023). The NBS indicates that the underemployment rate in Nigeria often exceeds the unemployment rate, particularly in rural regions characterised by informal and low-wage employment (Osmond, Makuachukwu, & Mbah, 2020).

Over the previous decade, the underemployment rate has varied considerably. In 2018, Nigeria's underemployment rate was roughly 20.1%, and the unemployment rate was around 23.1%. In 2020, the underemployment rate was 28.6%, indicating an escalating problem in the labour sector. In the first quarter of 2021, the aggregate unemployment and underemployment rate exceeded 56.1%, underscoring the dire condition of the labour market (NBS, 2023).

Factors Contributing to Underemployment in Nigeria

The Nigerian economy has experienced volatility over the past decade, characterised by shifting oil prices, cyclical recessions, and sluggish GDP growth. The nation significantly depends on oil exports, which provide a considerable share of its earnings. Global oil price volatility has resulted in economic instability, hence limiting employment growth (Odumosu, Binuyo, & Adesoga, 2020). The 2016 recession, precipitated by a decline in global oil prices, resulted in economic contraction and intensified unemployment and underemployment.

Although the nation emerged from a recession in 2017, economic development has been slow, and the expanding labour force cannot accommodate it. Nigeria's GDP growth rate has fluctuated between 1.5% and 2.5% recently, significantly behind the population growth rate of roughly 2.6%. This gap has created a labour market in which young graduates and job seekers increasingly struggle to obtain full-time, well-paying jobs (Shola, Adewale, Oke, & Samuel, 2021).

A significant factor leading to underemployment is the disparity between the workforce's abilities and the labour market's requirements. Critics often fault Nigeria’s educational system for failing to equip students with the practical and technical skills essential for a rapidly evolving economy. Most graduates receive training in theoretical knowledge rather than in-demand practical or technical skills (Okafor & Uche, 2022).

Furthermore, the rapid expansion of sectors like technology and services has resulted in a disparity between the skills people possess and those demanded by employers. As a result, many graduates and job seekers find themselves overqualified or underused in positions. This discrepancy leads to an elevated percentage of underemployment since people cannot obtain positions that properly use their skills and competencies (Oduwole & Alabi, 2020).

The informal sector is a substantial segment of Nigeria's economy, with many Nigerians involved in small-scale commerce, agriculture, and other informal employment. The informal sector offers income options; nevertheless, it often comprises low-wage, insecure, and unskilled employment that fails to provide the necessary income or job security for economic progress (Akinlola & Ohonba, 2024). The absence of official job prospects compels people to accept hazardous positions, leading to underemployment, where individuals may be employed but insufficiently compensated to satisfy necessities or work fewer hours than they like (Adeola, Kolawole, Hassan, Olubusayo, & Adesina, 2022).

Infrastructural deficiencies, including inadequate power supply, substandard transport networks, and insufficient digital connection, contribute to underemployment. Businesses cannot function at total capacity, constraining employment creation and economic expansion (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019). The lack of adequate policy execution to assist SMEs,

entrepreneurship, and innovation has impeded the creation of new employment capable of accommodating the underemployed population (Akinbobola & Adeleke, 2021).

Effects of Underemployment on Nigeria's Economy and Society

i. **Diminished Economic Productivity:** When people do not fully engage in their roles, the economy forfeits potential production. Underemployment occurs when several competent individuals hold positions that do not align with their skill sets, leading to inefficiencies and reduced overall productivity. Unrealised economic growth potential in Nigeria impedes the nation's pursuit of sustainable development objectives (Osinubi, Osinubi, & Ibukun, 2022).

ii. **Escalated Poverty and Income Disparity:** Underemployment sometimes results in insufficient income since individuals in part-time or low-skill positions earn less than those in full-time, skilled roles. This results in elevated poverty rates and income disparity since many Nigerians continue to live below the poverty threshold while having employment. The World Bank reports that over 40% of Nigeria's population lives in poverty, a situation worsened by the issue (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019).

iii. **Societal and Political Turbulence:** Elevated levels of underemployment, especially among the young, may result in social upheaval and political instability. Disillusioned by the scarcity of opportunities, young people may resort to detrimental behaviours, including criminal activity, drug misuse, or involvement in extremist organisations. Addressing underemployment is not just an economic need but also a vital component (Ayub & Gbaa, 2020).

Youth Development

Youth development has historically and currently been used to refer to a natural process of a young person's maturing capacity to comprehend and respond to their surroundings. Youth development refers to a coordinated programme of actions or pursuits that aids in the maturation of youths (Omoyele, Oloke, Olabisi, & Aderemi, 2022). Youth development research involves various subfields, theoretical frameworks, and practical applications. It encompasses various ecological contexts, such as relationships, programmes, families, schools, neighbourhoods, congregations, and communities, and links them to producing experiences, supports, and opportunities that enhance positive developmental outcomes (Osmond, Makuachukwu, & Mbah, 2020).

The facilitation of youth's access to positive experiences, resources, and opportunities and the promotion of developmental outcomes that benefit both the individual and society serve as its primary coordinated concept. Research suggests that youth development emphasises growth, with an emerging realisation that youth become conscious agents in producing positive development (Okonkwo & Oluwaseun, 2021).

In addition, youth development is symbiotic, bringing together ideas, tactics, and practices from various fields of investigation. Development also includes the nature of the individual, emphasising the youth’s potential to develop, prosper, and actively participate in supportive environments (Osinubi, Osinubi, & Ibukun, 2022).

Research has shown that developmental strengths promote personal characteristics such as abilities, competencies, attitudes, and dispositions necessary for effective community involvement (Odumosu, Binuyo, & Adesoga, 2020). In Nigeria, the government's focus has been on managing

ethnic and religious tensions rather than implementing policies that address essential services, develop human capital in youths, and improve infrastructure to access quality social services (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Poor governance has been the case since Nigeria gained independence, and the British administration merged three politically and economically distinct nations into one country for administrative convenience (Salako, 2016). This difficulty has exacerbated Nigerians' sense of marginalisation, exploitation, oppression, and ethnic prejudice and worsened unmanageable and incompetent corrupt practices at all levels of governance in the nation, including both military and civilian administrations (Ehimomen, Nwosa, & Ugwu, 2020).

As a result, young people not connected to the families in power in the nation have had difficulties reaching their maximum capabilities. The factors mentioned above, such as inadequate infrastructure, ineffective leadership at the country and state levels, widespread corruption, etc., result in the denial of fundamental opportunities and choices for the youth in Nigeria, leading to the significant challenge of youth unemployment (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021).

The effects of many programmes aimed at youth have been unsatisfactory, likely because these interventions were conducted from the top down, with adults in government and collaborating institutions leading them. Arguably, the government does not appropriately adapt the programmes to the unique context to address the youths' genuine desires and requirements. For instance, the positive long-term effects of regular physical activity on lowering morbidity and healthcare costs are of more importance to health professionals and policymakers (Ferretti, Vayena, & Blasimme, 2023).

Several youths are actively speaking out about health concerns and creating suitable targeted treatments to enhance their health in Nigeria. Ideally, health professionals should encourage higher participation from young people. Research suggests that these youths are often already confident, eloquent, and natural leaders when they participate in programmes (Chibuike, Olufunmilayo, Chiroma, & Okoye, 2023). Therefore, closing equity gaps in health and well-being would be more effectively achieved by involving youth from marginalised communities, ethnic minorities, youth living in economically and socially disadvantaged neighbourhoods, youth with lower education levels.

Youths in the last mile belong to vulnerable, marginalised, or disadvantaged groups that live in severe poverty in outlying regions, informal settlements, or other places where development assistance and state help are scarce. Research has shown that youths across Nigeria do not share the benefits of economic and social progress equally, and many are isolated in rural regions, urban slums, and neglected areas (Adedokun & Musa, 2021).

These areas lack essential utilities and services such as water, food, electricity, education, health care, and secure housing, especially in urban slums. As a result, the afflicted populations of youth are unable to improve their living circumstances due to these factors and the limited options for respectable jobs. Research suggests that the growing frequency and severity of natural and man-made catastrophes will further threaten the livelihoods of youths, especially those who are displaced or have decreased access to natural resources (Fahrudi, 2020).

Positive Youth Development

Positive Youth Development is a conceptual framework that prioritises youth's positive attributes and untapped capabilities, aiding their transformation into well-adjusted, competent, and

accountable adults. The fundamental principles known as the 5Cs are competence, confidence, connection, character, and caring, and research has shown that these interconnected components facilitate the development of the youths (Odejimi & Clark, 2025)::

Competence

The concept of competence pertains to the aptitude of youths to proficiently traverse their surroundings and exhibit proficiency in several realms, including academic, social, cognitive, and occupational spheres. Research has shown that interventions targeting the improvement of youth competence, namely in academic and social domains, significantly impact their holistic growth and prospective achievements (Oduola & Adedayo, 2023). This concept comprises the cognitive, affective, and practical competencies that enable youths to navigate their environment and attain their objectives effectively. Academic proficiency, for example, is a robust indicator of favourable outcomes, such as further education and job success.

Confidence

Confidence refers to the intrinsic perception of one's value and ability to achieve desired outcomes, which is evident among young individuals. Research has shown that a positive self-perception and a belief in one's capabilities are vital components that contribute to developing resilience and a propensity to embrace novel challenges (Zimmerman, 2018). Self-assurance plays a vital role in encouraging individual development, as it enables youths to exercise agency, embrace uncertainty, and demonstrate resilience when confronted with challenges. Research has shown that cultivating confidence by establishing supportive connections and providing positive feedback enhances academic achievement and promotes positive social interactions (Zimmerman, et al., 2018).

Connection

The concept of connection pertains to the constructive relationships youths establish with many individuals, including their friends, family members, educators, and community members (Sanders & Munford, 2020). Robust interpersonal bonds provide a profound feeling of affiliation and assistance, which is essential for advancing emotional and social growth. These interactions contribute to enhancing the youth's sense of worth and understanding, thereby encouraging their active participation in constructive behaviour. Research has shown that youths who establish robust relationships with compassionate adults and peers have a higher propensity to engage in prosocial behaviours and refrain from engaging in dangerous activities (Obielumani & Udechukwu, 2022).

Character

The character embodies moral principles and integrity, including the capacity to differentiate between ethical and unethical actions. The attributes mentioned earlier include accountability, integrity, and regard for others. Cultivating a robust character is of utmost importance for young individuals as they navigate complex social situations and take responsibility for their choices, which have consequences for themselves and others (Ogunlade & Ezeanya, 2018). Research has shown that implementing character education programmes impacts youth delinquency rates and prosocial behaviour among youths (Oladipo & Ogunyemi, 2020).

Caring

Research has shown that youths who cultivate a robust sense of compassion are more likely to participate in community service and selfless endeavours (Kazim, 2021). Caring encompasses the profound capacity for empathy and compassion shown by young individuals towards others.

The emotional factor serves as a motivating force for individuals to consider the needs and emotions of others, leading them to engage in caring and supportive behaviours. Caring is vital in establishing a compassionate and equitable society (Zimmerman, 2018).

Requisite skills for youth development

Youths require industry-relevant skills to be relevant and employable in the Industry 4.0 workforce. Research suggests that youths should take advantage of the potential offered by Industry 4.0, and it is essential to precisely determine the necessary skills and expertise, such as automation, data sharing, IoT, cloud computing, and cognitive computing (Sampaio & Sebastião, 2024). The essential competencies for Industry 4.0 comprise three groups: (i) behavioural skills, (ii) technical abilities, and (iii) analytical skills, amplified by (iv) entrepreneurial skills:

Behavioural Skills

Behavioural qualities such as flexibility and being a team player are essential for success within a company. Entrepreneurs thrive in a thoughtful and introspective atmosphere when they are flexible in their ability to guide a team or work together with others, effectively adopting new technology and automation. Companies place a high value on communication and presentation skills, as technological situations require distinct communication talents compared to non-technical contexts. Nevertheless, arguably, many youths have a lower level of proficiency in written communication than in oral communication, although both abilities retain similar significance (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022).

Leadership Skills

Research has shown that the foremost essential talent in the industry is leadership. Researchers have identified various personal factors that help youths advance to higher levels of

leadership in the competitive Industry 4.0 work environment (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021). These factors include social and interpersonal skills, specialised knowledge, professionalism, ambition, hard work, assertiveness, and job satisfaction. Harnessing young individuals' distinct characteristics and abilities is crucial in unlocking their leadership capacity, transforming gender disparities into advantageous circumstances rather than obstacles.

Technology Skills

Proficiency in technology is crucial, given the rapid expansion of Industry 4.0. Youths should always be informed and knowledgeable about the latest technological advancements and upcoming technologies to meet the demands of current and future markets (David-West, Umukoro, & Onuoha, 2018). Virtual collaboration has become an essential talent in the modern period. It is the capacity to effectively collaborate with team members in a virtual setting using technology (Ayub & Gbaa, 2020). Computer and software programming and development skills refer to specialised knowledge and abilities that enable the development of software.

Primary, secondary, and tertiary schools acknowledge the need to incorporate programming skills into their curricula. Coaching programming through digital platforms enables youths to gain valuable professional skills in the future job market, enhances their problem-solving abilities, deepens their understanding of the world, provides a pathway to research STEM subjects further, and promotes new opportunities for creativity and self-expression (Osmond, Makuachukwu, & Mbah, 2020).

Analytical Skills

Strong critical thinking and problem-solving abilities are essential and entail evaluating the arguments, observations, facts, and evidence available before reaching a decision. Critical thinking

enables youths to use logic and reasoning to discern the flaws and merits of various solutions and approaches to issues and to arrive at conclusions (Daniel, William, & Fredrick, 2025).

Critical thinking encompasses cognitive capabilities that entail intellectual talents necessary for effective learning. Cognitive skills facilitate the acquisition of a particular activity, flexibility, and proficiency. In critical thinking, problem-solving skills are required to recognise intricate difficulties in evaluating information and proposing alternative ways to address situations that demand cognitive flexibility (Oladipo & Ogunyemi, 2020).

Industry 4.0 is a sophisticated sector that requires the capacity to handle complex cognitive tasks and continuously focus on technological progress. Therefore, it is essential to understand and enhance the cognitive skills necessary for understanding and prioritising related aspects in many domains (Agada & Etorti, 2023). Ultimately, problem-solving necessitates analytical and creative abilities; likewise, ideation is an essential component of the cognitive process that entails generating, formulating, and communicating innovative ideas.

Research suggests youths must possess innovation and creative abilities to produce new ideas within the analytical skill set (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019). To be successful, youths need an additional array of abilities, including essential psychological and soft skills such as a strong sense of perseverance and consistency.

Entrepreneurship Skills

Entrepreneurship encompasses the mindset, disposition, conduct, and competence of an individual in managing a business or endeavour that results in enhanced effectiveness in discovering, generating, and executing novel approaches to work, technology, and products to deliver superior services and achieve higher profits (Odumosu, Binuyo, & Adesoga, 2020).

Entrepreneurship programmes strengthen the acquisition of entrepreneurship skills, directly influencing an individual's perspective, attitude, and behaviour, ultimately leading them to choose entrepreneurship as a vocation. Therefore, including entrepreneurship programmes in local communities is crucial for these compelling reasons. Evidence shows that youth enhance their self-efficacy for entrepreneurial performance by repeatedly engaging in a project or task, enabling them to acquire effective strategies for completing it and ultimately boost their confidence in successfully carrying out similar tasks in the future (Zimmerman, 2018).

Customer communication and engagement are also crucial factors for the success of youth entrepreneurs. For youths, having a profound comprehension of technology-enabled customer communication and engagement, along with a strong sense of curiosity about the product, is crucial for building successful businesses. Honing networking abilities is essential for entrepreneurial success since it enables youths to cultivate a supportive network of individuals who contribute to their achievements (Uche & Ojo, 2019).

The significance of technology and innovation in stimulating economic development has positioned entrepreneurship skills as a primary focus in Nigeria. The primary focus of innovation and entrepreneurship programmes is to cultivate the development of creative and analytical thinking, the capacity to generate new ideas, and the ability to embrace uncertainty, self-direction, collaboration, and hands-on competencies in youths (Olubusoye, Salisu, & Olofin, 2023).

COVID-19 and Digital Acceleration in Nigeria

As a result of the pandemic caused by the COVID-19 virus, companies all over the globe accelerated their transition to digitalisation, as well as rethinking how they were managed and interacted with the rest of the economy (Shola, Adewale, Oke, & Samuel, 2021). The world of work is undergoing a rapid transformation due to rapid technological improvements, which bring both possibilities and problems. Youths use technology extensively throughout Nigeria to improve their chances of landing employment, advancing their education, gaining access to financial services, and starting their businesses (Sadiq, Hack-Polay, Fuller, & Rahman, 2022).

Access to technology among youth is a catalyst for various positive socioeconomic outcomes, such as civic inclusion, a workforce that is digitally literate, new employment and entrepreneurship opportunities, strengthened emerging sectors, and a reduction in the rate of youth unemployment (Ngene, Pinet, Maclay, Phiona, & Emilie, 2021). There has also been a rise in digital money loans and money-lending apps that provide credit to youths without access to formal financial services (Ibrahim & Onuoha, 2021).

The COVID-19 pandemic also revealed the absence of a social safety net for youths throughout Nigeria, and this has remained long after the epidemic has passed. As a result, many youths work in the informal economy, especially those between the ages of 15 and 24 (Oyesomi, Salawu, & Oluwatosin, 2021). Unfortunately, many of these youths were in danger when governments instituted lockdowns, travel restrictions, and shortened working hours. The COVID-19 pandemic created numerous challenges but also facilitated the transition to digital work, which offers opportunities for Nigeria's digital economy (Ngene, Pinet, Maclay, Phiona, & Emilie, 2021).

The COVID-19 pandemic catalysed the accelerated adoption and expansion of digital platforms globally, with Nigeria being no exception. Due to lockdowns and social distancing measures, schools, workplaces, and service providers transitioned to online platforms. Nigerian youths, who were already early adopters of mobile technology, encountered an unprecedented increase in digital engagement (Shola, Adewale, Oke, & Samuel, 2021).

Following the implementation of COVID-19 restrictions, educational institutions in Nigeria transitioned rapidly to online learning. This shift involved the use of various platforms, including Zoom, Google Classroom, and proprietary e-learning portals. The abrupt shift revealed considerable deficiencies in digital preparedness: a survey conducted in January 2021 by the NBS indicated that merely 38% of households possessed dependable internet access, while only 24% of young individuals reported consistent connectivity for online education (Salisu, Esomchi, Ibrahim, & Anselm, 2024). Demand for digital skills increased significantly as students and young professionals aimed to stay connected, informed, and productive.

Increase in the Adoption of Digital Skills

From 2020 to 2022, there was a reported increase of over 250% in enrolment for online coding bootcamps, digital marketing courses, and tech certification programmes in Nigeria, as indicated by data from the National Information Technology Development Agency (NITDA) (NITDA, 2021). Significant platforms, including Coursera and Udemy, documented a 300% increase in registrations from Nigeria during the specified timeframe. Government initiatives, notably the '3 Million Technical Talent' programme launched in October 2023, supported the increase. This programme aims to equip three million Nigerians with high-demand digital skills

by 2027. The programme's first cohort of 30,000 fellows, representing all six geopolitical zones, demonstrated the magnitude of state-led digital upskilling initiatives (NITDA, 2023).

Innovation Driven by Youth and Engagement with Platforms

The increase in digital literacy among the youth has resulted in greater engagement on established platforms as well as the development of new digital enterprises (Oduwole & Alabi, 2020). YOMA, a platform using blockchain technology for digital credentialing and a skills marketplace, recorded exponential growth in user registrations from April to December 2020. This growth indicates the willingness of young Nigerians to obtain verifiable evidence of newly acquired skills and to translate digital badges into concrete opportunities, including freelance work, formal employment, or additional training (Oduola & Adedayo, 2023).

Infrastructure and Access Limitations

Despite notable advancements, the rapid digital transformation revealed ongoing disparities. In 2021, the International Telecommunication Union reported that urban internet speeds in Lagos averaged 18 Mbps, while rural areas experienced connections below 2 Mbps. High data costs, which average 8% of monthly income, continue to pose a significant barrier for many youths (Ochinanwata, Paul, & Radicic, 2024). The structural barriers identified limited equitable access to YOMA's online modules and earning opportunities. These barriers highlight the necessity for lightweight, low-bandwidth platform versions and collaborations with telecom operators to subsidise data costs.

Collaboration Between Public and Private Sectors for Enhanced Digital Resilience

The COVID-19 pandemic made clear the importance of initiatives involving multiple stakeholders. The Federal Ministry of Communications, Innovation, and Digital Economy

(FMCIDEO) has collaborated with donor agencies and the private sector to enhance Nigeria's broadband infrastructure through the National Broadband Plan 2020–2025 (Chukwuma & Alex-Nmecha, 2022). At the same time, technology hubs including CcHub and Andela provided emergency digital skills workshops for thousands of unemployed youth, thereby supplying talent to platforms such as YOMA. The collaborations improved the resilience of the digital ecosystem and strengthened YOMA's ability to onboard new users.

Considerations for YOMA's Resilience and Future

The acceleration of digital adoption driven by COVID-19 has established a more robust foundation for YOMA's mission to empower Nigerian youths (Salisu, Esomchi, Ibrahim, & Anselm, 2024). The expanded demographic of digitally literate users has allowed YOMA to broaden its course offerings, ranging from fundamental digital literacy to advanced data science programmes, while also enhancing its blockchain credentialing system to accommodate higher transaction volumes. In the future, YOMA's resilience will rely on its capacity to:

- Enhance performance for low-bandwidth environments to guarantee smooth functionality on 2G and 3G networks.
- Establish enhanced collaborations with telecommunications providers to facilitate subsidised data plans or zero-rated access.
- Implement micro-learning modules designed to accommodate intermittent connectivity periods.
- Use AI-driven personalisation to direct users towards the most pertinent upskilling pathways.

Conclusion

The COVID-19 pandemic, despite its disruptive nature, expedited a digital transformation among Nigerian youths, resulting in lasting advantages for platforms such as YOMA (Salisu, Esomchi, Ibrahim, & Anselm, 2024). The increase in digital skills adoption, along with focused collaborations between public and private sectors and advancements in low-bandwidth technologies, has resulted in a more robust and inclusive online environment. YOMA strategically positions itself to maintain the momentum generated by the pandemic by addressing structural barriers and reinforcing its value proposition. This approach aims to transform digital acceleration into sustainable youth empowerment and socioeconomic advancement.

Digital Divides and Access Barriers in Nigeria

Considerable digital disparities persist in Nigeria, jeopardising the equitable allocation of the advantages that digital platforms like YOMA could provide for youth empowerment. The term 'digital divide' encompasses not only disparities in internet access but also profound structural inequalities in digital literacy, affordability, infrastructure, and socio-cultural dynamics that disproportionately impact specific sub-populations, particularly youth in rural or marginalised communities. A significant access obstacle in Nigeria is infrastructure inadequacy.

Despite advancements in mobile broadband coverage, several areas, especially in the Northeast and Northwest, continue to have inadequate electrical supply, insufficient 4G service, and unaffordable data plans (GSMA, 2024). The NCC reports that metropolitan regions enjoy more than 70% 4G coverage, yet rural areas remain undersupplied, and network quality often falls short for platform-based interactions like YOMA (NITDA, 2021). The World Bank (2021)

indicates that just 38% of Nigerians have internet connections, with a more pronounced disparity among young people without mobile devices (Ibrahim & Onuoha, 2021).

Nigeria, the most populous nation in Africa, has significant potential to emerge as a technology powerhouse on the continent, attributed to its substantial young population and increasing tech-savvy demography (Adebayo & Adeoye, 2019). Despite its potential, Nigeria continues to grapple with insufficient digital and technological infrastructure, which hinders the nation's progress and development. This problem impacts several areas, including education, healthcare, entrepreneurship, and government, and substantially impacts the economy and society:

Insufficient broadband penetration

A fundamental difficulty is the restricted availability of broadband services, especially in rural regions. Nigeria has achieved notable advancements in broadening internet connectivity, aiming for a government objective of 70% penetration by 2025, yet several areas remain inadequately supplied (GSMA, 2024). The absence of last-mile connections, inadequate investments in fibre-optic infrastructure, and geographical obstacles hinder the provision of reliable and cheap internet services nationwide. Without extensive internet connectivity, millions of Nigerians, especially the young, continue to remain excluded from the digital economy.

Internet penetration rates exhibit considerable variation across the geopolitical zones of Nigeria. In significant urban areas such as Lagos and Abuja, penetration exceeds 65%, while in numerous northern and rural states, it remains below 45% (Azu, Hussaini, Chima, & Abdullahi, 2025). Infrastructure concentration shows that submarine cables and fibre-optic backbones mainly serve coastal southern areas, leading to uneven mobile network coverage in inland regions.

Elevated expenses of internet services

The expense of internet services in Nigeria remains excessively exorbitant for a considerable segment of the population. Research has shown that the cost of mobile data in Nigeria is among the highest in sub-Saharan Africa relative to average income. Elevated prices primarily result from insufficient infrastructure, monopolistic behaviour by internet service providers (ISPs), and substantial taxes on imported telecommunications equipment. These financial obstacles prevent most Nigerians, particularly those in poverty, from using the internet, exacerbating the digital divide. The issue of affordability presents additional barriers to access (Ishaq & Ajibesin, 2022):

- **Cost of Data:** The average cost of 1 GB of mobile data in Nigeria is 3.5% of the average monthly income, which exceeds the UN's affordability threshold of 2%.
- **Cost of Devices:** Manufacturers price entry-level smartphones between NGN 30,000 and NGN 50,000 (about $20–$35), an amount that many low-income youths cannot afford

Inadequacies in Power Supply

The insufficiency of Nigeria's power supply system is a notable impediment to the advancement of digital infrastructure. Nigeria's energy infrastructure is markedly unpredictable, with regular power outages impairing the functionality of telecommunications towers, internet service providers, and data centres (Onisanwa & Adaji, 2020). A reliable and continuous power supply is crucial for effectively functioning digital and technical infrastructure.

Without reliable power, digital services become unstable, forcing companies and individuals to invest in alternative power sources like generators, which significantly increases

operating expenses. Frequent grid collapses characterise power unreliability, leading to the generation of only one-third of the available capacity. This situation necessitates reliance on expensive diesel generators in rural areas, consequently increasing connectivity costs (Olanrele, 2025).

Lack of Digital Competence and Literacy

Although physical infrastructure is essential, people's talent is as vital for a flourishing digital economy. Many Nigerian youths lack essential digital competencies to use the internet and employ technology tools proficiently. Inadequate digital literacy constrains young Nigerians' capacity to engage in online education, distant employment, and digital entrepreneurial ventures. Educational institutions often lack the resources necessary to provide high-quality ICT education, leading to a generation that may not be adequately equipped to capitalise on the digital era (Sadiq, Hack-Polay, Fuller, & Rahman, 2022).

Digital literacy exhibits significant variability, even among connected youth. A mere 55% of internet users in Nigeria report confidence in using online learning platforms and their advanced features, such as video conferencing. More than 40% of connected youth demonstrate insufficient knowledge of safe online practices, which may lead to exclusion stemming from mistrust or suboptimal user experiences (Fadiya & Akinola, 2024). Lacking sufficient digital skills can result in suboptimal use of platforms like YOMA, thereby diminishing the positive effects on confidence, skill-building, and social impact observed in research studies.

Literacy and Digital Proficiencies

The most significant perceived obstacle to mobile internet adoption across all areas is a lack of literacy and digital skills among youths who are aware of mobile internet, regardless of the country in which they reside (Fahrudi, 2020). Rural communities are more likely to cite digital literacy as the most significant obstacle to adoption than urban groups. Similarly, female youth are more likely than men, particularly in Africa, to see a lack of digital skills as the most significant obstacle to widespread mobile internet use (GSMA, 2024). However, more recently, literacy and digital skills have become less of a barrier in many nations, and in some instances, considerably so, such as in Indonesia, Bangladesh, Mexico, and Mozambique (Elomien, Ajayi, & Idowu, 2022). Although more than a third of the nation's people are illiterate, youths see a lack of digital skills and literacy as the most significant obstacle to using mobile internet to improve their livelihood. (Odumosu, Binuyo, & Adesoga, 2020).

These access barriers directly impact empowerment outcomes:

- Lack of control over technology access can hinder self-efficacy, leading to a decrease in confidence in digital contexts.
- Skill acquisition becomes disjointed or infeasible when connection or device use is irregular.
- The social impact decreases when digitally excluded youths are unable to participate in civic initiatives or showcase their accomplishments on platforms like YOMA.

These interactions point out the importance of inclusive platform design, fair onboarding techniques, and public-private partnerships that subsidise. Comprehending and addressing the many aspects of access is crucial for policymakers and platform designers dedicated to the digital empowerment of youths.

Nigeria's digital landscape exhibits significant disparities in access, proficiency, and usage, influenced by factors including geography, gender, income, and infrastructure. Despite significant increases in mobile subscriptions and internet users, a substantial disparity persists between urban and rural regions (NITDA, 2021).

The affordability of data and devices exacerbates these disparities, especially within low-income and female groups. The inconsistent supply of electricity and the underdevelopment of last-mile networks exacerbate these challenges. Additionally, limited digital literacy hinders meaningful engagement, even for individuals who possess nominal connectivity.

Impoverished Access and Quality of Education System

Nigerian education has long-standing difficulties that diminish quality and accessibility, affecting young people and society. Lack of qualified, educated workers is slowing economic and social progress. Early colonial missionary schools taught reading and religion in Nigeria. Nigeria tried to increase education following independence, but institutions resisted. Education is a human right, yet the sector is undeveloped, and policy execution is inconsistent. Structural difficulties have prevented educational reforms like the Universal Basic Education Commission (UBEC) from improving access and quality (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Insufficient finance plagues Nigeria's education system. Education gets a tiny portion of the government's budget, frequently under UNESCO's 15-20% (UNESCO and Equal Skills Coalition, 2019). Nigeria spent 5.6% of its 2021 budget on education, which is insufficient to meet the sector's diverse demands. Infrastructure, teacher compensation, educational resources, and administrative help suffer from investment deficiencies (UNESCO, 2021).

Libraries, scientific labs, and classroom space are few in rural and impoverished schools. Infrastructure issues pack classrooms, making it more challenging for teachers to supervise students or provide personalised attention. Water and sanitation are lacking, which can cause females to drop out of school (Olubusoye, Salisu, & Olofin, 2023).

Rural public schools often hire unqualified teachers due to staff shortages. Insufficient wages and working conditions deter qualified educators from entering or staying in the field. Without adequate resources and training, teachers struggle to teach effectively. Overcrowded classrooms impair learning by limiting professor-student interaction. Many children receive inadequate attention, and teachers struggle to manage large groups, which compromises instruction (Adedokun & Musa, 2021).

Geography, gender, financial status, and demographics make Nigerian education unequal. Rural schools, teachers, and infrastructure are insufficient. Occasionally these regions' children travel far to school, which decreases attendance, especially among younger students. Girls have additional hurdles due to gender imbalances and cultural traditions that favour boys' education. Early marriage, child labour (Akintaro, Adeyi, Ibrahim, & Oguntola, 2025).

Inexperienced teachers and insufficient resources also impede student performance. Despite considerable education, many Nigerian students lack fundamental reading and maths skills. Nigerian students' standard exam scores indicate that schools are failing to teach vital skills.

Many schools lack basic amenities like chairs, desks, and working blackboards, forcing students to sit on the floor or study in dangerous places. Rural and neglected areas often lack basic infrastructure, including buildings and technology. Nigeria's outmoded education system limits students' access to contemporary learning tools and resources throughout the global shift to digital and technology-enhanced education. The internet, computers, and other digital tools are missing in educational institutions, hindering students from learning digital literacy for global employment and engagement (Falebita, Kok, Ayanwoye, & Ogunjobi, 2025).

Many rural and conflict-affected households struggle to pay for schooling, uniforms, books, and transportation. Basic education is not free and necessary for all students, and hidden costs and practical impediments keep many from attending school. Violence and instability, especially in northern Nigeria, have disrupted education and displaced millions of children. Boko Haram's kidnappings and school attacks have generated a climate of fear and uncertainty that deters children, especially girls, from attending school. Nigeria has one of the world's highest out-of-school populations, exceeding 10 million. Uneducated youth struggle to procure work and contribute to the economy, worsening poverty and inequality (Magaji, Umar, & Yahaya, 2024).

Corruption and incompetence plague Nigeria's education system. Educational development resource mismanagement can lead to policy failure. Educational institutions are underfunded and mismanaged due to accountability and transparency difficulties, limiting access and quality. Complex problems include insufficient financing, infrastructure, teacher shortages, socioeconomic

hurdles, and poor policy execution, which affect Nigeria's poor education quality and access. To address these concerns, the government must increase education spending, improve teacher training and working conditions, and implement specific programmes for poor groups (Busayo, 2024).

To sustain progress and economic prosperity, Nigeria must prioritise education and provide exceptional learning opportunities for all its youths. Without significant changes and sustained investment, the nation risks increasing its socioeconomic divide and failing to capitalise on its large youth population.

Regulatory and Policy Obstacles

Regulatory obstacles also impede the development of Nigeria's digital infrastructure. The Nigerian government has initiated measures such as the National Digital Economy Policy and Strategy (2020–2030) and the Nigerian National Broadband Plan (2020–2025), although their implementation and enforcement are uneven (Shola, Adewale, Oke, & Samuel, 2021). In some instances, regulations hinder innovation and investment. High tariffs and import levies on ICT equipment, along with bureaucratic obstacles, deter private sector investment in telecommunications infrastructure, thereby hindering the spread of internet services.

The NCC reported that internet penetration in Nigeria was at 45% in 2023, and mobile phone use is extensive, with more than 200 million active mobile lines (Azu, Hussaini, Chima, & Abdullahi, 2025). Nonetheless, despite these advancements, the quality, accessibility, and cost of digital infrastructure continue to be significant issues. Rural and underprivileged populations experience markedly diminished internet connectivity and inferior digital literacy rates, which limit their participation in the digital economy.

The lack of sufficient digital infrastructure has significant repercussions for economic progress. The young population of Nigeria, among the most extensive and dynamic in Africa, often faces exclusion from digital economic activities owing to restricted internet access and inadequate digital skills (Fahrudi, 2020). This exclusion impedes business, job development, and economic empowerment. Moreover, given the absence of dependable digital infrastructure, Nigerian enterprises have challenges competing within the global market, resulting in forfeited economic possibilities and a deceleration in development (Elomien, Ajayi, & Idowu, 2022).

The digital divide significantly hinders access to education. Throughout the COVID-19 pandemic, as global education institutions transitioned to online platforms, some Nigerian students, especially in rural and economically disadvantaged areas, could not engage in remote learning owing to insufficient internet connection and digital equipment (Ajayi, Njoaguani, & Ajayi, 2022). This digital exclusion sustains educational inequality, leaving millions of Nigerian youths disadvantaged and ill-equipped for the requirements of the contemporary workforce (Ayub & Gbaa, 2020).

Insufficient digital infrastructure impedes the delivery of vital social services, including healthcare and social welfare programmes. Inadequate internet connections constrain telemedicine, which has the potential to transform healthcare access in Nigeria's rural and underserved areas. Likewise, government initiatives designed to assist at-risk groups or improve civic participation often encounter obstacles when digital infrastructure lacks the robustness necessary for extensive execution (Ehimomen, Nwosa, & Ugwu, 2020).

Economic and Affordability Limitations

Financial difficulties also limit access to devices and data services. Records from NBS indicate that more than 63% of Nigerians live below the poverty threshold, with youth unemployment above 42% (NBS, 2023). For many youths, acquiring a smartphone or sustaining data subscriptions for sites such as YOMA conflicts with fundamental life necessities. The digital affordability dilemma disproportionately impacts female-headed families, youths in rural settlements, and internally displaced individuals.

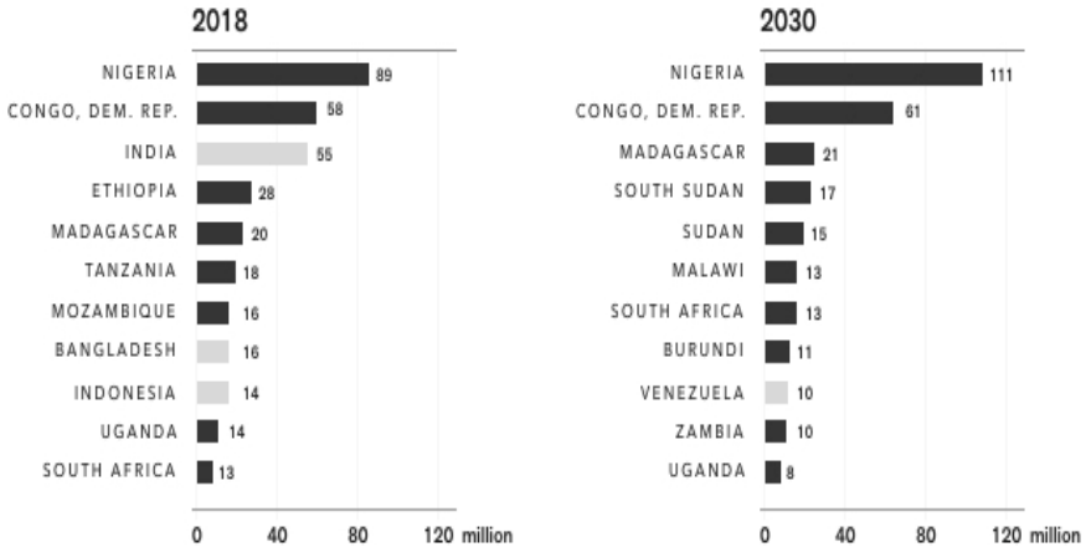
As a social phenomenon, there is evidence that various circumstances cause poverty, ranging from cultural to social to economic failures. Research has shown that a lack of economic and personal aptitude, leading to the marginalisation of youths within a community, is a common way to describe poverty (Elomien, Ajayi, & Idowu, 2022). For example, the prevalence of widespread poverty in Nigeria has had a detrimental effect on the average youth's quality of life. Extreme poverty in Nigeria mirrors civil suffocation, preventing many young people from realising their full potential (Osah, Isikalu, Doma, & Irmiya, 2025).

Research suggests that the causes of poverty include insufficient access to high-quality medical care, low consumption, and inadequate educational achievement. The United Nations' sustainable development objectives for the 21st century define eliminating poverty as the availability and access to education, adequate medical care, political participation, livelihoods, and a clean and safe environment (Odumosu, Binuyo, & Adesoga, 2020). Mismanagement, ineptitude, and corruption on the part of successive Nigerian administrations have prevented any of them from correctly combating the pervasive problem of poverty in the country.

Researchers suggest that by 2030, Nigeria will be home to 110 million people living in severe poverty (Joshua & Oni, 2014). The title of poverty capital of the world was not bestowed upon Nigeria by chance; rather, it is a result of years of poor management of the country's natural and human resources, leading to the proliferation of various factors that incite poverty growth throughout the country. Because the government has not set an official poverty line, researchers in Nigeria typically use the global $1.90 benchmark to calculate poverty levels. According to this benchmark, around 105,097,856 Nigerians, or approximately 51% of the country's population, live in severe poverty (Elomien, Ajayi, & Idowu, 2022).

Figure 11

Countries with the Largest Extreme-Poverty Populations, 2018 vs 2030 (millions)



Note. Adapted from the 2018 World Poverty Clock Report and Nigeria as "The Poverty Capital of the World": Changing the Narrative through Innovation, Leadership, and Sustainable

Development. Special Issue on Innovation and Sustainable Development in the Information Age, by Elomien, Ajayi, & Idowu, 2022, p. 382

Insufficient Access to Microfinance and Entrepreneurial Support

Nigeria faces substantial economic obstacles, particularly in equipping its young people with the essential resources needed for entrepreneurial success. Despite possessing a youthful population with significant economic development potential, the nation has challenges providing sufficient access to microfinance and entrepreneurship assistance for young entrepreneurs (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). The lack of access hinders Nigerian youths from starting or expanding their enterprises, thereby intensifying challenges such as unemployment, poverty, and economic disparity. The government and private sector established microfinance institutions (MFIs) to provide financial services, such as modest loans and savings accounts, to individuals (Ayub & Gbaa, 2020).

These services are essential for young entrepreneurs who often need initial financing but are ineligible for traditional bank loans owing to insufficient credit history, collateral, or stable income (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019). Notwithstanding the existence of MFIs, Nigerian youth's access to microfinance remains insufficient. A multitude of things contribute to this challenge:

- **Restricted Accessibility:** In Nigeria, the concentration of MFIs in metropolitan areas often leads to inadequate service provision for rural regions. This regional discrepancy indicates that many teenagers, especially those in isolated or

economically disadvantaged areas, lack access to the financial services essential for starting or developing their enterprises (Odeh & Okoye, 2014).

- **Elevated Interest Rates:** Despite the availability of microfinance services, the interest rates may be too high. Nigerian MFIs may impose yearly interest rates of 30-40%, complicating loan repayment for young entrepreneurs, particularly during the nascent phases of their firm growth. Elevated interest rates may deter young individuals from pursuing loans, restricting their development potential (Olubusoye, Salisu, & Olofin, 2023).
- **Strict Loan Criteria:** Numerous MFIs continue to need collateral or a guarantor, which young individuals, especially those from economically disadvantaged backgrounds, sometimes cannot provide. This limits access for those who need financial support to begin their business ventures (Onuka, 2021).

Obstacles in Obtaining Microfinance for Young People

Nigerian youths encounter several distinct obstacles in accessing microfinance services. A significant barrier for Nigerian youth is the deficiency of financial literacy. Many young entrepreneurs lack familiarity with the procedures for applying for and administering loans, which may dissuade them from pursuing microfinance services (Eze & Chukwuemeka, 2021). The knowledge gap is a significant concern that MFIs and government initiatives must address to cultivate a prosperous entrepreneurial environment. Recently, internet financial services have emerged as a feasible method for providing microfinance, particularly in regions with limited physical branch access (Olubusoye, Salisu, & Olofin, 2023).

Nevertheless, Nigeria's digital infrastructure is insufficient, particularly in rural regions with limited internet access and digital literacy. This abominable digital infrastructure complicates access to microfinance services via digital platforms for youths in these regions, exacerbating the urban-rural gap. Young individuals sometimes encounter protracted delays in loan application processing, with the associated processes being complex and expensive. Some microfinance officers demand bribes from prospective borrowers, making the loans inaccessible to many young Nigerians who cannot afford the extra cost (Osimen, Etoroma, Pokubo, & Adi, 2025).

Inadequate Entrepreneurial Support in Nigeria

In addition to the financing challenge, young entrepreneurs in Nigeria encounter inadequate access to entrepreneurial support programmes, including company development services, mentoring, and skills training. This support is essential for cultivating a robust young entrepreneurship ecosystem; however, they are often underfunded and poorly executed. Business development services, including training programmes, coaching, and access to business networks, are vital for young entrepreneurs. These services provide young individuals with the competencies and insights to run and expand their enterprises proficiently (Osinubi, Osinubi, & Ibukun, 2022).

However, Nigeria continues to limit the accessibility of these services. In metropolitan regions, the quality and availability of these services may be unreliable. Numerous programmes suffer from inadequate financing, and experienced mentors and trainers are deficient in guiding emerging entrepreneurs. Several young Nigerians find it difficult to overcome the hurdles associated with starting and operating a firm without appropriate entrepreneurial assistance (Olubusoye, Salisu, & Olofin, 2023).

The Nigerian government has enacted many policies and programmes to foster young entrepreneurship, including the National Youth Policy and the N-Power programme, yet these projects often lack significant effectiveness and durability. Corruption, incompetence, and inadequate policy execution have resulted in many young people lacking the necessary assistance (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Government initiatives aimed at delivering entrepreneurial training and financial assistance often do not reach their target recipients due to bureaucratic bottlenecks and insufficient monitoring and assessment. These initiatives have created a deficit of confidence among youth in government-sponsored projects, limiting their access to entrepreneurial support (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019). The restricted availability of microfinance and entrepreneurship support has several consequences for Nigerian youth:

- **Elevated Youth Unemployment Rates:** Nigeria has one of Africa's highest youth unemployment rates, exceeding 40% among young individuals. The absence of microfinance and entrepreneurial support substantially exacerbates this problem since several youths cannot start or grow firms without sufficient financial and business resources (NBS, 2023).
- **Poverty and Economic Disparity:** The lack of access to financial and entrepreneurial resources for young people sustains cycles of poverty and economic disparity in Nigeria. Young individuals unable to start enterprises or obtain steady jobs stay ensnared in poverty, which further constrains their capacity t.

- **Migration and Human Capital Flight:** Many young Nigerians relocate to other nations to pursue superior prospects, resulting in a brain drain. Nigeria's absence of financial assistance and business prospects partially drives this migratory trend. Individuals with talents and entrepreneurial aspirations often emigrate, depleting potential talent and innovation that may have enhanced Nigeria's economic development (Ehimomen, Nwosa, & Ugwu, 2020).

Notwithstanding the limitations, several possibilities exist to enhance access to microfinance and entrepreneurship support for Nigerian youths. The expansion of digital financial services offers substantial potential to enhance access to microfinance (Odumosu, Binuyo, & Adesoga, 2020). MFIs may use mobile technologies to reach youths in distant and underserved regions.

Mobile banking and digital wallets facilitate young entrepreneurs' access to loans, savings, and financial management. For digital financial services to be successful, the Nigerian government and business sector must invest in enhancing digital infrastructure, especially in rural regions. Moreover, initiatives designed to enhance digital literacy among youths are crucial for enabling optimal utilisation of these services (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019).

The business sector, governments, and international organisations must enhance their cooperation to offer more comprehensive support for entrepreneurship. Programme managers may still explore public-private partnerships (PPPs) to enhance entrepreneurial initiatives, provide additional financial avenues, and offer mentoring and skills training for young Nigerians (Nieuwenhuizen, 2022)..

International organisations, like the United Nations Development Programme (UNDP) and the World Bank, have collaborated with Nigerian institutions to execute youth entrepreneurship projects. However, these collaborations have not scaled enough to provide more sustainable and meaningful initiatives (Obielumani & Udechukwu, 2022).

The Nigerian government must enact changes to mitigate corruption and bureaucratic inefficiencies and enhance the effectiveness of microfinance and entrepreneurial support programmes. Transparent, responsible procedures for delivering financial and entrepreneurial resources promote confidence and ensure assistance reaches those who need it most (Odumosu, Binuyo, & Adesoga, 2020). The absence of microfinance and entrepreneurship support profoundly affects young livelihoods in Nigeria.

Resolving these difficulties requires a comprehensive strategy, including the expansion of digital financial services, the cultivation of public-private partnerships, and the execution of regulatory changes. Enhancing access to these resources would enable Nigeria to foster young entrepreneurship, mitigate unemployment, and stimulate economic growth and development (Okafor & Uche, 2022).

Citizen Science for Civic Participation

Citizen science involves the active participation of non-professionals in scientific research, typically through collecting, analysing, and reporting data (Okafor & Uche, 2022). Citizen participation is a research approach that encourages young people to actively participate in resolving scientific issues or mitigating social and environmental concerns. Several domains use citizen science, including astronomy, ecology, health, and social sciences. The concept promotes

the democratisation of science by enhancing its accessibility and inclusivity, enabling young people and communities to participate actively in research, irrespective of their formal competencies (Ogunlade & Ezeanya, 2018).

In the era of digitalisation, citizen science has become more ubiquitous due to the extensive use of mobile devices and the internet. Cellular devices, geotagging technology, and data-gathering applications enable young people to explore extensively by providing real-time data and observations from their surroundings (Oladipo & Ogunyemi, 2020). The increase in available data and community-driven resources has dramatically expanded the reach and impact of citizen science, making it a powerful tool for social change, environmental monitoring, and community involvement (Omopo & Ekpo, 2024).

Citizen science offers a distinct potential for a nation such as Nigeria, which has urgent development issues and a rapidly increasing young population. By implementing platforms such as YOMA, citizen science empowers young people, includes them in significant social activities, and addresses local and national challenges. By integrating young people with investigations and development initiatives, YOMA provides a structure for citizen science that facilitates scientific exploration and promotes the enhancement of skills, civic duty, and social influence (Dickson, 2022).

YOMA offers opportunities for young people to participate in meaningful initiatives, develop practical abilities, and contribute to addressing local and global issues. Incorporating citizen science within YOMA provides a means for the significant involvement of young people in exploration and problem-solving endeavours, yielding advantages for individuals and society.

Nigeria faces many environmental challenges, including deforestation, biodiversity depletion, air and water contamination, and climate change. The involvement of young Nigerians in ecological monitoring, data gathering, and awareness campaigns plays a crucial role in helping the government effectively address these issues (Akanle, Akanle, & Omotayo, 2019). YOMA enables young people to engage in citizen scientific initiatives that include monitoring air and water quality, documenting changes in biodiversity, and tracking the effects of climate change on local ecosystems.

For instance, young people can use mobile applications to record cases of illicit logging, monitor plastic contamination along beaches, or quantify water levels in regions susceptible to drought. These activities can potentially contribute to national and worldwide databases, providing significant data for environmental studies and policy formulation (Ajayi, Njoaguani, & Ajayi, 2022).

In another instance, the involvement of young people in environmental monitoring by YOMA can potentially cultivate a cohort of environmentally aware individuals who possess the necessary information and resources to safeguard their natural environment. These initiatives enable young people to gain knowledge in data collection, geographic information systems (GIS), and environmental science, boosting their competitiveness in today's job market.

Public health is also a domain in which citizen science may substantially influence. Nigeria faces ongoing challenges from contagious diseases such as malaria, tuberculosis (TB), and HIV/AIDS, in addition to emerging public health concerns like the COVID-19 pandemic (Elomien, Ajayi, & Idowu, 2022). The involvement of young Nigerians in such initiatives focused

on health data gathering, illness monitoring, and public awareness campaigns can significantly enhance health outcomes (Onuka, 2021).

Through YOMA, young people can engage in community-based health monitoring activities that gather data on illness symptoms, vaccination rates, and sanitation practices. For example, mobile health apps have the potential to enable young people to report outbreaks, monitor the transmission of illnesses, or actively participate in research on local health behaviours. These initiatives provide meaningful data for health organisations and policymakers and enlighten participants on the significance of public health and preventative care (Nwaozuru, et al., 2021).

By integrating these citizen science projects that prioritise health, YOMA can significantly enhance the health literacy of the community, enabling young Nigerians to actively participate in improving their communities' health. Studies suggest that young people who engage in such initiatives acquire proficiency in data gathering, public health analysis, and communication, potentially preparing them for job prospects within the healthcare industry (Adeola, Kolawole, Hassan, Olubusayo, & Adesina, 2022).

Citizen science often stimulates innovation by urging young people to think creatively to address practical challenges. Given Nigeria's prevalent problem of youth unemployment, YOMA cultivates an entrepreneurial mindset and creativity among the youth (Zimmerman, et al., 2018). By engaging in participatory experimentation, young people can generate innovative solutions to critical societal issues, thereby fostering the establishment of startups or social businesses.

For instance, a citizen science initiative focused on sustainable agriculture may motivate young Nigerians to experiment with various agricultural methods, assess the effects of organic fertilisers, or investigate novel approaches to minimising water usage. Dissemination of the data

and results obtained from these trials across the YOMA community has the potential to stimulate cooperation and promote innovation.

YOMA helps participants generate promising solutions, enabling them to expand their ideas, establish connections with mentors, and maybe get initial financing for their ventures. By encouraging innovation through citizen science, YOMA facilitates the development of a cohort of young Nigerians who can both seek employment and generate employment opportunities. The platform enables the exchange of ideas, resources, and experience, establishing a network of young innovators and stimulating transformation in their localities.

A fundamental tenet of citizen science is its capacity to augment civic participation by engaging young people in the scientific process and motivating them to assume accountability for the issues confronting their communities (Olubusoye, Salisu, & Olofin, 2023). YOMA, which already places significant emphasis on social impact and civic involvement, is highly suitable for harnessing the civic potential of citizen research (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

In Nigeria, where most youth are marginalised from decision-making processes and restricted in their ability to shape public policy, citizen science magnifies their voices (Ani & Odo, 2025). YOMA empowers young Nigerians to engage in initiatives addressing key concerns, including education quality, government effectiveness, and infrastructure development. By way of illustration, a citizen science initiative can engage young people in evaluating the condition of public schools in their localities, gathering information on school attendance, infrastructure, and resources. Stakeholders can use this data to advocate for policy changes or ensure local authorities' accountability.

Through such initiatives, young people acquire a more profound comprehension of the challenges impacting their communities, cultivate their ability to think critically, and develop the knowledge to use evidence to initiate constructive transformation (Zimmerman, et al., 2018). Furthermore, YOMA has the potential to establish linkages between these citizen scientists and politicians, NGOs, or international organisations, thereby guaranteeing that the gathered data promotes informed decision-making and enhances public services (Obia, 2025).

A fundamental competency young people acquire is data literacy, which refers to their capacity to gather, scrutinise, and understand data. In the contemporary era of digitalisation, proficiency in data literacy is a fundamental competency for almost all occupations, ranging from healthcare and education to banking and technology (Odumosu, Binuyo, & Adesoga, 2020). Nevertheless, many young people in Nigeria lack the digital and data literacy competencies to thrive in the employment sector. Incorporating citizen science by YOMA significantly contributes to resolving this skills gap. YOMA provides instructions on how to use digital tools for gathering data, analysing extensive datasets, and presenting results in an easily understandable manner. As a result, young Nigerians acquire practical knowledge in data collection, data entry into databases, and analytical interpretation.

This hands-on expertise is instrumental in a nation where the digital economy is seeing immense growth, and there is a rising need for proficient professionals in areas such as data analysis, software development, and digital marketing (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022). YOMA equips Nigerian young people for employment in the digital economy while cultivating a more profound comprehension of the social issues they strive to tackle. In addition, YOMA has the potential to enable young Nigerians to participate in research, innovation,

and social change actively, all the while acquiring essential skills in data literacy, critical thinking, and civic participation (Onipede, 2010).

Through cultivating a collaborative and participatory research culture, YOMA has the potential to establish itself as a frontrunner in youth empowerment and social impact (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). The citizen science model undertaken by YOMA makes valuable contributions to scientific exploration and cultivates a cohort of young Nigerians who possess the necessary abilities, information, and practical experience to promote sustainable development and effect social transformation actively.

In summary, the youth labour market in Nigeria is marked by elevated levels of unemployment and underemployment, a predominance of informal employment, and a constant mismatch between skills and available jobs. Digital access broadens opportunities; however, it is characterised by disparities. Urban centres benefit from extensive 4G coverage and lower data costs, whereas numerous rural regions encounter limitations in bandwidth and affordability. Additionally, a gender gap further restricts participation.

The structural frictions influence how young individuals engage with, acquire knowledge from, and respond to digital platforms. The model is required to explain whether engagement with YOMA, which provides mastery-based learning, credentials, and civic tasks, results in self-efficacy, skills, and social impact, notwithstanding the existing disparities. The study's zone × gender weighting and SEM design facilitate the operationalisation of this context for national inference.

Rethinking Digital Empowerment for the Future of Nigeria's Youth

Recently, the concept of digital empowerment has been prominent, as governments, development organisations, and private sector entities want to use technology to mitigate social and economic inequalities in Nigeria. Digital empowerment encompasses the process through which individuals and communities acquire the skills, confidence, access, and agency to use digital tools, thereby broadening their life opportunities, augmenting autonomy, and improving their participation in social, economic, or political spheres (Adeniran & Onuoha, 2020).

While developed countries often link digital empowerment to high-bandwidth innovations such as AI integration, platform entrepreneurship, and technology-driven civic infrastructure, Nigeria requires a more contextual and pragmatic approach. In this context, digital empowerment emphasises fair access, skill applicability, and systemic inclusion rather than sophisticated digital proficiency (Okafor & Uche, 2022). The availability of infrastructure, disparities in digital literacy, and socio-political limitations such as regulatory frameworks, gender inequality, and youth marginalisation, ntricately influence digital empowerment.

In the Nigerian context, stakeholders cannot appreciate digital empowerment without considering disparities in internet penetration, the affordability of smart devices, and the urban-rural disparity in digital preparedness. These realities influence not just the accessibility of platforms such as YOMA but also how empowerment is seen, especially with gender, class, and regional distinctions. The GSMA reports that more than 45 million Nigerian youth are either offline or digitally disengaged, not due to a lack of desire, but as a result of institutional exclusion (GSMA, 2024).

Empowerment in these circumstances is thus relational and multifaceted. A young individual may own a cell phone (connectivity) but lack the confidence (intrapersonal), skills (interactional), or organised opportunities (behavioural) to participate effectively with digital platforms. Grounding this discussion in Zimmerman's theoretical framework of empowerment enhances the analysis: his multidimensional approach offers a comprehensive lens for assessing digital empowerment in Nigeria, encompassing the psychological, social, and behavioural dynamics involved (Eze & Chukwuemeka, 2021). This theoretical framework provides a comprehensive measurement and understanding of empowerment that transcends simple access, directly correlating with the context-specific challenges and opportunities outlined.

Furthermore, digital empowerment in Nigeria increasingly depends on platforms that integrate education, opportunity alignment, and impact acknowledgement, which are attributes that define YOMA. These platforms serve not just as information repositories but also as ecosystems for self-development, including gamified credentials, token-based incentives, and avenues for micro-jobs or social involvement (Oyadeyi, 2024). This multi-functionality signifies a strategic transformation in the understanding of digital empowerment: it is not only about access but also about the systematic development of agency.

YOMA's rationale aligns precisely with this developing definition. The platform's architecture integrates micro-learning modules, blockchain-validated impact assignments, and incentive mechanisms to encourage youths towards progressive empowerment. Nonetheless, the success of these platforms needs empirical evaluation, particularly regarding their capacity to enhance self-confidence, facilitate skill transfer, and promote civic engagement. This study

addresses that gap by providing a quantifiable methodology for evaluating digital empowerment that aligns with the reality in Nigeria (Elomien, Ajayi, & Idowu, 2022).

This section underscores that truly inclusive digital innovation is not merely a technological challenge but a strategic opportunity for the industry as a whole. Organisations, NGOs, and government agencies working in these contexts must develop products and platforms that create value within existing constraints while recognising that empowerment is both a developmental outcome and a vital measure of progress. The success of digital platforms like YOMA ultimately hinges on their ability to close empowerment gaps, not just address issues of infrastructure or content. In essence, reimagining digital empowerment in Nigeria requires a shift from technology-centric models to approaches focused on user autonomy, equitable access, context-aware design, and sustained impact. These principles are central to both the underlying theory and the practical significance of this study.

Nigeria’s Digital Economy Policy (NDEP)

Nigeria's NDEPS (2020–2030) establishes an eight-pillar framework aimed at transforming the nation into a prominent digital economy. Digital Literacy & Skills (Pillar 2) underpins the mission of YOMA. Pillar 2 emphasises the importance of developing a digitally literate population and addressing the digital skills gap, particularly among youth aged 15 to 35. Essential strategies consist of

- **National Digital Literacy Programme (NDLP):** Provision of fundamental ICT skills for all citizens.

- **The Digital States Initiative (DSI) aims** to train 540 youths in each state in the areas of digital marketing, productivity tools, and content creation.
- **3 Million Technical Talent (3MTT):** The initiative aims to upskill three million Nigerians in advanced technology fields, including artificial intelligence, cybersecurity, and data science, by the year 2027.

NDEPS aims to integrate learning into local communities so that young people can use their skills in different situations and encourage sustainability with ongoing help from partnerships between the government and private sector. The micro-learning modules offered by YOMA, along with ZLTO rewards, help Pillar 2 by providing badges on a platform that NITDA recognises, which improves the reach of digital skills.

President Buhari launched and formally approved the National Digital Economy Policy and Strategy (NDEPS 2020–2030) in October 2019, designing it to diversify Nigeria's oil-dependent economy through digital transformation (Obia, 2025). The Federal Ministry of Communications and Digital Economy (FMoCDE) has redefined its mandate by adopting an eight-pillar approach that encompasses infrastructure, digital skills, innovation, and inclusion, classified as Pillar 1 through Pillar 8. The primary objectives are as follows (Sule, Sambo, & Yusuf, 2023):

- **Contribution to GDP:** Increase the digital economy's contribution to GDP from 15% to 25% by the year 2030.
- **Job creation:** Train 20 million Nigerians in digital skills by 2023 (interim target).
- **Poverty reduction:** Elevate 50 million Nigerians above the poverty threshold by leveraging digital opportunities.

- **Governance:** Governance involves the implementation of strategies to mitigate corruption by using e-governance and digital identity systems.

YOMA directly helps these programmes by offering blockchain-backed credentials, hands-on microlearning, and opportunities to earn. This approach reinforces national efforts aimed at closing the digital divide and empowering youth. The table below concisely summarises the two flagship youth-centric programmes under NDEPS:

Table 3

Comparison of NDEPS Programmes and YOMA

Programme	Launch	Focus Areas	Delivery Model	Relevance to YOMA
3 Million Technical Talent (3MTT)	October 2023; target of 3 million youths by 2027	AI, machine learning, cloud computing, cybersecurity, software engineering, data analytics	Phased, state-by-state cohorts across all 36 states and FCT; hybrid online/offline training administered by NITDA	It enhances YOMA's micro-credential programs by offering top-notch courses to certify intermediate-to-advanced digital skills, and it also creates a way to verify YOMA's credentials using blockchain.
Digital States Initiative (DSI)	March 2021; approx. 20,000 youths per cycle	Digital literacy, digital marketing, content creation, productivity tools	State hub model: 540 youth per state (incl. FCT) trained in rotating cycles by	Reinforces foundational digital literacy for YOMA users; YOMA builds on DSI by offering real-world micro-tasks, ZLTO token

Programme	Launch	Focus Areas	Delivery Model	Relevance to YOMA
			NITDA and state partners	incentives, and social-impact challenges that extend these core skills into practice.

Note: We derived the details of the 3 million Technical Talent (3MTT) programme from the rollout notice that NITDA issued in October 2023.

Alignment of YOMA with NDEPS: YOMA employs an integrated approach that combines learn-to-earn initiatives, social impact tasks, and blockchain credentials to effectively operationalise NDEPS within a youth-centric ecosystem. Positioning YOMA as both a beneficiary and implementer of NDEPS enhances Nigeria's national digital-economy objectives while effectively addressing essential youth-development requirements (Obia, 2025).

Mutual Lessons from NDEPS and YOMA: In conclusion, the collaboration between NDEPS and YOMA offers rich insights for reciprocal learning and growth. NDEPS demonstrates the importance of scalability and sustainability through government-backed infrastructures, while YOMA brings innovative tools such as blockchain-validated credentials and micro-learning modules that enhance lifelong learning and digital inclusion.

YOMA's low-bandwidth, SMS-driven accessibility can inform NDEPS strategies for reaching underserved rural and low-income groups, highlighting the necessity of inclusive design. Conversely, NDEPS's emphasis on public-private collaboration and national scale provides a blueprint for YOMA to embed its platform more deeply within national digital strategies and policy frameworks.

By sharing knowledge, both groups can improve how they connect with stakeholders, promote fair access, and make sure that digital changes in Nigeria provide lasting benefits for young people and the wider community. This synergy represents not only a model for effective digital empowerment but also a roadmap for creating inclusive and resilient digital futures.

Digital Platforms for Skills Development and Economic Opportunity in Nigeria

Recently, digital platforms have become essential facilitators of youth development initiatives in Africa, notably addressing the continent's significant young unemployment, skills mismatch, and educational access disparities. In Nigeria, where more than 33% of young people are jobless and an additional 20% are underemployed (NBS, 2023), platforms providing mobile-first, cost-effective learning and livelihood solutions are identified as scalable interventions for enhancing future preparation.

Digital platforms for education and employment aim to provide youths with skills, connect them to market opportunities, and increasingly enhance their digital autonomy. Nevertheless, the research has shown that while the use of such platforms is increasing, their efficacy in promoting empowerment outcomes, such as self-efficacy, adaptive skills, or civic engagement, remains little examined. This section evaluates significant platforms in Nigeria and the wider African setting, critically contrasting their design, limits, and promise with YOMA’s multi-dimensional architecture.

Soft Skills Training by Jobberman (Nigeria)

Jobberman, Nigeria's foremost employment portal, has recently expanded its offerings to include complimentary online training for the young. Supported by the Mastercard Foundation’s Young Africa Works project, Jobberman initiated a soft skills programme in 2020 that engaged

over 100,000 participants within 18 months. The programme covers communication, personal branding, collaboration, and emotional intelligence, and it delivers the content through a streamlined online interface. .

Initial assessments suggest enhancements in perceived employability; nonetheless, a further examination indicates that the program’s assessment criteria are mostly superficial, concentrating on module completion, certification, and post-training job applications. Arguably, the platform's ability to promote persistent self-efficacy, critical reflection, or behavioural change, which are also key indicators of empowerment, is lacking. Moreover, the platform lacks integrated avenues for civic or social involvement, which limits its capacity for comprehensive youth development.

Relearn via CcHub (Nigeria).

The Relearn initiative by Co-Creation Hub (CcHub) provides in-school and out-of-school children with access to digital literacy, coding skills, and critical thinking courses. Administered using tablets in community centres or schools and augmented by offline learning platforms, Relearn addresses infrastructure disparities among marginalised groups. Researchers note that learners using Relearn exhibited n.

This finding suggests preliminary evidence of interactional empowerment, consistent with Zimmerman's theory. Nevertheless, infrastructural limitations and dependence on facilitation constrain the programme's scalability and curtail its autonomy. Furthermore, Relearn is devoid of the gamified advancement and incentive-driven motivation that typifies more scalable digital therapies such as YOMA.

AltSchool Africa and ALX

AltSchool Africa and ALX Africa are pan-African educational portals that provide rigorous programmes in software engineering, data science, and digital marketing. These platforms emphasise technology professions by offering organised education, peer networks, and connections with employers. Their approaches include no upfront tuition; they use income-sharing agreements or corporate sponsorships instead. Although their reach is expanding swiftly, ALX, for instance, claims over 100,000 learners across Africa, which suggests their empowerment concept is economically significant (Owoeye, 2025).

They emphasise their financial potential and job market outcomes, often neglecting to incorporate civic identity, volunteer work, or community engagement into their educational experiences. The platforms might provide significant economic benefits, but they fail to address relational or behavioural empowerment, resulting in deficiencies in long-term inclusivity, resilience, and leadership development.

U-Report Nigeria by UNICEF

Although not a skills platform in the strictest sense, U-Report merits recognition as a digital tool that fosters young voices and civic involvement. Using SMS, WhatsApp, and Facebook Messenger, U-Report engages well over 3 million Nigerian youths in surveys, polls, and problem reporting. Research has shown that engagement enhances political awareness and collective action, particularly during crises like COVID-19 (Afolabi & Ilesanmi, 2021). Nonetheless, U-Report is deficient in a formal skills or livelihoods component, limiting its effectiveness for comprehensive empowerment.

Its strength lies in enhancing behavioural empowerment, particularly in civic agencies; however, it overlooks employability and interactional skill development, which are crucial

components of a comprehensive empowerment framework. Conversely, YOMA seeks to integrate self-efficacy, competencies, and social impact into a unified interface, making it more appropriate for comprehensive empowerment assessment.

Tony Elumelu Foundation (TEF)

The yearly TEF Entrepreneurship Programme is the primary initiative of TEFConnect, a prominent charitable organisation in Africa that aims to encourage young entrepreneurs. TEFConnect is a central platform for young African entrepreneurs to get information, seek guidance, and secure financial support. Focusing on youth entrepreneurship, TEFConnect offers training, initial finance, and coaching, making it a compelling option for young individuals interested in establishing firms instead of pursuing official employment (Nebo & Ndukwe, 2025).

The Fate Foundation

The Fate Foundation is a Nigerian non-profit organisation dedicated to fostering entrepreneurial growth and expanding small and medium-sized enterprises (SMEs) across Nigeria. The organisation provides training programmes in entrepreneurship, business strategy, and financial management, aligning with YOMA's emphasis on enhancing the skills of young people for diverse career prospects (Oladele & Bamkole, 2024).

The organisation runs a job readiness programme to help young people transition from informal to formal employment. Despite this, the foundation places a primary focus on entrepreneurship and the growth of SMEs, which leaves young people with few opportunities for employment in formal sectors or social impact projects.

iCreate Africa: The iCreate Africa platform is a Nigerian initiative that facilitates advancing vocational skills through contests, training programmes, and job matching. The

objective is to address youth unemployment by equipping young Nigerians with technical and vocational skills, emphasising practical experience and real-world applications. Primary components include skill contests, boot camps, job matching services, partnerships with businesses in technical sectors, and vocational skills training initiatives (icreateafrica, 2025).

Throughout Nigeria, many platforms and projects exist aimed specifically at equipping young people with the necessary skills, resources, and opportunities to thrive in a more digitised (Oriji & Kenechukwu, 2025). Although YOMA offers a comprehensive platform that integrates education, income, and social influence, other options, such as Jobberman in Nigeria, Moringa School in Kenya, and the Anzisha Prize across the continent, provide supplementary and sometimes specialised programmes for young people.

The examples above underscore the wide range of strategies used to tackle the issue of youth unemployment and the skills gap in Africa. Through entrepreneurship with the Anzisha Prize and TEFConnect, digital skills with Digital Skills for Africa and Moringa School, or specialised occupational skills with iCreate Africa, these platforms provide young Africans with a range of opportunities to construct their futures (Eze, Okwuosa, & Bello, 2021).

Furthermore, all of these initiatives, ranging from TEFConnect's emphasis on entrepreneurship to AkiraChix's focus on women in technology, demonstrate that Africa's young population has a comprehensive and expanding array of options to choose from as they progress in their professional trajectories. These choices indicate that it is important to consider the specific circumstances of the local environment when devising remedies for the distinctive issues faced by Africa, such as infrastructure constraints and skills disparities within the workforce.

The Critical Role of Internet Penetration for YOMA's Success in Nigeria

Nigeria, with over 200 million people, is Africa's most populous country and has one of the continent's most dynamic economies. Nigeria's increasing internet penetration is crucial to transforming the nation's economic, educational, and social aspects. Internet penetration in Nigeria in 2022, as reported by the NCC, was around 44.5%, which translates to over 109 million internet users (Sadiq, Hack-Polay, Fuller, & Rahman, 2022). The expansion of internet connectivity has significant implications for projects such as YOMA, which uses digital technology to provide young people access to educational, employment, and social engagement programs. Nevertheless, for platforms such as YOMA to attain extensive prevalence, it is essential to have reliable and reasonably priced internet connectivity.

The internet penetration in Nigeria has seen substantial development recently, primarily due to the rising use of smartphones, the expansion of mobile networks, and the increasing demand for digital services (Adeniran & Onuoha, 2020). The internet penetration rate in Nigeria has increased from a mere 0.1% in 2000 to around 50% of the population by 2022 (Nieuwenhuizen, 2022). The overwhelming majority of Nigerians use mobile phones to connect to the internet. According to the Global System for Mobile Communications Association (GSMA), 88% of internet users in Nigeria access the internet through mobile devices (GSMA, 2024).

The widespread availability of cost-effective cell phones has significantly contributed to the expansion of internet connectivity, enabling individuals in both metropolitan and rural regions to establish connections. The introduction of more cost-effective data packages by telecom carriers has facilitated the ability of an increasing number of Nigerians to maintain online connectivity. Although the high cost of data continues to be an obstacle for many young people, deliberate

attempts to lower these expenses have contributed to the enhancement of internet accessibility in recent times (Onuka, 2021).

Nigeria's regulatory authorities, including the Ministry of Communications and Digital Economy, have implemented many programmes to enhance digital literacy and broaden internet connectivity. The Federal Broadband Plan (2020-2025) seeks to achieve a broadband penetration rate of 70% by 2025 (Arejiogbe, et al., 2023). This plan will enhance internet access rates, particularly in geographically disadvantaged regions, and provide more avenues for platforms such as YOMA to engage with the youth in Nigeria. Although there has been substantial development, there are still some obstacles that impede the general use of the internet in Nigeria: in geographically disadvantaged regions, and provide more avenues for platforms such as YOMA to engage with the youth in Nigeria. Although there has been substantial development, there are still some obstacles that impede the general use of the internet in Nigeria:

Cost and affordability

Despite the expansion of internet connectivity, data costs continue to be a significant obstacle for many Nigerians, especially those residing in low-income or rural regions. The United Nations (UN) sets an affordability objective, but the expenses associated with internet access in Nigeria continue to exceed it (GSMA, 2024). The UN advises that the cost of 1GB of mobile data should not exceed 2% of the typical monthly income. Many young people, particularly those who are jobless or originate from economically disadvantaged backgrounds, struggle to sustain regular internet connectivity because of the exorbitant expenses associated with data (Nwanmuoh, Dibua, Onyegbuna, & Friday, 2024).

Nigeria's internet infrastructure exhibits significant network quality and coverage variations, particularly between urban and rural regions. While metropolitan locations like Lagos and Abuja benefit from comparatively high-speed and reliable internet, rural areas have restricted availability and slower speeds (Ayub & Gbaa, 2020). The existence of this digital divide restricts the capacity of young people in these regions to actively engage in digital educational and vocational platforms such as YOMA.

Digital literacy: Mere access to the internet is insufficient to narrow the achievement gap. Many Nigerians, particularly those residing in rural regions, do not possess the essential digital literacy skills required to browse and use internet platforms proficiently. This unfamiliarity with digital tools is a barrier for platforms such as YOMA that depend on young participation through mobile and internet technology (Chukwuma & Alex-Nmecha, 2022).

For YOMA to effectively connect and empower young people in Nigeria through digital methods, internet penetration is crucial. The development of learning-to-earning routes by YOMA relies directly on the level of accessibility of its platform for Nigerian young people. The present level of internet penetration's relevance to YOMA's business is as follows:

1. **Accessibility of the Platform**

YOMA is primarily an online platform, requiring users to have internet connectivity to create profiles, explore opportunities, and participate in challenges. Given that over 50% of the Nigerian population has access to the internet, YOMA has a significant pool of prospective young people to target (Azu, Hussaini, Chima, & Abdullahi, 2025). Nevertheless, the disparity in digital access, particularly the difference between urban and rural regions, implies that some young people

may be deprived of these possibilities unless innovative measures provide non-traditional ways of access.

2. **Mobile Design**

Given that the majority of Nigerian internet users use mobile devices to access the internet, YOMA's design, which prioritises the mobile user experience, is highly compatible with the behaviour (Onwuegbuchi & Okafor, 2020). YOMA's mobile interface, designed for low-bandwidth connections, enables young people in areas with limited infrastructure to interact with the platform effectively without needing high-speed internet. This strategy is crucial for engaging a more comprehensive range of Nigeria's young people, especially in rural and underprivileged areas.

3. Initiatives for promoting digital literacy

Considering the minimal internet literacy levels among Nigerian young people, the success of YOMA in Nigeria will also rely on providing complementary digital skills training. YOMA offers learning and earning opportunities, but it may require fundamental digital literacy instruction for many prospective users to participate effectively on the site. To overcome this obstacle, YOMA might collaborate with local organisations to implement digital literacy initiatives, enabling many young Nigerians to take advantage of and benefit from the platform's services (Oyesomi, Salawu, & Oluwatosin, 2021).

4. Promoting Engagement using ZLTO

The use of digital tokens (ZLTO) by YOMA as a reward mechanism aligns with the preferences of the Nigerian youth, a significant number of whom are adept with mobile payment systems and have knowledge of digital incentives. For young Nigerians who rely on mobile phones

for connectivity, the ability to exchange ZLTO tokens for essential services like airtime is a significant attraction. Implementing this incentive model addresses the financial obstacle linked to mobile data and promotes continuous participation on the platform (Obielumani & Udechukwu, 2022).

5. Enabling the younger generation in an expanding digital economy

The exponential growth of internet access in Nigeria presents digital platforms such as YOMA with increasingly significant chances to make a substantial impact. The platform's emphasis on providing young people with the necessary skills and qualifications to succeed in the digital economy is essential in a nation experiencing rapid growth in its technology ecosystem. Nigeria has some of the biggest technology firms in Africa, and YOMA's capacity to facilitate the participation of young people in these sectors by providing educational and career prospects is crucial for promoting youth employment (Oyadeyi, 2024).

The growing internet penetration in Nigeria presents platforms such as YOMA with lucrative prospects and formidable obstacles. Although the ever-increasing digital infrastructure provides millions of young people access to learning and earning possibilities, barriers such as cost, digital literacy, and inconsistent network coverage remain significant.

By continuously adjusting to the local environment, YOMA could play a key role in helping young people in Nigeria, especially as internet access improves across the country. By implementing effective techniques, YOMA has the potential to mitigate the digital gap and cultivate a new cohort of Nigerians empowered by technology.

The Role of Mobile and Computer Access for YOMA's Impact

Nigeria is seeing rapid technological progress, with the widespread deployment of mobile phones and computers playing a pivotal part in the country's digital revolution. Mobile technology has become a crucial catalyst for internet connectivity, communication, education, and economic engagement (Okafor & Uche, 2022).

For YOMA, it is essential to comprehend the extent of mobile and computer penetration in Nigeria to develop accessible and effective programmes. YOMA must also address the digital needs of its intended consumers, who mainly depend on mobile phones for internet connectivity because of the comparatively limited availability of laptops and other digital technological gadgets.

Nigeria's mobile and computer adoption level would arguably directly impact YOMA's market penetration and effectiveness, especially as it strives to empower millions of young Nigerians (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). Mobile phone penetration rates in Nigeria have seen significant expansion throughout the last ten years, with mobile phones being the main access point to the internet for most Nigerians.

The mobile subscriber base exceeded 225 million by the end of 2022, with approximately 90% of internet users in the nation accessing the internet through mobile devices. The accessibility of cost-effective smartphones, the proliferation of mobile networks, and the implementation of cost-effective data packages by telecommunications companies underscore the increase in mobile devices (Ayub & Gbaa, 2020).

The widespread use of mobile phones is a significant benefit for platforms like YOMA because with the implementation of a mobile-first platform, YOMA can effectively target a large demographic of Nigerian young people, a considerable portion of whom rely on their smartphones

to acquire information and interact with digital services. Furthermore, mobile phones have a dual role as communication devices and economic instruments, enabling young people to participate in micro-entrepreneurship, avail themselves of financial services, and acquire digital competencies.

Considering the widespread use of mobile phones in Nigeria, YOMA's emphasis on mobile-based solutions is well-suited to the needs and preferences of its target demographic. The mobile-first architecture of the platform ensures that all young people can access learning, earning, and social impact opportunities, regardless of their computer access.

Essential functionalities of YOMA, such as the generation of digital curriculum vitae, engagement in challenges, and accumulation of digital tokens, are specifically designed for mobile devices and enable users to interact with the platform regardless of location, minimising the obstacles related to geographical location or limitations in computer availability (Adeoye & Adeoye, 2017).

Furthermore, YOMA's use of ZLTO is pertinent in the Nigerian setting, as many Nigerian young people are already acquainted with mobile payment systems, and the opportunity to accumulate and exchange ZLTO tokens for mobile airtime, data, or other services may significantly promote continued involvement with the platform. With its focus on mobile technology, YOMA leverages Nigerian young people's already digital habits, facilitating its integration into their everyday routines (Wills, Parker, & Wills, 2015).

Although mobile phone use is more prevalent in Nigeria, the adoption of computers is still somewhat limited. According to data from the National Bureau of Statistics (NBS), about 10–15% of homes in Nigeria own a desktop or laptop computer (Onwuegbuchi & Okafor, 2020). The expense associated with acquiring a computer, the unreliable electricity system, and exorbitant

data fees restrict the extensive use of personal computers, especially in rural and economically disadvantaged regions (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Computing devices, nonetheless, remain crucial for accessing specific categories of digital material, such as intricate educational resources, productivity applications, and professional services. Notwithstanding the relatively lower prevalence of computers, metropolitan regions and educational establishments often exhibit greater computer availability, presenting prospects for students and young professionals seeking computers for specific activities or professional advancement (Onwuegbuchi & Okafor, 2020).

Nigeria's comparatively limited computer usage calls attention to the importance of mobile optimisation on platforms like YOMA (Chukwuma & Alex-Nmecha, 2022). Although the platform has the potential to provide improved functionalities for computer users, its primary focus should be on maintaining mobile accessibility to reach the broadest audience effectively. Indeed, in rural regions with limited computer access and a significant need for educational and occupational prospects, this is particularly crucial (GSMA, 2024).

YOMA can broaden its range of services by incorporating more sophisticated computer-based functionalities, especially as computer accessibility and digital literacy improve in metropolitan regions. These opportunities include more comprehensive learning modules or professional development courses that potentially necessitate a bigger screen or increased processing capabilities. By adopting this approach, YOMA can provide a versatile user experience that adapts to the changing digital environment of Nigeria, accommodating both mobile-first users and those with computer access.

Although mobile phones have become the prevailing method of internet connectivity in Nigeria, several infrastructural issues continue to impact the entire digital experience. The broadband penetration rate in Nigeria remains below the worldwide norms, albeit showing improvement. By 2022, the broadband adoption rate was about 45%, with significant discrepancies between urban and rural regions (GSMA, 2024). The persistent challenges of inadequate network coverage, sluggish internet speeds, and high data costs consistently hinder the achievement of broad digital inclusion, particularly among youth in underprivileged regions.

The success of YOMA in Nigeria would depend considerably on its capacity to manage these infrastructure obstacles effectively. By comprehending the digital constraints its intended users encounter, YOMA can develop solutions that optimise interactions while reducing barriers to participation. Ultimately, it is imperative to address digital literacy challenges in Nigeria, particularly regarding mobile phones and computers. Although many young Nigerians demonstrate proficiency in fundamental mobile operations, there is a pressing need for more sophisticated digital competencies, primarily as the economy increasingly depends on digital technologies and services (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

YOMA's emphasis on providing young learners with the necessary skills to succeed in the digital economy corresponds to this need. The platform provides young people with chances to cultivate job-specific talents and acquire expertise in using digital technologies, enhancing their overall employability. By including digital literacy training, YOMA plays a key role in helping young Nigerians move from basic cell phone use to more advanced digital skills.

Proficiency in navigating the digital environment, whether using mobile devices or PCs, is essential for fully capitalising on the potential presented by YOMA (Oluwakemi & Amaka, 2020).

Overall, the level of mobile phone and computer user adoption in Nigeria plays a crucial role in determining the ability of platforms such as YOMA to connect and interact with their intended users effectively.

Digital Divide Among Nigerian Youth

A growing collection of evidence suggests that differences in digital access, usage, and proficiency between men and women, commonly known as the gender digital divide, represent a considerable barrier to equitable youth development in Nigeria (Oluwakemi & Amaka, 2020). The preceding section, “Digital Disruption and the Gendered Future of Work”, examined the impact of technological change on labour markets.

In this section, the researcher emphasises the existing digital inequalities that YOMA must tackle to achieve its empowerment goals. This section analyses three fundamental aspects of the gender digital divide: access, skills, and usage, and contextualises them within YOMA’s mission to promote competence, confidence, connection, character, and caring among Nigerian youth.

Infrastructure, Affordability, and Safety. Disparities in Connectivity.

In sub-Saharan Africa, the likelihood of internet usage among men stands at 33.8%, compared to 22.6% for women, indicating a widening gender gap, which increased from 20.7% in 2013 to 37% in 2019. Nigeria exhibits a similar trend: urban women are approximately 11% less likely to use mobile Internet compared to urban men, whereas rural women are 22% less likely to use mobile Internet than rural men (Ayub & Gbaa, 2020). The identified disparities extend beyond numerical values, resulting in a reduced number of opportunities for young women to interact with digital platforms such as YOMA.

Affordability Barriers

Despite the presence of network coverage, the expense associated with data continues to be a significant barrier for numerous women in Nigeria. According to a report by UNESCO and the GSMA, women in low- and middle-income contexts face significant barriers to Internet access due to costs, which frequently surpass 10% of their monthly income (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022). Recognising and addressing the underlying data cost barriers is essential to ensuring that YOMA's token-based incentives and credential-sharing features effectively reach women.

Safety and Social Norms

In addition to infrastructure and cost considerations, established patriarchal norms limit women's mobility and autonomy. In certain Nigerian communities, women face a risk of harassment or violence when attempting to access public ICT centres. This situation compels them to depend on clandestine, low-privacy channels, which restrict their capacity to develop digital skills. YOMA should establish p.

Pathways to Collective Empowerment via Social Innovation

Social innovation signifies a transformative approach to tackling intricate societal issues through the creation and application of innovative social practices, processes, and frameworks that more efficiently fulfil human needs compared to current solutions. Technological or product innovations, primarily driven by market incentives, are not the same as social innovations. They emphasise collective well-being, equity, and sustainability, frequently arising from collaborative efforts among various stakeholders, including community members, non-profits, government entities, and private sector partners.

This structural perspective emphasises that researchers must analyse social innovation in the context of the historical, cultural, and organisational environments from which it emerges. As a result, it is essential to analyse initiatives like YOMA within the context of Nigeria's distinct socio-cultural dynamics and institutional frameworks in order to understand the collaborative construction of empowerment pathways by youth participants and supporting organisations.

Global Benchmarks with YOMA and Its International Counterparts

Although digital platforms for youth skills development and employment are becoming popular worldwide, few include the comprehensive empowerment dimensions of intrapersonal (self-efficacy), interactional (skills development), and behavioural (social impact) as systematically as YOMA does in this study. This section rigorously contrasts YOMA with other international frameworks that focus on youth development via digital innovation. These organisations include Opportunity@Work (USA), Kiron Open Higher Education (Germany, serving displaced people), and Bridge for Billions (global). This comparative research explores strategic and operational insights pertinent to the creation of inclusive, scalable, and impact-oriented platforms.

YOMA: A Triadic Empowerment Engine

The designers structured YOMA to function on a tripartite model:

i. **Learn:** Involves youths in skills development via concise digital courses from collaborators like SAP, UNICEF, and Generation Unlimited.

ii. **Earn:** Enabling youth to accomplish activities, challenges, and remunerated micro-gigs to acquire YOMA tokens or verified credentials.

iii. **Impact:** Engaging youth in civic activities and social innovation initiatives, authenticated by blockchain and recorded as reputation credentials.

In contrast to several digital platforms that focus just on upskilling or employability, YOMA strategically develops its approach to ensure empowerment and ongoing engagement. The operational logic adheres to a platform approach focused on ecosystem facilitation. Partners contribute content or challenges, while youths achieve verifiable accomplishments. The system enables value exchanges through tokens, recognition, and access to opportunities. Moreover, YOMA's design facilitates reputation portability; credentials acquired via the platform may be shown on LinkedIn, resumes, or presented to employers or educational institutions, therefore enhancing youth agency in the marketplace (Adebayo & Adeoye, 2019).

Digify Africa (South Africa)

Digify Africa serves as a significant initiative aimed at empowering youth through the development of digital skills and enhancing career readiness. The programme provides learning opportunities in both in-person and online formats via Digify Pro, Digify Bytes, and Digify General. The organisation collaborates with Facebook, Google, and Red Bull to provide training and mentoring that are relevant to the industry. Digify has successfully engaged over 100,000 young individuals; however, its operational model is predominantly supply-driven, la￼.

In contrast to YOMA, which enables user-generated learning journeys and various outcome pathways such as education, employment, and civic impact, Digify's model concludes at the stages of training and placement, lacking a more profound integration of social identity or community action. This comparison illustrates how YOMA transcends mere economic

empowerment, incorporating elements of civic and identity empowerment, representing a strategic innovation within the sector for youth development platforms.

Opportunity@Work (United States)

Opportunity@Work (O@W) is a nonprofit organisation in the United States that emphasises "STARs" (Skilled Through Alternative Routes) for individuals with verifiable talents but who lack college degrees. The primary platform, Stellarsight, consolidates data on career trajectories, competencies, and employer prerequisites to align STARs with job possibilities. O@W has significantly influenced the development of equity-focused workforce policy and has highlighted systemic exclusion in recruitment practices (Opportunity@Work, 2020).

Although it facilitates interactional empowerment via skill visibility, it does not involve users in behavioural or civic learning activities. Strategically, O@W demonstrates superiority in policy influence and employer engagement, areas in which YOMA has just begun involvement. In contrast, O@W's architecture lacks the comprehensive, community-integrated learning and social innovation components seen in YOMA, which indicates complementary capabilities, with YOMA providing a youth-developmental and multidimensional model suitable for the circumstances of Nigeria.

Kiron Open Higher Education (Germany)

Kiron offers displaced individuals and refugees, mainly from the Middle East and Sub-Saharan Africa, access to complimentary higher education via a digital learning platform. Specifically designed for learners without legal documentation or institutional access, the strategy integrates MOOC-based education with mentoring and career counselling. Kiron’s most significant innovation lets students stack modular credentials, combining coursework from

Coursera, edX, and other providers into a Kiron Curriculum, which they can later transfer toward university degrees.

Kiron's theory is individualistic and scholarly, with a restricted emphasis on civic empowerment or economic engagement via micro-tasks (Faek, 2023). However, YOMA's incorporation of learning, work execution, and civic engagement presents a more multifaceted value proposition than Kiron, particularly in scenarios where employment and empowerment are of equal significance.

Bridge for Billions

Bridge for Billions is a global incubation network that supports early-stage entrepreneurs through virtual coaching, a structured curriculum, and pitching opportunities used in more than 90 countries, including many African countries (David-West, Umukoro, & Onuoha, 2018). Although Bridge places entrepreneurship above overall adolescent development, it offers vital information regarding YOMA's progression:

- Focus on aligning mentors according to personality compatibility and industry relevance.
- Consistent progress monitoring and objective direction.
- Network development is a systematic, quantifiable result.

The bridge does not provide generalised learning or task-oriented engagement. Conversely, its cohort-based framework renders it high-touch and low-scale. Conversely, the designers co-created YOMA for interaction and extensive involvement; however, it might benefit from

including the organised mentoring components seen in Bridge to provide prolonged empowerment pathways for children.

Table 4

Comparable Global Models

Feature	YOMA	Digify Africa	Opportunity@Work	Kiron	Bridge for Billions
Learning	Micro-learning modules	Digital skills	Labour market mapping	MOOC-based	Entrepreneurship curriculum
Earning	Token-based microtasks	✕	Employer-matching	✕	Startup grants
Civic Engagement	Social impact tasks	✕	✕	✕	(Entrepreneurial social missions)
Empowerment Framing	Intrapersonal, interactional, behavioural	Interactional	Interactional	Intrapersonal	Behavioural
Platform Strategy	Ecosystem & gamified	Supply-driven	Data & policy	Modular credentialing	Mentor-matching

Note. This comparison shows how YOMA's "learn-earn-engage" stack differs from rival platforms. While Digify Africa and Opportunity@Work focus on discrete supply-side skills or labour-matching,

YOMA uniquely connects token-based micro-tasks with social-impact problems, anchoring Zimmerman's empowerment theory's three dimensions. Kiron and Bridge for Billions offer modular MOOCs and mentored entrepreneurship, respectively, without YOMA's gamified ecosystem and civic overlay. The synthesis shows that YOMA's ecosystem strategy and empowerment framing provide it an edge. This examination identifies YOMA as one of the most comprehensive empowerment systems worldwide, particularly in resource-constrained environments. Nevertheless, strategic possibilities persist:

- **Integration of mentoring:** Models such as Bridge demonstrate that mentorship enhances prolonged involvement and responsibility.

- **Data-intensive impact monitoring:** Opportunity@Work's dashboards and policy synchronisation provide a framework for enhanced employer involvement and impact documentation.
- **Credential pathways:** Kiron's credit transfer approach may guide future YOMA partnerships with educational institutions.

YOMA's positioning among global digital empowerment platforms highlights its distinctive triadic architecture, which integrates empowerment philosophy with platform strategy. Whereas most models emphasise one or two components (skills or employment), YOMA aims to develop resilient, competent, and civically engaged youth by integrating learning, activity, and recognition inside a unified digital platform.

This comparison provides actionable insights into the design, governance, and scalability of empowerment platforms for corporate administrators, social entrepreneurs, and politicians. The YOMA story illustrates the importance of platform ecosystems that extend beyond just content distribution to include community participation, reputation enhancement, and multidimensional empowerment.

Empowerment, in its many forms such as social, psychological, and digital, lies at the heart of effective youth development. In Nigeria, where young people comprise the majority of the population, empowering youth goes beyond traditional skill-building to embrace agency, self-efficacy, and social impact. As digital transformation accelerates, the acquisition of digital skills has become crucial for employability, entrepreneurship, and active participation in society. This

overview explores the theories, processes, and real-world importance of youth empowerment, highlighting how it serves as both a bridge and a catalyst for success in Nigeria.

Empowerment and Agency

The concept of empowerment encompasses several dimensions, forms, settings, and units of research. The empowering process involves an individual's actions to gain control, acquire necessary resources, and use external environment knowledge to become problem solvers. On the other hand, empowered outcomes are the results of these actions, including increased control through the effects of programmes (Adeniran & Onuoha, 2020).

Empowerment is how individuals, groups, and societies acquire and exercise control over their environments. This conceptual definition implies that essential components of the construct include collaboration with others to attain objectives, pursuit of resources, and critical awareness of the sociopolitical context (Osimen, Etoroma, Pokubo, & Adi, 2025).

A significant amount of empowerment research concentrates on identifying capacities instead of listing risk factors, and it explores the environmental effects of social issues instead of assigning blame to victims. Empowerment encompasses more than the traditional psychological concepts related to self-esteem, self-efficacy, competence, and locus of control (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021).

The various interpretations of empowerment typically correspond to an intentional and ongoing process centred on the local community. This process involves mutual respect, critical reflection, compassion, and group participation. It aims to enable individuals who lack a fair

distribution of valuable resources to gain greater access to and control over those resources (Onuka, 2021).

Youth Empowerment

Youth empowerment enhances individuals' capacity for self-reliance and autonomy, fosters positive self-perceptions, and enables them to exercise authority or acquire resources. Consequently, the empowerment process leads to a life characterised by overall welfare, and research has shown that the empowerment of youth across several domains, including economic, social, legal, and psychological, has a beneficial effect on society (Shaibu, Ahmed, Suleiman, Rabe, & Abdulmumini, 2018). Moreover, considering the problems posed by COVID-19, researchers argue that acquiring digital skills is needed to thrive in the period after the pandemic (Onuka, 2021).

Research has shown that youth well-being significantly influences the broader social and political environment, as outlined by empowerment theory, which encompasses procedures and structures designed to achieve specific empowerment objectives (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022). Empowerment provides the interconnections and collaborative action between youths and society to enhance their quality of life (Oluwakemi & Amaka, 2020).

Interventions that take an empowerment-oriented approach aim to improve youth development while alleviating existing problems and offering youth the chance to expand their knowledge and expertise. In theory, the concept supports the correlation between YOMA and the fight to build a community responsive to its youths' needs.

Social Empowerment

Research has shown that the sustainability of entrepreneurship is contingent upon social relationships (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022). Research has also shown that the quality of one's connections with the community significantly impacts the success or failure of innovative endeavours (Oladipo & Ogunyemi, 2020). Furthermore, social empowerment plays a crucial role in enhancing entrepreneurship by involving stakeholders who contribute to innovation through activities such as CSR.

Psychological Empowerment

Researchers define psychological empowerment as an inherent drive to complete tasks, reflecting a feeling of personal authority and influence over one's tasks, efforts, assignments, jobs, and work (Uche & Ojo, 2019). Researchers have also established a connection between psychological concepts and the evaluation of an individual's qualities concerning their personal, social, and professional identity or self-perception (Olubusoye, Salisu, & Olofin, 2023). Furthermore, other researchers describe psychological empowerment as encompassing three distinct types of power: social power, political power, and psychological power.

Digital Empowerment

Researchers examined the digital difficulties faced by youths during the COVID-19 pandemic (Onuka, 2021). Digital empowerment refers to providing individuals with the necessary abilities, understanding, and self-assurance to engage in the digital realm. It denotes using technology to enhance youths' productivity and drive and improve their daily livelihood. Several aspects contribute to digital empowerment, such as nurturing a digital mentality, appointing

suitable leaders, achieving a proper balance between talent and technology, digitising old systems, and integrating conventional and digital communication (Onwuegbuchi & Okafor, 2020).

In the modern world, advanced technological abilities are an excellent qualification for employment in the 21st century. Amid the digital revolution, technology has become essential to all industries, transforming our lifestyles and professional practices. Highlighted below are reasons why youths need to have digital skills (Okafor & Uche, 2022):

1. **Employability:** In the current era of technology, many occupations need a certain degree of proficiency in digital abilities. Possessing digital abilities improves an individual's career prospects and augments their employability (Ohize & Adamu, 2009).
2. **Future work market:** The employment market is constantly changing, and proficiency in digital skills is becoming increasingly crucial in almost every industry. Possessing digital abilities provides (Olubusoye, Salisu, & Olofin, 2023).
3. **Collaboration:** Digital skills empower young people to interact, cooperate, and exchange information through diverse digital platforms, including email, social media, and video conferencing. These abilities are essential for success in one's personal and professional endeavours (Nwuneli, 2016).
4. **Access to digital services:** Digital literacy enables young people to effortlessly access a wide range of information and services through online platforms. Users explore educational materials, acquire (Onwuegbuchi & Okafor, 2020).
5. **Entrepreneurship and innovation:** Digital skills empower young people to tap into their creativity, launch enterprises, and develop innovative solutions to social challenges.

Youths use digital tools and platforms to effectively reach their intended audience and promote their goods or services (Odumosu, Binuyo, & Adesoga, 2020).

6. **Personal development:** Acquiring digital skills enhances young individuals' cognitive abilities, problem-solving skills, and critical thinking. It enhances their ability to adapt, exhibit confidence, and demonstrate resilience in an ever-evolving digital landscape (Fahrudi, 2020).
7. **Digital literacy and empowerment:** Proficiency in digital skills empowers young people to actively participate in online activism, interact in digital communities, and advocate for social concerns. Digital platforms enhance public consciousness, rally assistance, and arguably constructively influence society (Eze & Chukwuemeka, 2021).

In summary, digital abilities have emerged as both an equaliser and an unjust advantage for employment in the present day. It provides youths from all backgrounds an equitable chance to showcase their skills and participate in the competition in the job market. Simultaneously, having proficiency in digital abilities distinguishes people, providing them with a competitive advantage in an era dominated by digital technology.

In an increasingly technologically driven world, acquiring digital skills is essential and key to success in a constantly evolving work market. In today's connected and digitised culture, possessing digital skills is crucial for young people to succeed, obtain meaningful jobs, and actively engage with the contemporary world.

From Human Capital to Empowered Agency

The premise of human capital development has consistently shaped policies and programs aimed at youth's growth. Experts traditionally define human capital development as the process of enhancing people's skills, knowledge, and capacities to boost productivity and economic value. This concept has guided Nigeria's investments in education, training, and employability initiatives. Successive governments have focused on youth development via skill acquisition and employment preparation, as shown by initiatives like N-Power, the Youth Employment and Social Support Operation (YESSO), and different vocational training programmes (Osimen, Etoroma, Pokubo, & Adi, 2025).

Nevertheless, rising criticisms underscore the constraints of an exclusively human capital framework, particularly concerning youth within intricate socio-economic systems. These criticisms argue that, while training and skill development are essential, they are insufficient on their own to achieve transformational outcomes such as autonomy, civic engagement, or sustained social mobility. In contexts characterised by marginalisation, informality, and governance shortcomings such as Nigeria (Oriji & Kenechukwu, 2025).

This transition has resulted in a conceptual and strategic transformation from "human capital" to "empowered agency". Human capital emphasises the contributions of youth to the economy, while empowerment asks about the actions young people may take for themselves, their communities, and in influencing the institutions that impact them (Oduwole & Alabi, 2020).

When considered through the lens of human capital, empowerment offers a more nuanced framework for evaluating youth development than traditional skill assessments alone. It recognises not only the accumulation of knowledge and competencies that enhance productivity but also how

young individuals perceive their capacity to influence life outcomes (self-efficacy), apply acquired skills in varied contexts (interactional competence), and participate meaningfully in collective or civic endeavours (behavioural expression).

These elements expand the conventional understanding of human capital by integrating Zimmerman's theory, which is now increasingly adopted by development organisations striving to measure both immediate learning gains and the sustained impact of education and training initiatives (Okafor & Uche, 2022).

This shift in approach pertains directly to impact assessment and platform efficiency from an industry standpoint. Organisations and public-sector programmes focused on youth development increasingly necessitate models that assess return on investment not only through employment metrics but also through empowerment metrics.

For systems such as YOMA, success depends not just on user metrics or content completion but also on profound behavioural changes that indicate enduring empowerment. This transformation is particularly significant for African innovation systems when viewed through the lens of human capital. Research highlights that youth-focused digital initiatives that prioritise credential attainment, such as badges or certificates, often fall short of actual human capital development if they overlook the deeper aspects of capacity (Eze, Okwuosa, & Bello, 2021).

Without fostering internal qualities like self-efficacy, skills development, or social impact, such interventions risk producing participants with formal qualifications but limited practical agency or adaptability. As a result, frameworks that merge traditional human capital investment skills, knowledge, and productivity with broader empowerment goals are increasingly favouring the creation of youth-focused platforms and public-private partnerships, ensuring that young

people not only acquire credentials but truly advance in their abilities to contribute meaningfully to society and the economy (Ayub & Gbaa, 2020).

Ultimately, this study demonstrates that effective youth development transcends the traditional boundaries of human capital formation. While foundational skills and knowledge remain critical, actual progress arises when these are coupled with empowerment, nurturing young people's confidence, agency, and capacity to effect change in their communities.

By evaluating platforms like YOMA not only for their ability to impart skills but also for their role in fostering self-efficacy, interactional competence, and meaningful participation, we advance a more holistic perspective on human capital. Studies indicate that equipping youth not just as productive economic contributors but as empowered agents capable of shaping their futures and societies yields the greatest return on investment.

Transforming Youth Agency in Civic Life

In the 21st century, digital technologies have revolutionised youth's engagement in civic life. Although conventional methods of civic engagement, such as voting, community meetings, and political rallies. The digital environment provides Nigerian youth, who face institutional distrust, unemployment, and social exclusion, with unparalleled opportunities for behavioural empowerment, the ability to take action (Ehimomen, Nwosa, & Ugwu, 2020).

This section explores how youth agencies, digital platforms, and civic engagement converge, with a specific focus on how platforms like YOMA foster behavioural empowerment. It also examines the dangers and asymmetries associated with digital civic involvement in weak or transitional democracies such as Nigeria.

1. Defining Digital Civic Engagement

Digital civic participation denotes youth-driven involvement in societal matters using digital instruments, including social media, smartphone applications, online petitions, and digital advocacy initiatives. These instruments enable personal expression and collective mobilisation (Akinyemi & Bamidele, 2019). In Nigeria, the youth have used sites such as Twitter (now X), WhatsApp, and YouTube not only for pleasure but also to:

- Organise for demonstrations (e.g. the #EndSARS movement)
- Ensure accountability of government officials
- Report malfeasance or community concerns
- Participate in digital volunteerism and community advocacy.

Studies show more than 60% of digitally active Nigerian youth participated in at least one civic-related online activity in the preceding year (Ani & Odo, 2025). These results indicate that digital engagement is both expressive and increasingly functional.

2. Theoretical Connection to Behavioural Empowerment

Zimmerman's tripartite model of psychological empowerment theorises that the behavioural component signifies active engagement in endeavours to exercise control over one's surroundings (Zimmerman, et al., 2018). In the context of youth and digital civic engagement, this behavioural component manifests as follows:

- Civic engagement (e.g., digital petitions, hashtags)
- Peer influence (e.g., mobilising acquaintances or networks)
- Development of alternative narratives (e.g., blogs, vlogs, podcasts)
- Digitally originated or supported community initiatives

Digital civic platforms serve as arenas of empowerment, enabling youths to evaluate their impact, affirm identities, and collaboratively develop solutions. Significantly, platforms like YOMA include systematic frameworks for civic engagement, including:

- Civic responsibilities
- Regional difficulties
- Programmes for youth ambassadors
- Tokenised verification of community contributions

These are essential attributes that transform digital interactions from passive consumption to organised behavioural agency.

3. Case Study: #EndSARS and Digital Mobilisation

The #EndSARS campaign in October 2020 was perhaps the most pivotal moment in young Nigerian internet activism. Triggered by reports of police brutality, especially from the SARS unit, Nigerian youth in significant cities and diaspora groups were organised both online and offline in a decentralised, non-hierarchical manner. Protest organisers used social media platforms to organise demonstrations and supplies, disseminate contact information for legal assistance, and chronicle law enforcement malpractice.

Researchers argue that #EndSARS transformed civic engagement in Nigeria, particularly among the young, by circumventing conventional institutions and using digital trust networks (Ani & Odo, 2025). Although YOMA did not directly participate in the demonstrations, the event highlights the digital literacy and civic awareness that platforms like YOMA want to foster by empowering, articulating, and organising young citizens.

4. YOMA's Pathways to Behavioural Empowerment

YOMA, as a digital empowerment platform, aims to convert purposeful youth involvement into quantifiable social benefits:

- **Civic challenges:** Participants engage in activities such as organising clean-up initiatives, planting trees, or participating in digital campaigning, and receive validation and incentives.
- **Reputation Building:** The history of a user's civic activities enhances their profile score, thereby affecting their access to possibilities.
- **Gamified engagement:** tokens, incentives, and badges provide feedback mechanisms that promote sustained behavioural involvement.

These processes correspond with the concept of "connective action," which refers to the use of digital technologies for coordinating activities without centralised leadership motivated by individual values and networked dissemination (Undelikwo, Fortune, Lilian, Mathew, & Adejumo, 2024). YOMA’s methodology thereby institutionalises behavioural empowerment by rewarding both offline civic efforts and digital micro-engagements.

5. Obstacles to Digital Civic Engagement in Nigeria

Notwithstanding the optimism, certain obstacles mitigate the innovative potential of digital civic engagement in Nigeria:

a. **Digital Disparity:** Not all young people possess equitable access to cell phones, data, or reliable energy. The presence of digital disparity prevents rural and economically

disadvantaged youth from using several digital platforms (Onwuegbuchi & Okafor, 2020).

b. **Surveillance and Censorship:** The Nigerian government's Twitter prohibition in 2021, along with escalating cybercrime legislation, has fostered an environment of digital monitoring that might inhibit free speech (Oladipo & Ogunyemi, 2020).

c. **Tokenism and Performative Activism:** Certain opponents contend that platforms may incentivise superficial involvement, such as liking a civic post, without fostering substantive behavioural change. This "clicktivism" may diminish the desired depth of empowerment (Okafor & Uche, 2022).

d. **Deficiencies in Trust:** Platforms must contend with diminished faith in institutions. If the youth do not trust that civic acts will result in systemic change, their involvement may diminish over time. To address these issues, platforms such as YOMA must establish reliable alliances, community validation procedures, and feedback channels that demonstrate effectiveness (Obielumani & Udechukwu, 2022).

Overall, digital civic involvement among youth has become fundamental to the expression of agency, empowerment, and identity in contemporary Nigeria. Platforms like YOMA have the capability to organise and amplify this engagement in ways that are both quantifiable and transformative.

Conclusion

Notwithstanding the variety of youth empowerment research in Nigeria, several constraints endure. Few studies use a multidimensional empowerment approach that connects intrapersonal, interactional, and behavioural outcomes. Secondly, the incorporation of digital platforms into

empowerment evaluations remains restricted, despite the increasing prevalence of mobile-first solutions. Third, most of the literature on empowerment emphasises education, employment, and civic activities rather than their interconnectedness.

This study expands upon current Nigerian literature by implementing an integrated empowerment theory inside a practical digital intervention (YOMA), using robust quantitative methodologies to evaluate the correlations between platform use and empowerment results. It enhances both the scholarly discourse and the formulation of evidence-based digital youth programmes in Nigeria.

Defining Youth Empowerment

Intrapersonal (Self-Efficacy)

Intrapersonal empowerment refers to the conviction that one possesses the capability to achieve a task and that the outcome will have significance (Bandura, 1997). The content addresses the ability to initiate tasks, maintain persistence during challenging phases, and effectively recuperate following setbacks. In the context of Nigerian youth utilising YOMA, self-efficacy is demonstrated when a learner initiates a course with confidence, anticipates successful completion, and holds the belief that the acquired skill can positively impact their employment opportunities or community involvement.

The process encompasses the establishment of objectives, the formulation of a step-by-step plan, and the objective assessment of progress. High self-efficacy is characterised by a realistic assessment of one's capabilities, developed through incremental achievements, reliable feedback, and observing peers' successes.

Interactional (Skills/Resources)

Interactional empowerment involves understanding the processes necessary to achieve objectives through collaboration with individuals and systems (Agada & Etorti, 2023). The integration of practical skills, including digital literacy, problem-solving, and communication, is complemented by the ability to identify and use various resources, such as credentials, mentors, labour market information, and supportive networks.

In Nigeria, this involves identifying the badges that are valued by employers, engaging in micro-learning that demonstrates those skills, and effectively navigating both public schemes (such as NYSC and NELEX) and private opportunities (Dickson, 2022). The ability to seek assistance, evaluate alternatives, and select the appropriate tool for the task is also essential. Interactional empowerment transforms personal confidence into practical competence and accessibility, thereby generating tangible opportunities in education, employment, and entrepreneurship.

Behavioural (Social Impact)

Behavioural empowerment refers to the actions individuals take using their confidence and skills (Zimmerman, 2018). The actions are observable and provide benefits to others, including mentoring a peer, participating in a clean-up, assessing flood risks, coordinating a campus initiative, or submitting a community solution on YOMA. The parameters encompass frequency, defined as the occurrence rate; intensity, which refers to the time or effort expended; and durability, indicating sustained participation rather than isolated instances. In the context of Nigeria, behavioural empowerment refers to the transformation of digital learning and badges into civic

contributions: incremental, localised actions aimed at addressing challenges related to unemployment, health, or education.

This represents a demonstration of agency in the real world, marking the intersection where personal development translates into societal benefit and localised actions aimed at addressing challenges related to unemployment, health, or education. This represents a demonstration of agency in the real world, marking the intersection where personal development translates into societal benefit.

Theoretical Framework

Framing the Theoretical Lens

This study seeks to understand how a digital social-innovation platform like YOMA empowers Nigerian youth by enhancing self-efficacy, developing employable skills, and stimulating social impact. The overarching research question: to what extent does engagement with YOMA predict self-efficacy, skills development, and social-impact outcomes among Nigerian youth? requires empirical measurement and theoretical interpretation. The quantitative results in this study reveal that relationships exist while the theories explain why and how they occur.

Consequently, the theoretical framework functions as the interpretive architecture of this study. It delineates the conceptual tools through which empirical evidence is understood and linked to wider debates in youth empowerment, behavioural psychology, and digital innovation. The framework therefore (a) captures the multi-dimensional nature of empowerment, (b) explains the

psychological mechanisms that drive empowerment within digital environments, and (c) aligns with the post-positivist ontology that underpins the study's explanatory, model-testing design.

The Need for a Theoretical Toolbox

The literature review highlighted two intertwined problems. First, youth-empowerment programmes in Nigeria often rely on descriptive metrics like numbers trained, tokens distributed without a coherent theory of change that clarifies how digital engagement generates agency. Second, existing research tends to isolate psychosocial outcomes from their technological context, treating self-efficacy, skills, and social impact as independent rather than mutually reinforcing constructs.

Addressing these gaps requires an integrated theoretical 'toolbox', one that can illuminate both the psychological processes (belief formation, motivation, learning) and the structural outcomes (capacity, participation, community contribution) of digital empowerment. Theory thus becomes more than a background citation, thereby setting conceptual instruments that transform raw data into explanatory insight. In this study, the theories act as a bridge between digital behaviour and developmental consequence, allowing the researcher to interpret statistical relationships through established scholarly logics.

Selecting the Theoretical Lenses

After evaluating numerous alternatives including Sen's Capability Approach (Prince, Ehi, Brown-Ofoeme, Collins, & Alobele, 2023), Deci and Ryan's Self-Determination Theory (Pepple, Ene, Dauda, Omosebi, & Ogar, 2024), and Ajzen's Theory of Planned Behaviour (Ojedokun, Henschel, Arant, & Boehnke, 2022), two frameworks emerged as most compatible with the study's aims and methodological stance:

1. **Marc Zimmerman's Empowerment Theory**, which provides a multidimensional model of agency comprising intrapersonal, interactional, and behavioural components (Attah, Anyebe, & Adamu, 2023).
2. **Albert Bandura's Social Cognitive Theory**, which elucidates the psychological mechanisms particularly self-efficacy, through which individuals learn and enact change.

Empowerment Theory explains what empowerment looks like once achieved (Wali & Kanaba, 2023). Social Cognitive Theory explains how empowerment develops through cognitive and social processes. Their integration offers a logically coherent and epistemologically aligned lens for examining YOMA, a digital system designed to transform micro-learning and social participation into measurable empowerment outcomes.

Locating the Framework within Epistemological Boundaries

Both theories share a post-positivist orientation, acknowledging that social reality is observable, measurable, and pattern-based, yet influenced by context and perception. This stance suits the study's quantitative, model-testing methodology, which assumes that latent psychological constructs can be inferred from measurable indicators (Lukman, 2021). Contrasting interpretivist theories that prioritise subjective narratives, the chosen framework permits the estimation of causal-probabilistic relationships among constructs (YOMA engagement → self-efficacy → skills → social impact) while recognising human agency and environmental reciprocity.

By aligning epistemology with method, the framework ensures philosophical coherence which suggest that reality is objective enough to be modelled statistically but dynamic enough to reflect the evolving interplay between digital environments and human behaviour (Nwosimiri, 2022).

Defining the Function of the Theoretical Framework in This Study

Within this study, the theoretical framework performs five interconnected functions:

1. **Conceptual Definition:** It specifies the meaning of empowerment in digital contexts, preventing conceptual drift between “skills training” and “agency formation.”
2. **Causal Explanation:** It identifies the mechanisms linking YOMA participation to empowerment outcomes, transforming correlation into theoretically grounded causation.
3. **Measurement Guidance:** It informs the design of constructs and indicators for the SEM model, ensuring that empirical variables correspond to theoretical dimensions.
4. **Comparative Interpretation:** It situates findings within the broader academic discourse, enabling cross-study comparison and theoretical refinement.
5. **Critical Reflection:** It acknowledges the assumptions and limitations of applying these theories in a blockchain-enabled environment, maintaining scholarly reflexivity.

The Rationale for Using a Dual-Theory Approach

Adopting a single theory would risk partial explanation. Empowerment Theory, though robust in community psychology, often under-specifies the cognitive processes that generate empowerment (Zimmerman, 2018). Conversely, Social Cognitive Theory provides a detailed account of learning and motivation but seldom addresses structural or collective outcomes (Bandura, 1997). By combining them, this study captures both process and product, the inner psychological changes and the outer behavioural expressions that constitute empowerment.

Critically, this is not a merger of incompatible paradigms but a strategic alignment within a shared epistemic family. Both theories rest on empirical realism, view agency as learnable, and recognise reciprocal interaction between person, behaviour, and environment. This congruence

legitimises their integration without violating ontological consistency. However, the thesis remains cautious: the theories were developed in Western contexts and may not fully capture socio-cultural nuances of Nigerian youth. Recognising this limitation, the study tests their cross-cultural applicability rather than assuming universality.

Linking the Framework to the Research Problem

Nigeria's youth face structural unemployment, limited access to skills development, and declining civic engagement, issues amplified by digital divides and policy fragmentation. The literature review identified a missing theoretical conduit connecting digital participation to empowerment outcomes. The chosen framework directly addresses this void. Social Cognitive Theory clarifies how YOMA's features micro-learning, peer feedback, tokenised rewards stimulate mastery experiences and social persuasion, building self-efficacy. Empowerment Theory then contextualises how enhanced self-efficacy translates into tangible competencies and civic behaviours. Together, they transform an applied development question into a testable theoretical proposition: digital engagement can catalyse empowerment through psychological and structural pathways.

The Role of Theory as Methodological Compass

Finally, the framework operates as a methodological compass guiding every subsequent research stage. It dictates variable operationalisation, informs questionnaire design, and provides the logic for hypothesis formulation. Each empirical pathway tested in the SEM (YOMA → SE, YOMA → SD, YOMA → SI) corresponds to a theoretically justified linkage derived from the dual-framework integration.

The Foundation: Empowerment Theory

Origins and Evolution of Empowerment Thought

The notion of empowerment emerged in the 1970s from community psychology's critique of deficit-based social programmes that viewed marginalised groups as passive recipients of aid. Pioneers such as Rappaport (1981) and Zimmerman (1990) reframed empowerment as the process by which individuals, organisations, and communities gain mastery over their affairs (Zimmerman, et al., 2018). Rather than prescribing what empowerment should look like, these scholars conceptualised it as a multi-level construct encompassing personal agency, participatory competence, and collective efficacy.

Zimmerman (1990) formalised this discourse into what is now widely termed Psychological Empowerment Theory, arguing that empowerment is both an outcome and an ongoing process that links perceptions of control with action in sociopolitical contexts (Zimmerman, et al., 2018). His framework sought to operationalise the abstract ideal of empowerment through measurable psychological dimensions, making it particularly suitable for empirical research using quantitative methods. Over the past three decades, the theory has evolved across disciplines such as health promotion, education, organisational behaviour, and youth development, each adapting its core logic to distinct contexts.

Core Dimensions and Key Constructs

Zimmerman distinguished three interdependent dimensions (Zimmerman, et al., 2018):

1. **Intrapersonal Component – Perceived Control and Self-Efficacy:** This dimension refers to individuals' beliefs about their capacity to influence outcomes. It encompasses perceived competence, locus of control, and self-efficacy. In youth-development contexts,

this translates into confidence to pursue goals, make decisions, and persist in the face of barriers. Within the YOMA study, this component maps directly onto the construct of self-efficacy, the psychological foundation upon which empowerment builds.

2. **Interactional Component – Critical Awareness and Skill Acquisition:** Empowerment also requires the cognitive and behavioural skills to understand and navigate socio-institutional structures. Zimmerman argued that empowered individuals possess critical consciousness, problem-solving abilities, and resource-mobilisation skills. In the digital economy, these competencies manifest as technical and entrepreneurial skills that allow youth to convert digital participation into economic value. Hence, the skills-development variable in this study operationalises the interactional dimension.
3. **Behavioural Component – Participatory and Prosocial Action:** The behavioural dimension captures observable actions that express empowerment such as volunteering, community involvement, leadership, or innovation for social good. It reflects the translation of internal belief and cognitive skill into collective impact. In YOMA, this corresponds to social-impact engagement, the extent to which users contribute to community challenges or civic projects facilitated through the platform.

Zimmerman emphasised that these dimensions are sequential but cyclical: intrapersonal belief fosters interactional competence, which enables behavioural contribution, which in turn reinforces self-efficacy. This reciprocal structure aligns conceptually with the reciprocal determinism later discussed in Bandura's Social Cognitive Theory, making the two frameworks complementary.

Competing Schools and Interpretive Variants

Empowerment theory has developed two broad schools:

- **Structuralist/Collectivist Perspectives**, rooted in Freire's Pedagogy of the Oppressed (1970) and later in development studies, view empowerment as liberation from systemic constraints (Freire, 2018). They stress power redistribution, rights, and participation in governance.
- **Psychological/Agency-Centred Perspectives**, championed by Zimmerman, treat empowerment as an internal process of competence and control that enables effective engagement with structures (Zimmerman & London, 2003).

This study aligns with the psychological-agency school, not because structural barriers are irrelevant, but because the research focus is on how digital interaction changes personal agency and behaviour. YOMA is not a policy apparatus but a socio-technical platform; therefore, measuring empowerment at the psychological and behavioural levels provides a tractable analytic lens consistent with the study's micro-level data and quantitative method. Nevertheless, the structuralist critique remains acknowledged: individual empowerment without institutional reform may yield limited systemic change. This reflexive stance guards against overstating the transformative potential of digital platforms in isolation.

Applications and Evidence Base

Historically, Empowerment Theory has been extensively validated in youth programmes across health promotion (Holden, Messeri, Douglas Evans, Crankshaw, & Ben-Davies, 2004), community service (Chinman & Linney, 1998), and civic-technology initiatives (Christens, 2012). Empirical findings consistently show that increases in perceived control and competence predict greater participation and wellbeing. However, most studies have relied on small, locality-specific

samples and analogue interventions. Few have examined whether empowerment processes can occur through digital mediation a notable gap that this study addresses.

In adapting the theory to YOMA, empowerment is reconceptualised as a digitally facilitated process wherein mobile-based learning, peer networks, and tokenised incentives substitute for traditional face-to-face mentoring and community forums. This adaptation tests the portability of Zimmerman's constructs into online environments, extending the theory's explanatory range while subjecting it to cross-cultural scrutiny.

Relevance to the Study Aims and Objectives

The study's objectives are to test how YOMA engagement predicts self-efficacy, skills, and social impact which map precisely onto Zimmerman's tri-dimensional schema. By operationalising each dimension as a latent construct within SEM, the research quantifies empowerment as an integrated system rather than a singular attribute. This approach fulfils the study's aim to transform a policy problem ("can digital platforms empower youth?") into a theoretically testable model of empowerment pathways.

Furthermore, the theory provides interpretive logic for each hypothesised relationship:

- Increased platform engagement offers mastery and recognition, enhancing intrapersonal empowerment (self-efficacy).
- Sustained engagement exposes users to resources and learning opportunities, fostering interactional empowerment (skills).
- Cumulative mastery and competence translate into behavioural empowerment (social impact).

Thus, Empowerment Theory functions as both the conceptual blueprint for measurement and the interpretive scaffold for explaining observed statistical linkages.

Strengths and Advantages

The principal strength of Empowerment Theory lies in its multi-level coherence, linking personal psychology to collective behaviour. It accommodates heterogeneity: empowerment can occur at different rates and expressions without presuming uniform outcomes. For a digital platform operating across Nigeria's six geopolitical zones, this flexibility is critical. The theory's dimensionality also aligns with modern impact-evaluation needs by allowing separate yet connected indicators of success.

Moreover, the framework is action oriented. Zimmerman intentionally designed it to inform programme design and assessment, making it ideal for a practitioner-engaged doctorate (Zimmerman, 2018). Its compatibility with quantitative modelling facilitates the kind of statistical testing (SEM) employed in this research, bridging social-science theory and data analytics.

Limitations and Critiques

Despite its strengths, Empowerment Theory is not without critique. Researchers argue that it may over-individualise structural problems by focusing on perceived control rather than actual resource access (Zahniser & Zimmerman, 1991). Measurement instruments sometimes privilege Western notions of autonomy and self-assertion, which may not translate seamlessly to collectivist cultures where interdependence defines agency. In digital contexts, "empowerment" can also be conflated with engagement, risking the assumption that online activity automatically equates to meaningful agency.

This study mitigates these drawbacks by (a) situating empowerment within Nigeria's socio-economic realities; (b) validating constructs empirically through culturally contextualised indicators; and (c) combining Empowerment Theory with Social Cognitive Theory to supply a more detailed account of how empowerment is built, not just what it entails. Nevertheless, the study remains cautious in claiming universality: empowerment processes may manifest differently across gender, region, and connectivity levels.

Why Empowerment Theory Is the Foundation for This Study

Ultimately, Empowerment Theory is adopted because it provides a structured yet adaptable framework that directly mirrors the study's three focal variables and supports quantitative operationalisation (Zahniser & Zimmerman, 1991). It enables the researcher to examine empowerment as an evolving sequence from belief to competence to contribution while maintaining conceptual fidelity to established scholarship. By grounding YOMA's evaluation in this theory, the study contributes to a critical empirical test of Zimmerman's propositions in a novel, technology-mediated, and Nigerian context, thereby expanding both the geographic and methodological reach of empowerment research.

The Mechanism: Social Cognitive Theory

Historical Background and Intellectual Evolution

Albert Bandura's Social Cognitive Theory (SCT), originally articulated as Social Learning Theory in the 1960s, emerged from dissatisfaction with behaviourist models that treated human action as mere response to external stimuli (Bandura, 1997). Bandura's seminal Bobo Doll experiments (1961–1963) demonstrated that individuals learn not only through direct

reinforcement but also by observing others which was a process he termed observational learning. This finding bridged behaviourism and cognitivism, placing cognition, environment, and behaviour in a dynamic triadic relationship.

By the late 1980s, Bandura (1997) reformulated his ideas into Social Cognitive Theory, expanding its scope to include self-regulation, self-efficacy, moral agency, and reciprocal determinism (Bandura, 1997). SCT thereby provided a comprehensive account of how human beings acquire and maintain behaviours through cognitive processes, social modelling, and perceived control. The theory has since informed research in education, health behaviour, entrepreneurship, and digital learning, establishing itself as one of the most empirically validated frameworks for understanding motivation and behavioural change (Schunk & DiBenedetto, 2022).

2. Core Constructs of Social Cognitive Theory

Bandura's framework comprises several interrelated constructs; four are particularly germane to this study:

1. **Reciprocal Determinism**: At the heart of SCT is the concept that human behaviour results from the continuous reciprocal interaction between personal factors, behaviour, and environment (Bandura, 1997). Individuals are both products and producers of their surroundings. Within YOMA, this implies that youths' engagement with the platform shapes their beliefs and skills, while their growing competence and confidence, in turn, shape how they use the platform and interact with peers and opportunities. Empowerment thus becomes a cyclical process rather than a linear outcome.
2. **Observational Learning (Modelling)**: Individuals learn new behaviours and attitudes by observing others' actions and the consequences those actions produce. This mechanism is

pivotal in digital platforms where peer visibility such as leaderboards, community projects, testimonials, acts as a social mirror (Schunk & DiBenedetto, 2022). On YOMA, young users observe others completing learning tasks, earning tokens, or leading civic challenges, thereby internalising successful strategies and envisioning their own potential agency.

3. **Self-Regulation and Self-Efficacy**: Self-efficacy is the belief in one's ability to perform specific tasks and this is arguably Bandura's most influential contribution (Bandura, 1997). It mediates between knowledge and action: people with strong self-efficacy set higher goals, persevere longer, and recover more quickly from setbacks. Self-regulation extends this concept, describing how individuals monitor and adjust their behaviour through self-observation, judgment, and self-reaction. In YOMA, gamified feedback loops, progress dashboards, and tokenised incentives enable users to track progress, adjust effort, and sustain motivation which forms a digital expression of self-regulatory processes.
4. **Outcome Expectancies and Reinforcements**: Behaviour is also guided by expectations of outcomes and by perceived value of rewards. Bandura posited that intrinsic rewards (pride, mastery) and extrinsic incentives (social recognition, tokens) interact to shape persistence. The YOMA platform's blend of tokenised rewards and community acknowledgement embodies this dual reinforcement model, providing both immediate gratification and social validation.

Collectively, these constructs provide a micro-level mechanism explaining how interaction with a digital environment can reshape beliefs, skills, and actions, which is the very processes that Empowerment Theory describes at a macro level.

3. Schools and Interpretations of SCT

Two main interpretive strands have emerged in SCT's application:

- **Cognitive–Behavioural School:** Emphasises individual self-regulation, mastery experiences, and reinforcement; prevalent in educational psychology and health promotion.
- **Socio-Structural School:** Expands the focus to include environmental facilitators and barriers, technological affordances, institutional contexts, and cultural norms that condition efficacy beliefs and opportunities for action.

This study aligns primarily with the socio-structural school, recognising that YOMA operates within socio-technical systems that shape and are shaped by users' beliefs. Digital platforms provide affordances such as tools, feedback loops, and communities that both enable and constrain user agency. Yet the study retains SCT's cognitive core, since perceived self-efficacy remains the proximal predictor of behavioural outcomes measured in the SEM model. This balanced alignment ensures the framework captures both the psychological interior and the digital exterior of empowerment processes.

Relevance to the Study's Objectives

Each of the study's three dependent variables can be directly mapped to SCT constructs:

- **Self-Efficacy:** SCT's central variable, representing confidence to learn and act. YOMA's micro-learning modules and gamified milestones serve as mastery experiences that elevate self-efficacy.
- **Skills Development:** Derives from observational learning and guided mastery. Exposure to diverse tasks and peer exemplars strengthens cognitive and behavioural competencies.

- **Social Impact:** Reflects behavioural enactment using learned skills for community-oriented actions. SCT predicts that high self-efficacy and positive outcome expectations increase prosocial behaviour.

Thus, SCT provides the causal logic linking digital engagement to empowerment: users observe → internalise → perform → reinforce → re-engage. This recursive model mirrors the cyclical empowerment process theorised by Zimmerman and empirically tested through SEM paths in this study.

5. Empirical Validations and Adaptations

SCT has been extensively validated across behavioural domains. In entrepreneurship, self-efficacy has predicted innovation and resilience (Owunna, Ajobi, & Akintoke, 2025); in digital education, observational learning and gamified feedback enhance skill mastery (Odusanya, 2023). Recent studies in Nigerian contexts confirm SCT's applicability across cultures, though contextual adaptation is essential (Adeyemi & Hassan, 2022).

Theoretical Advantages

SCT's primary advantage lies in its explanatory granularity. It details the specific psychological mechanisms such as mastery, modelling, persuasion, and feedback through which empowerment unfolds (Njoku & Nwaoboli, 2024). This makes it an ideal complement to Empowerment Theory, which outlines empowerment's structure but not its genesis. SCT's construct of self-efficacy also provides a measurable bridge between cognition and behaviour, directly operationalisable in the survey instrument.

Moreover, SCT aligns methodologically with the study's quantitative approach: its variables are latent, continuous, and relational, well-suited to structural-equation modelling. By

embedding SCT within a post-positivist paradigm, the study treats psychological constructs as probabilistically measurable rather than metaphysical, enabling rigorous hypothesis testing while acknowledging contextual variability.

Limitations and Critiques

Despite its enduring influence, SCT has faced criticism for underemphasising macro-structural factors and assuming rational agency. Researchers argue that self-efficacy may not always translate into opportunity when systemic constraints with poverty, gender bias, infrastructure deficits are severe (Adeyemi & Hassan, 2022). In digital contexts, algorithmic design and unequal access may skew reinforcement patterns, granting visibility to some users while marginalising others.

This study recognises these limitations by situating SCT within Nigeria's uneven digital landscape and by combining it with Empowerment Theory, which restores the social and behavioural dimensions absent in purely cognitive models. The integration allows a balanced interpretation: empowerment is both an internal belief system and an interaction with structural affordances.

Another critique concerns cultural generalisability. SCT's self-efficacy emphasis is rooted in Western individualism. Yet empirical evidence suggests that collective efficacy that is the shared belief in group capability plays a comparable role in collectivist cultures (Njoku & Nwaoboli, 2024). By measuring social-impact engagement, this study indirectly captures both personal and collective efficacy, adapting SCT's constructs to a Nigerian collectivist setting.

Why Social Cognitive Theory Is the Mechanism of Choice

SCT is adopted because it explicates how empowerment is built as a motivational engine. It translates digital interaction into psychological change through identifiable mechanisms. In YOMA's design, every platform feature such as micro-learning streaks, badges, peer challenges, feedback notifications activate one or more SCT mechanisms. The theory thus functions as a causal map connecting digital design to behavioural outcomes.

Crucially, SCT's dynamic reciprocity supports the thesis's central claim: empowerment in digital environments is iterative and self-reinforcing. Each successful action strengthens efficacy beliefs, which fuel further engagement, a loop observable in the SEM's positive path coefficients. By grounding YOMA's empowerment effects in SCT, the study not only validates the platform's impact but also contributes to advancing SCT itself by extending its reach into AI- and blockchain-mediated social systems.

Integration and Theoretical Alignment

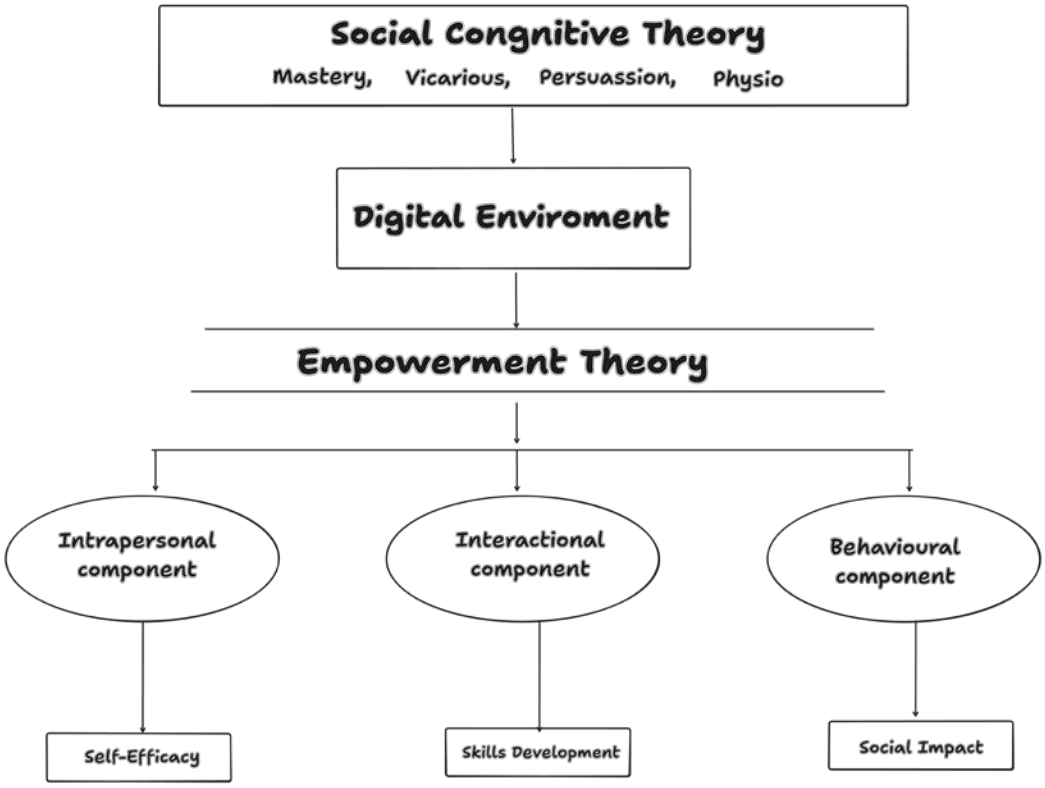
Rationale for Integrating Two Complementary Frameworks

The adoption of both ET and SCT reflects a deliberate effort to connect structure and process within one explanatory system. ET specifies what empowerment looks like, its components and outcomes. Whereas SCT specifies how empowerment emerges and sustains itself through cognitive and social mechanisms. In other words, ET defines the architecture of empowerment while SCT provides the engine that drives it. Furthermore, each alone offers only a partial view such that ET risks descriptive staticity, while SCT risks psychological reductionism. Their combination therefore yields a dynamic model in which belief formation and behavioural

manifestation reinforce one another that is a pattern empirically consistent with the cyclical pathways observed in YOMA usage analytics and reflected in the study's SEM findings.

Figure 12

The Unified Digital Empowerment Framework (U-DEF)



Epistemological and Ontological Coherence

Integrating theories demands philosophical compatibility. Both ET and SCT are grounded in post-positivist realism, which assumes that social phenomena are real and measurable but mediated by human cognition and context. They reject both naïve positivism (which treats variables as detached from meaning) and radical constructivism (which denies observable regularities). Zimmerman's framework treats empowerment as an objectively emergent property

that can nonetheless be experienced subjectively, while Bandura's SCT conceives learning as reciprocal interaction between environment and cognition that is a middle ground between determinism and relativism.

Ontologically, both theories view human agency as emergent rather than essential: individuals are neither fully determined by structure nor wholly autonomous. This stance aligns with the research philosophy that empowerment in digital systems results from interactional realism, real affordances acting on real people whose perceptions mediate real outcomes.

Consequently, employing these frameworks together does not produce epistemic conflict; rather, it maintains a single, coherent paradigm in which probabilistic causal relationships can be tested quantitatively while recognising contextual nuance.

Conceptual Complementarity: Process and Outcome Fusion

The integration operates through a process–outcome fusion. SCT supplies the process logic suggesting how learning, modelling, and reinforcement cultivate self-beliefs and competencies, while ET structures these emergent changes into a three-level empowerment continuum. Conceptually, SCT's mechanisms of mastery experience, vicarious learning, social persuasion, and emotional regulation feed directly into ET's intrapersonal, interactional, and behavioural dimensions:

Table 5

Alignment of Bandura's SCT and Zimmerman's Empowerment Theory

SCT Mechanism	Empowerment Dimension	YOMA Manifestation
Mastery experience	Intrapersonal (self-efficacy)	Completion of micro-learning modules boosts confidence
Vicarious learning	Interactional (skills and resource use)	Observation of peer success models skill acquisition
Social persuasion	Behavioural (social action)	Feedback, badges, and mentorship encourage participation
Emotional regulation	Cross-dimensional resilience	Gamified feedback normalises failure and persistence

Note. This mapping transforms the two theories into a hierarchical yet iterative system in which digital experiences act as catalysts for empowerment cycles. Empirically, the model predicts that sustained engagement yields recursive gains: higher self-efficacy → stronger skills → broader social impact → renewed confidence.

Addressing Potential Tensions and Philosophical Boundaries

Despite broad alignment, the theories diverge on locus of analysis and unit of change. ET extends to organisational and community levels, whereas SCT concentrates on the individual. This difference could lead to analytical asymmetry where individual-level variables may not capture collective processes central to empowerment. The present study mitigates this by operationalising social impact as a behavioural expression of collective efficacy, thus bridging the micro–macro gap.

Another potential tension concerns power and structure. Critics of SCT argue it underplays structural constraints, while ET, particularly in its community-psychology branch, risks normative

advocacy detached from cognitive evidence (Schunk & DiBenedetto, 2022). The integrated framework balances these extremes: SCT explains how beliefs shift, and ET ensures that such shifts are interpreted as empowerment only when they translate into socially constructive behaviour. Hence, belief without action is not empowerment; nor is action without reflective agency.

A third boundary relates to measurement philosophy. SCT variables (self-efficacy, outcome expectancies) are typically interval-scaled psychological constructs, while ET often incorporates qualitative indicators of participation (Aremu & Udofia, 2025). By designing a quantitative survey that operationalises ET's dimensions through validated Likert-scale items, this study harmonises the measurement logic of both theories within a single statistical grammar. The compatibility is therefore not only conceptual but also methodological.

Integration as Theoretical Innovation

In scholarly literature, few studies have explicitly synthesised SCT and ET in a digital or developing-country context. Prior integrations were confined to community health initiatives or youth mentoring programmes, relying on small samples and analogue interactions (Holden, Messeri, Douglas Evans, Crankshaw, & Ben-Davies, 2004). This study extends this lineage in three innovative directions:

1. **Technological Expansion**: By applying the joint framework to a blockchain-enabled platform, it tests whether classic social-learning processes persist when mediated by algorithms rather than human facilitators.

2. **Cross-Cultural Validation**: It examines empowerment dynamics among Nigerian youth, contributing to global south perspectives often absent from mainstream empowerment psychology.
3. **Quantitative Generalisation**: Using SEM on a national sample, it shifts the integration from conceptual proposal to statistically validated model, thereby advancing both theories' empirical robustness.

This triangulated innovation situates this study at the frontier where psychological theory meets digital-development research.

Philosophical Implications for the Research Design

The integrated framework directly informs this study's explanatory, model-testing design. Post-positivist ontology posits that causality is probabilistic; theory guides hypothesis generation and empirical verification. Accordingly, the dual framework underpins the three structural paths tested in the SEM. Each path represents a theoretically derived causal expectation:

- **H1 (YOMA → Self-Efficacy)**: activation of SCT's mastery and persuasion mechanisms.
- **H2 (YOMA → Skills Development)**: translation of SCT learning into ET's interactional competence.
- **H3 (YOMA → Social Impact)**: expression of behavioural empowerment as defined by ET.

The alignment ensures that every statistical relationship is not merely empirical but theoretically justified, transforming the model from a data-driven correlation network into a deductively grounded test of empowerment theory in digital space.

Critically Acknowledging Limitations of Integration

No theoretical synthesis is without compromise. Three limitations deserve explicit acknowledgment:

1. **Level Disparity:** While SCT operates primarily at the micro-psychological level, ET encompasses meso and macro layers. Aggregating these levels may risk conceptual slippage if interpreted too broadly. This study mitigates the issue by confining measurement to individual perceptions and behaviours while discussing societal implications qualitatively.
2. **Cultural Translation:** Both theories originated in Western contexts valuing individual autonomy. Applying them in Nigeria, where collectivist norms shape agency, may re-weight constructs like self-efficacy toward communal rather than solitary mastery. This limitation is addressed through contextual interpretation of "social impact" as collective efficacy.
3. **Technological Mediation:** Digitally induced empowerment may differ from interpersonal empowerment; algorithmic feedback could distort social persuasion through unequal visibility. The research acknowledges this and treats digital affordances as contextual moderators rather than perfect analogues of face-to-face interaction.

By openly stating these limitations, the study demonstrates theoretical maturity, recognising that integration is a heuristic lens, not a flawless fusion.

Outcome: A Unified Conceptual Framework for Digital Empowerment

The synthesis yields a Unified Digital Empowerment Framework (U-DEF) underpinning this thesis. It posits that:

1. Digital environments (like YOMA) provide mastery and modelling experiences (SCT) that enhance perceived self-efficacy.
2. Elevated self-efficacy translates into skill acquisition and critical awareness (ET interactional).
3. Accumulated competence and confidence motivate prosocial participation (ET behavioural).
4. Reinforcement through digital feedback loops sustains the cycle, demonstrating reciprocal determinism.

This recursive structure operationalises empowerment as a self-amplifying system, reconciling psychological learning theory with sociobehavioural empowerment theory. The framework thereby becomes both explanatory and predictive, offering a robust theoretical base for the study's hypotheses and for future comparative research on digital empowerment ecosystems.

Concepts, Hypotheses, and Theoretical Model

From Theoretical Constructs to Measurable Concepts

Having integrated Empowerment Theory (ET) and Social Cognitive Theory (SCT), the next task is to translate their conceptual language into empirically observable constructs. The Unified Digital Empowerment Framework defines empowerment as a dynamic process through which digital participation stimulates confidence, competence, and contribution. Within this model, YOMA engagement functions as the exogenous (independent) variable that activates psychological mechanisms (from SCT) and manifests in multidimensional empowerment outcomes (from ET).

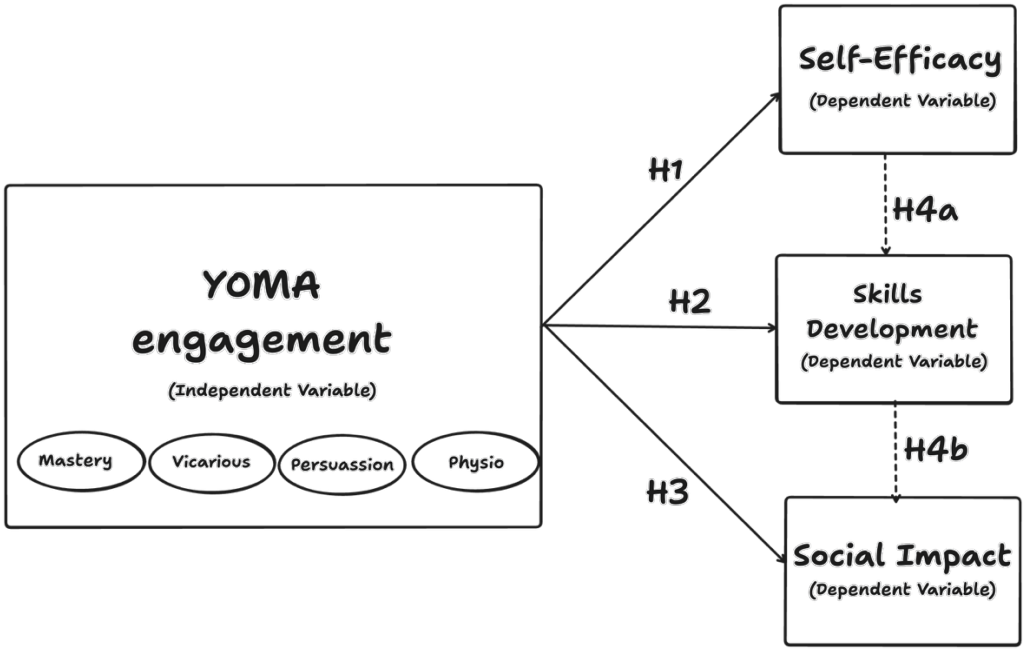
Empirically, these outcomes are captured through three latent constructs:

1. **Self-Efficacy (Intrapersonal Empowerment)**: the individual's confidence in their ability to perform tasks, make decisions, and influence outcomes.
2. **Skills Development (Interactional Empowerment)**: the acquisition of cognitive and behavioural competencies that enable effective participation in the digital and economic ecosystem.
3. **Social Impact (Behavioural Empowerment)**: the observable expression of empowerment through civic engagement, collaboration, and community contribution.

Each construct corresponds to one of Zimmerman's dimensions, while the *pathways* connecting them are derived from SCT's mechanisms of learning, mastery, and reinforcement. Together, they form the theoretical matrix through which the hypotheses of this study are articulated.

Figure 13

Conceptual Model for the Study



Note. The conceptual model adopts a parsimonious structure consistent with the rationale outlined in Chapters 2 and 3. Only three direct hypotheses (H1–H3) were empirically tested to capture the foundational empowerment pathways predicted by the integrated Empowerment–Social Cognitive framework. The sequential linkages (H4a, H4b) are shown as conceptual relationships only, retained for theoretical completeness but excluded from statistical testing in this phase.

Defining Key Constructs

(a) YOMA Engagement

Definition: The degree to which users interact with YOMA's features such as micro-learning modules, tokenised rewards, peer challenges, and community projects over a specified period.

Theoretical Anchor: In SCT terms, engagement represents exposure to environmental stimuli that provide mastery experiences and social models. In ET terms, it acts as the situational condition enabling empowerment processes to occur.

Operationalisation: Quantitatively measured via frequency of log-ins, number of completed tasks, token redemptions, and participation in peer forums, aggregated into a composite index.

(b) Self-Efficacy

Definition: Perceived belief in one's capacity to achieve desired outcomes (Bandura, 1997).

Role in Framework: Serves as the proximal psychological mediator linking engagement to subsequent skills and behavioural outcomes. Within ET, it constitutes the intrapersonal component; within SCT, it is the central determinant of behaviour.

Operationalisation: Measured through Likert-scale items assessing confidence in completing YOMA learning tasks, problem-solving ability, and perceived control over one's future.

Conceptual Link: Higher engagement generates mastery experiences and social persuasion, which enhance self-efficacy that is a direct embodiment of SCT's mechanism and ET's first dimension.

(c) Skills Development

Definition: The acquisition and application of knowledge and competencies that increase employability and problem-solving capacity.

Role in Framework: Represents the interactional dimension of empowerment, reflecting the individual's capacity to access and use resources effectively. SCT describes this as the behavioural enactment of learned models; ET situates it as the interface between personal belief and environmental opportunity.

Operationalisation: Survey indicators include perceived digital literacy, entrepreneurial ability, and confidence in applying acquired skills to income-generating or community projects.

Conceptual Link: Self-efficacy is hypothesised to facilitate sustained learning and experimentation, leading to skill accumulation which is consistent with SCT's self-regulatory cycle and ET's interactional logic.

(d) Social Impact

Definition: The degree to which individuals contribute to their communities through civic participation, social innovation, or collaborative problem-solving.

Role in Framework: Embodies the behavioural expression of empowerment that is the outward evidence that psychological and cognitive changes translate into collective benefit.

Operationalisation: Measured through engagement in YOMA's community challenges, volunteer activities, and initiatives addressing social or environmental issues.

Conceptual Link: Builds on SCT's notion that self-efficacy and outcome expectancies predict prosocial behaviour. Within ET, it completes the empowerment cycle where individual agency manifests as social contribution.

Interrelationships Among Concepts

The U-DEF posits an ascending but recursive relationship among the constructs:

1. **YOMA Engagement → Self-Efficacy:** Active participation offers mastery experiences and positive feedback that strengthen efficacy beliefs (SCT). This corresponds to ET's intrapersonal empowerment stage.
2. **YOMA Engagement → Skills Development:** Exposure to diverse tasks and peer modelling promotes cognitive and practical skill acquisition (SCT's observational learning and reinforcement). This operationalises ET's interactional component.
3. **YOMA Engagement → Social Impact:** Participation in collective digital challenges transforms individual competence into community action which is ET's behavioural dimension.
4. **Self-Efficacy → Skills Development → Social Impact (Cascade Path):** Empowerment progresses cumulatively: confidence drives learning, and competence drives participation. This cascade reflects both theories' cyclical logic and forms the theoretical justification for potential mediation testing in future research.

Conceptually, these pathways express a causal architecture of digital empowerment; beliefs enabling skills, and skills enabling prosocial action. They also demonstrate the empirical symmetry between theory and data: each SEM path tested in the study mirrors a theoretically reasoned relationship.

Deriving the Hypotheses

Building on the integrated theoretical logic, the following hypotheses encapsulate the expected relationships:

Table 6

Deriving the Hypotheses

Hypothesis Code	Statement	Theoretical Justification
H1	YOMA engagement significantly predicts self-efficacy among Nigerian youth.	SCT's mastery and social persuasion mechanisms elevate perceived capability; ET's intrapersonal empowerment is activated through platform participation.
H2	YOMA engagement significantly predicts skills development among Nigerian youth.	Observational learning and feedback loops transform participation into practical competence; SCT process feeding ET interactional empowerment.
H3	YOMA engagement significantly predicts social-impact engagement among Nigerian youth.	Positive reinforcement and group modelling encourage civic behaviour; ET's behavioural empowerment dimension.
H4 (Implied Cascade)	Self-efficacy and skills development sequentially mediate the relationship between YOMA engagement and social impact.	Integrates SCT's self-regulatory feedback with ET's cyclical empowerment structure (confidence → competence → contribution).

Note. While only the first three hypotheses are directly tested in the current SEM model, the fourth provides conceptual depth, framing the study as the foundation for future mediation analysis.

The Theoretical Model Explained

Model Structure: The theoretical model visualises empowerment as a recursive system of direct and indirect effects. YOMA engagement (independent variable) sits at the base, projecting arrows toward the three dependent constructs; self-efficacy, skills development, and social impact. A secondary path links self-efficacy to skills development and another from skills development to social impact, illustrating the hypothesised cascade. Feedback loops indicate cyclical reinforcement, consistent with SCT's reciprocal determinism.

Interpretive Logic:

- The vertical progression (YOMA → SE → SD → SI) illustrates empowerment's developmental sequence.
- The horizontal feedback loops represent sustainability of empowerment through continued engagement.
- The model is hierarchical (each level building on the previous) yet interactive (effects feed back into engagement behaviour), symbolising digital empowerment's self-amplifying nature.

This conceptual model thus operationalises the integration achieved in previously, converting abstract theory into a causally testable structure.

Methodological Implications

The theoretical model dictates the measurement architecture of the quantitative analysis. Each construct is operationalised as a latent variable with multiple indicators, reflecting the multi-dimensionality of empowerment. The model's recursive design justifies the use of Partial Least Squares Structural-Equation Modelling (PLS-SEM), which accommodates complex path structures and formative measurement.

Statistically, the hypotheses correspond to the following structural equations:

- $SE = \beta_1(YOMA) + \varepsilon_1$
- $SD = \beta_2(YOMA) + \beta_3(SE) + \varepsilon_2$
- $SI = \beta_4(YOMA) + \beta_5(SD) + \varepsilon_3$

where β coefficients represent theoretical causal weights predicted by the integrated framework. The post-hoc weighting by region and gender reflects the theory's recognition of contextual moderators such as digital access and socio-cultural variability influence empowerment processes.

Rationale for Model Parsimony

The present study adopts a parsimonious model structure to ensure conceptual focus, methodological coherence, and interpretive clarity. Within the integrated framework of Social Cognitive Theory (SCT) and Empowerment Theory (ET), empowerment is conceptualised as a sequential process beginning with digital engagement, evolving through psychological change, and culminating in social contribution. Although the theoretical logic supports a cyclical empowerment pathway, only three direct hypotheses (H1–H3) were empirically tested. This deliberate focus reflects the principle of parsimony, which holds that theoretical adequacy is achieved when a model explains the phenomenon with the fewest, most necessary elements (Abubakre, Zhou, & Zhou, 2022).

The chosen structure isolates the foundational empowerment relationships: YOMA Engagement → Self-Efficacy (intrapersonal empowerment), YOMA Engagement → Skills Development (interactional empowerment), and YOMA Engagement → Social Impact

(behavioural empowerment). These pathways capture the essential logic of the Unified Digital Empowerment Framework (U-DEF) without introducing unnecessary complexity. By privileging direct relationships, the model provides a stable empirical foundation for testing the theory's core assumptions while maintaining alignment with the study's post-positivist orientation, which values measurable causal regularities over speculative elaboration.

The implied sequential relationships from self-efficacy to skills development, and from skills development to social impact are recognised as theoretically meaningful but were not statistically tested in this phase of research. Their inclusion would have increased model complexity without proportionate theoretical gain, potentially reducing interpretive precision within the current sample and analytical design. Instead, they remain articulated as conceptual linkages to guide future longitudinal and mediation analyses.

This measured simplicity reinforces the credibility, replicability, and theoretical precision of the framework. It ensures that each empirical path represents a distinct, theory-driven relationship and that findings contribute to cumulative knowledge building. Parsimony in this study, therefore, is not a limitation but a strategic design choice which is a disciplined approach that converts theoretical coherence into analytical clarity and positions this study as a foundational empirical validation of digital empowerment processes within Nigeria's youth innovation ecosystem.

Conceptual Coherence and Theoretical Rigor

By clearly defining each construct and mapping it onto theoretical logic, this model achieves conceptual precision and theoretical fidelity. It avoids the common pitfall of empirical atheism by collecting data without theoretical anchor, by ensuring that each variable exists because

theory predicts it should. Moreover, by explicitly aligning operational definitions with Zimmerman's and Bandura's constructs, the study contributes to measurement consistency across empowerment research, facilitating cross-study comparability and meta-analysis.

Conclusion

This section completes the conceptual translation phase of the theoretical framework. It demonstrates how the integrated theory crystallises into empirically testable hypotheses and a coherent analytical model. Each relationship is theory-driven, context-specific, and methodologically justified, ensuring that the subsequent empirical testing (Chapters 3–4) rests on a solid conceptual foundation. The Unified Digital Empowerment Framework therefore stands as a rigorously constructed bridge linking philosophical reasoning to statistical evidence where digital engagement is the ignition, self-efficacy the spark, skills development the engine, and social impact the motion that propels empowerment forward.

Application, Novelty, and Drawbacks

Applying the Integrated Framework in a Digital–Development Context

The integration of Empowerment Theory and Social Cognitive Theory provides an analytical compass for interpreting how digital participation on YOMA translates into measurable empowerment outcomes. Applying this framework requires reconceptualising the environmental, psychological, and behavioural variables described in both theories through the lens of digital social innovation.

In the YOMA ecosystem, empowerment occurs not through face-to-face mentoring or institutional training but through a digitally mediated triad: (i) micro-learning tasks that serve as

mastery experiences; (ii) peer visibility features such as leaderboards and challenge dashboards that enable observational learning; and (iii) gamified reinforcement mechanisms which include token rewards, badges, and recognition that sustain motivation. Together, these elements recreate Bandura's triadic reciprocity in a digital sphere where environment is coded into algorithms, behaviour is tracked in data logs, and cognition is influenced by interface design.

Applying Empowerment Theory to this setting involves identifying how these psychological processes generate structural expressions of empowerment. YOMA's design inherently maps onto Zimmerman's tri-dimensional model: intrapersonal belief (confidence), interactional competence (skills), and behavioural contribution (social impact). Each digital feature acts as a "vector of empowerment," transforming engagement into personal and collective agency. In this way, the framework functions as both a diagnostic instrument for quantifying empowerment outcomes and a design heuristic for informing how future platforms should be structured to amplify these outcomes.

This application also tests whether empowerment remains valid when mediated by technology. If the statistical evidence confirms that digital engagement predicts empowerment outcomes, it demonstrates that empowerment is processual and transferable across modalities, expanding the theory's ecological validity. Conversely, any attenuation in the expected paths could signal theoretical boundaries, revealing the conditions under which digital mediation dilutes empowerment processes.

Novelty and Theoretical Contributions

(a) Extending Empowerment Theory into the Digital Domain

The first theoretical innovation of this study lies in transposing Empowerment Theory into a blockchain-enabled, mobile-first environment. Until now, most empowerment research has examined small-scale, locality-bound interventions such as community meetings, leadership workshops, or civic education programmes (Eze & Chukwuemeka, 2021). This study redefines the "community" as a networked space, where interactions occur through digital artefacts and virtual peers. By demonstrating that empowerment constructs (self-efficacy, skills, social contribution) can be measured and validated within such environments, the study extends Zimmerman's framework from physical communities to digitally constituted publics. It thereby expands the scope of empowerment psychology to include hybrid socio-technical ecosystems.

(b) Advancing Social Cognitive Theory under Technological Mediation

A second contribution concerns the technological reinterpretation of SCT. Bandura's model was developed in an analogue era, predating algorithmic feedback and gamified reinforcement. By applying SCT to YOMA, the study tests whether its principles such as observational learning, social persuasion, reciprocal determinism retain validity when "observers" are avatars and "environments" are user interfaces. The findings provide empirical evidence that algorithmic environments can function as social teachers, automating the reinforcement mechanisms once dependent on human facilitators. This adaptation modernises SCT for the digital century, demonstrating that efficacy formation can occur through design, not solely through interpersonal interaction.

(c) Creating the Unified Digital Empowerment Framework (U-DEF)

The third and most integrative contribution is the formulation of the Unified Digital Empowerment Framework (U-DEF). Whereas previous literature has treated ET and SCT

separately, this study synthesises them into a recursive model explaining both how empowerment develops (SCT) and how it manifests (ET). U-DEF articulates a full empowerment cycle: digital engagement → psychological efficacy → competence building → social action → renewed engagement. This cyclical formulation introduces a systems perspective to empowerment theory, aligning it with complexity science and digital ecosystem thinking. The model thus positions empowerment as an emergent property of socio-technical interaction rather than a linear outcome of programme delivery.

(d) Cross-Cultural and Methodological Expansion

The research also contributes by contextualising these theories within Nigeria, a setting characterised by high youth unemployment, uneven digital access, and collectivist cultural norms. Testing Western-origin frameworks under such conditions advances comparative psychology and decolonises empowerment discourse by introducing Global South empirical evidence. Methodologically, the use of PLS-SEM on a nationally stratified sample constitutes a rare quantitative generalisation of empowerment constructs beyond Western populations. This reinforces the theoretical robustness of ET and SCT while identifying their contextual limits.

Theoretical Benefits of the Framework for Practitioners and Researchers

By applying the integrated framework to YOMA, this study provides practitioners with a replicable evaluation logic: empowerment can be measured through three interdependent dimensions, each linked to specific design features and psychological triggers. For researchers, the framework furnishes a new mid-range theory bridging micro-level learning models and macro-level social-innovation paradigms. It offers conceptual vocabulary such as digital mastery,

algorithmic persuasion, platform-enabled agency, for analysing how technology reconfigures empowerment pathways.

Furthermore, U-DEF provides a predictive theory rather than a descriptive typology. Because its propositions are testable through quantitative modelling, future researchers can replicate and refine it using diverse datasets or longitudinal designs. The framework also invites interdisciplinary dialogue, connecting psychology, development studies, information systems, and behavioural economics through a shared concern for human agency in digital transformation.

Critical Reflection: Drawbacks and Boundary Conditions

No theoretical application is without trade-offs. The very act of translating psychosocial theories into digital contexts introduces new uncertainties. The researcher identifies five key drawbacks that this study acknowledges:

1. **Reduction of Structural Complexity:** By focusing on individual perceptions and behaviours, the model may understate macro-structural constraints such as unemployment, policy inertia, or gender norms that shape empowerment outcomes. Digital platforms can enhance agency but cannot alone dismantle systemic inequality. The study mitigates this by interpreting findings as probabilistic effects, not deterministic solutions.
2. **Algorithmic Mediation Bias:** SCT assumes that reinforcement and modelling are socially distributed; however, digital algorithms may curate visibility unevenly, amplifying certain users and silencing others. This introduces algorithmic asymmetry, where perceived efficacy is contingent on platform design rather than pure agency. The study therefore treats YOMA's design as a contextual moderator, acknowledging that empowerment potential varies with platform governance.

3. **Cultural Translation of Constructs:** The self-efficacy construct, though universal in principle, carries individualist undertones. In collectivist societies such as Nigeria, empowerment often manifests through collective efficacy which suggests the shared belief in group capability. While the study partially captures this via the social-impact variable, future research could more explicitly model communal agency to ensure cultural fidelity.
4. **Temporal Limitations:** Empowerment is developmental, yet the study's cross-sectional design captures it at a single time point. Consequently, causal inference remains probabilistic. Longitudinal data would better illuminate feedback effects predicted by U-DEF. The study acknowledges this limitation and recommends temporal replication to confirm persistence of effects.
5. **Normative Inflation of "Empowerment."**: In development discourse, "empowerment" risks becoming an empty signifier. Applying ET and SCT together may further inflate the term if it is not grounded in verifiable change. This study counters the risk by operationalising empowerment through validated, measurable constructs. Still, the theory's popularity necessitates continual vigilance against conceptual dilution.

Reflexive Evaluation of Theoretical Fit

Critically, the integrated framework is neither flawless nor universal. It is a situated theoretical lens tailored to a specific research question: how digital participation predicts empowerment outcomes. It performs best when empowerment is quantifiable, when behavioural data are available, and when digital feedback loops simulate social learning environments. It may be less effective in contexts where empowerment depends on collective political mobilisation or non-digital cultural practices.

Acknowledging this bounded generalisability strengthens, rather than weakens, the framework's credibility. It shows theoretical humility, which is the awareness that models are tools, not truths. By specifying where U-DEF applies and where it does not, the study contributes to cumulative science: future researchers can test boundary conditions instead of rediscovering them.

Integrative Summary

The application of the Empowerment–SCT synthesis to YOMA exemplifies how classical psychological theories can be re-engineered for the digital age. Its novelty lies not merely in using established frameworks but in re-scaling them from community meetings to algorithmic ecosystems, from mentorship to machine-mediated feedback, and from local empowerment to networked agency. The drawbacks, far from undermining the framework, demonstrate its adaptability and the intellectual transparency of this study.

Ultimately, the integrated framework equips both researchers and practitioners with a multi-level map of digital empowerment; one that honours the complexity of human learning while remaining empirically testable. It situates empowerment as a reciprocal system of cognition, design, and social action, thereby advancing the academic frontier where psychology meets digital social innovation.

Theoretical Contribution and Reflexive Synthesis

Re-centring the Aims and Purpose of the Framework

The purpose of constructing this theoretical framework has been to establish an analytical bridge between the research problem to examine the relationship between digital engagement and

youth empowerment in Nigeria and the research objectives, which seek to quantify how YOMA participation predicts self-efficacy, skills development, and social impact. Through the integration of Empowerment Theory (ET) and Social Cognitive Theory (SCT), the framework provides both a structural map of empowerment's dimensions and a mechanistic explanation of its formation. It thereby grounds the study's quantitative model in conceptual logic.

In doing so, the framework performs a dual function. Internally, it serves as the logic of analysis, defining variables, relationships, and hypotheses. Externally, it contributes to the logic of discovery there by advancing how empowerment and learning are theorised in digitally mediated, resource-constrained settings. This dual orientation ensures that the research is not only methodologically coherent but also theoretically generative.

Advancing Empowerment Theory: From Community to Code

A major theoretical contribution of this study lies in extending Empowerment Theory from community psychology to digital systems design. Zimmerman's framework was conceived for face-to-face community initiatives in which empowerment arose through interpersonal participation and local governance. By demonstrating that the same tri-dimensional structure; intrapersonal, interactional, behavioural can manifest in algorithmically mediated environments, the thesis establishes a digital-empowerment ontology.

This shift reframes empowerment as an information-driven process embedded within socio-technical networks as opposed to bounded physical communities. It invites researchers to view empowerment not as a dynamic feedback system responsive to design, data, and user behaviour. Consequently, empowerment becomes measurable in real time through digital traces such as learning completions, token redemptions, and community-challenge participation. This

reconceptualisation transforms ET from a largely descriptive framework into one that is analytically compatible with contemporary data-driven evaluation paradigms.

Moreover, by situating empowerment within Nigeria's digital economy, the study introduces a Nigerian perspective into empowerment psychology which is an area historically dominated by Western, individualistic contexts. It demonstrates that empowerment in collectivist cultures can be simultaneously individual and communal, with social-impact engagement functioning as a proxy for collective efficacy. This contextual expansion strengthens ET's cross-cultural validity and enriches its normative diversity.

Advancing Social Cognitive Theory: From Observation to Learning to Earning

A second contribution concerns the modernization of Social Cognitive Theory. Bandura's original formulation assumed human mentors, tangible feedback, and face-to-face persuasion. In YOMA, these mechanisms are re-engineered through code: mastery occurs via micro-learning streaks, vicarious learning through peer dashboards, social persuasion through automated notifications, and reinforcement through token economies. The study thus conceptualises a new sub-domain in algorithmic social learning in which behavioural modelling and efficacy formation are facilitated by YOMA.

This recontextualisation broadens SCT's explanatory reach from psychology into human–computer interaction. It shows that the essential triadic reciprocity of person–behaviour–environment remains intact even when "environment" becomes virtual and partially autonomous. The theory's persistence under such technological mediation supports its ontological robustness while highlighting new variables such as interface visibility, gamification intensity, feedback latency that may act as modern moderators of self-efficacy formation. Consequently, the research

not only applies SCT but evolves it, inviting future scholars to theorise learning and motivation within algorithmically governed ecosystems.

Synthesising the Two Theories: A New Middle-Range Framework

The Unified Digital Empowerment Framework (U-DEF) developed in this study constitutes a new middle-range theory bridging micro-level cognitive processes and macro-level social outcomes. Its originality lies in portraying empowerment as a recursive system:

1. Digital engagement activates social-cognitive mechanisms (mastery, modelling, persuasion).
2. These mechanisms build self-efficacy and skills (intrapersonal + interactional empowerment).
3. Resulting competencies enable civic and economic contributions (behavioural empowerment).
4. Successful action feeds back into confidence and re-engagement, sustaining the cycle.

This cyclical model advances the empowerment literature by formalising the causal architecture that links psychological change to social behaviour. It attempts to resolve the theoretical gap identified in the literature review; the absence of a process-based explanation for how digital interventions translate into empowerment outcomes. The framework's explanatory symmetry allows quantitative testing without sacrificing conceptual depth, positioning it as a portable theoretical template for evaluating other digital-empowerment platforms across contexts.

Epistemological Reflexivity and Theoretical Boundaries

An essential mark of theoretical maturity is reflexivity and this the willingness to interrogate one's own assumptions. The framework rests on a post-positivist belief that

empowerment phenomena can be modelled probabilistically. This enables hypothesis testing but also implies partial knowledge: measurement captures patterns, not total reality. Theories, like algorithms, are simplifications. Empowerment, being contextually constructed, will always exceed its indicators. Acknowledging this limitation prevents epistemic overreach.

Furthermore, while the framework validates empowerment's psychological pathways, it does not claim to eradicate structural constraints. Digital empowerment operates within socio-economic hierarchies of connectivity, literacy, and gendered access. The theory interprets empowerment as potentiality, increased capability for action with no guaranteed transformation. This cautious interpretation preserves coherence between empirical findings and normative modesty.

Ontologically, the integration assumes that human agency persists within technological systems rather than being supplanted by them. It rejects both determinism (technology as autonomous power) and instrumentalism (technology as neutral tool). Instead, it adopts a relational ontology: empowerment emerges from the ongoing negotiation between human intention and digital affordance. This perspective differentiates the framework from conventional ICT4D models that treat technology as external intervention.

Linking Theoretical Advancement to Research Aims

Each research aim finds theoretical anchorage within the U-DEF structure:

- **Aim 1:** To determine whether YOMA engagement predicts self-efficacy is grounded in SCT's mechanism of mastery experience and ET's intrapersonal dimension.
- **Aim 2:** To evaluate the extent to which engagement predicts skills development is situated in SCT's observational learning and ET's interactional empowerment.

- **Aim 3:** To investigate whether engagement predicts social impact is rooted in SCT's outcome expectancies and ET's behavioural empowerment.

By successfully aligning aims, theory, and constructs, the study achieves vertical integration where each layer of inquiry supports the next. This coherence ensures that statistical significance translates into theoretical significance, elevating the research from empirical adequacy to conceptual contribution.

Implications for Future Research and Policy

The theoretical framework opens several avenues for further exploration:

1. **Longitudinal Validation.** Future studies should model empowerment trajectories over time to confirm the cyclical feedback predicted by U-DEF.
2. **Cross-Platform Comparisons.** Testing the framework across different digital ecosystems (e.g., learning apps, civic-tech platforms) would evaluate its generalisability.
3. **Collective Efficacy Modelling.** Incorporating group-level constructs could enhance cultural sensitivity for collectivist contexts.
4. **Ethical Design Research.** Because digital reinforcement can manipulate as well as motivate, future work should examine the ethical thresholds of algorithmic persuasion.
5. **Policy Translation.** U-DEF provides policymakers with a blueprint for evidence-based digital-empowerment strategies: integrate learning, earning, and civic modules within one system; ensure transparent feedback; and use data analytics for continuous programme improvement.

These implications demonstrate that the framework's value extends beyond academic theory as a practical tool for designing, governing, and evaluating real-world interventions.

Synthesis: From Theoretical Insight to Scholarly Legacy

The integrated framework makes three enduring contributions to knowledge. First, it reframes empowerment as a measurable emergent process operating within socio-technical systems. Second, it provides a tested model, the U-DEF that explains the cognitive-behavioural mechanics of digital empowerment. Third, it repositions youth in developing countries not as passive beneficiaries but as co-constructors of digital social innovation.

Theoretically, this synthesis bridges a persistent divide between psychological micro-theories of learning and macro-theories of development. Methodologically, it demonstrates how rigorous quantitative modelling can coexist with contextual and ethical reflexivity. Practically, it equips practitioners with a replicable framework for designing platforms that cultivate agency rather than dependency.

Ultimately, the significance of this theoretical work lies in transforming empowerment from a moral aspiration into an analytically precise, empirically verifiable, and globally relevant paradigm. By uniting Bandura's cognitive realism with Zimmerman's social pragmatism, the study contributes to the evolution of an interdisciplinary science of empowerment, one that recognises that digital systems are not merely technological infrastructures but psychological ecologies in which human potential is learned, exercised, and multiplied.

Overview of Digital Social Innovation

Geoff Mulgan (2006) characterises social innovation as "activities and services that aim to address a social need and that are primarily created and disseminated by organisations whose main objectives are social." This definition emphasises two essential aspects: the deliberate pursuit of

social objectives and the pivotal function of social-purpose organisations in facilitating change (Mulgan, Tucker, Ali, & Sanders, 2007). The European Commission elaborates on this perspective by highlighting innovations that are social in both their objectives and methodologies and emphasising the dual necessity of creating social value and enhancing individual agency.

Westley and Antadze (2010) introduce a processual perspective, positing that social innovation progresses through iterative learning cycles that encompass idea generation, prototyping, implementation, scaling, and institutionalisation (Westley, Antadze, Riddell, Robinson, & Geobey, 2014). The cyclical model aligns with YOMA's challenge-based learning approach, wherein youths collaboratively design solutions, implement them within community settings, and refine them based on feedback.

Table 7

Definitions of Social Innovation from Other Researchers

Source	Definitions and concepts
(Mulgan, Tucker, Ali, & Sanders, 2007)	Socially motivated activities and services are new efforts and offerings aimed at meeting a social need, mainly created and shared by organisations focused on social goals.
(Taylor J. B., 1970)	Introducing a social invention, often known as a "new way of doing things" or a new social organisation, is an example of social innovation. Social innovation is the process of attempting to discover solutions to social problems.

(Howaldt, Butzin, Domanski, & Kaletka, 2014)	To address and meet demands and difficulties better than existing practices, some actors or constellations of players consciously construct novel combinations or configurations of social practices in particular locations or settings.
(Rodrigues, 2007)	There are three levels at which social innovations may take place: social actors, organisations, and institutions. Social innovations can be the result of purposeful social change, or they might develop from a process of social change without any previous design.
(Bignetti, 2011)	When knowledge is applied to social needs through the engagement and collaboration of all stakeholders, social innovation is produced. Social innovation leads to the creation of innovative and long-lasting solutions for social groups, communities, and society in general.
(Andrew & Klein, 2013)	Social innovation is a process that is begun by social actors to react to a desire or a need, to discover a solution, or to seize an opportunity for action to modify social connections, to transform a frame, or to offer new cultural orientations to enhance the quality of living circumstances in the community.
(Caulier-Grice, Davies, & Norman, 2012)	Social innovations are new solutions comprising products, services, models, markets, and processes that meet a social need more effectively than existing solutions, leading to new or improved capabilities and relationships and better use of assets and resources.

(Tynjälä & Nikkanen, 2007)	Social innovation is the process of institutionalising social ideas, driven by social movements or a loosely organised group of interested people.

Note. Adapted from Social innovation: what it is, why it matters and how it can be accelerated, by Mulgan, G., Tucker, S., Ali, R., & Sanders, B., 2007.

Defining Features of Social Innovation

The social objective of innovations is to address societal challenges, including unemployment, education gaps, and social exclusion. These innovations prioritise outcomes that improve collective welfare rather than focusing solely on profit maximisation (Oladipo & Ogunyemi, 2020):

Diversity of Actors: Successful social innovations arise from diverse coalitions of stakeholders that contribute complementary resources, knowledge, and legitimacy to the initiative. The YOMA initiative encompasses collaboration among UNICEF, local NGOs, private sector partners, and, crucially, the youth themselves.

Systemic Change: Transformative social innovations aim to provide services while simultaneously modifying the foundational institutional frameworks, such as laws, norms, and policies that sustain social issues. YOMA's digital credentialing and community challenge frameworks serve as a model for transforming youth participation and skill validation processes in Nigeria.

Scalability and Sustainability: Many social innovations begin as localised pilots; however, their lasting impact relies on effective scaling strategies. These strategies may include

replication, policy integration, or network expansion, all of which are essential for ensuring continuous resource flows and institutional support.

Empowering Nigerian Youth Through Social Innovation Platforms

In countries like Nigeria, where young disempowerment endures despite many top-down initiatives, social innovation offers an alternative framework for inclusive, participatory development. The emergence of digital platforms as facilitators of social innovation signifies a notable transformation in the design and implementation of developmental initiatives (Eze & Aroh, 2021).

In contrast to conventional programmes that depend on rigid organisational frameworks, platforms provide dynamic ecosystems in which many participants, financiers, content creators, and social impact collaborators can engage, contribute, and extract value. This structural flexibility is especially beneficial in unstable contexts where decentralisation, adaptability, and minimal transaction costs are essential for scalability (Mwesigwa & Mubangizi, 2019)

YOMA was developed to promote youth education, civic involvement, and incentive-based participation and encapsulates several fundamental characteristics of social innovation platforms. The digital platform uses mobile-first technologies, gamified incentives, and decentralised partner networks to provide a multifaceted sense of empowerment. From a strategic perspective, YOMA serves not just as a service delivery instrument but as a value-creation framework designed to enable agency on a large scale. This design differentiates it from conventional skills or career matching systems, which often neglect the social and behavioural aspects of adolescent empowerment (Nwankwo & Ibekwe, 2019).

This platform-based theory in business and innovation literature is often associated with multi-sided market theory, whereby value arises from the interactions among many user groups, including youth, NGOs, and corporate sponsors (Oladipo & Ogunyemi, 2020). In the instance of YOMA, this value is social rather than only commercial, assessed not only via user acquisition or activity metrics but also through empowerment outcomes: enhanced self-efficacy, skill development, and engagement in civic life. These are not unintended impacts; they are the performance measures by which the platform's strategic success may be evaluated (Onwuegbuchi & Okafor, 2020).

As organisations and development bodies progressively embrace platform models, it is essential to assess outcomes, such as young agency, system navigation, and community involvement. Academics argue that this necessitates the development of novel metrics and logical frameworks that extend beyond key performance indicators such as engagement and retention to evaluate profound user change. In developing countries, social innovation platforms often thrive by including four essential dimensions (Akanle, Akanle, & Omotayo, 2019):

- **User-centred design:** ensuring alignment with the needs, constraints, and ambitions of marginalised populations.
- **Collaborative networks:** facilitating ecological impacts via multi-sector cooperation.
- **Scalable infrastructure:** using technology to extend reach without a corresponding rise in expenses.

- **Quantifiable results:** correlating platform utilisation with the generation of individual and societal value.

YOMA centres on three foundational elements: the modular learning structure, tokenised accomplishment system, and open certification framework, all intended to facilitate youth-driven advancement routes. These foundational elements position the study within the innovation management sector of business administration.

For industry practitioners and researchers, understanding how platform designs may provide not just participation but also empowerment is a strategic issue, particularly in sectors where social results are as crucial as financial sustainability. It also prompts critical examination of the design rationale, operational premises, and evaluative frameworks that underpin platform-driven social innovation.

Redefining Nigerian Youth Empowerment Through Social Innovation

The intersection of social innovation and youth empowerment is especially prominent in contexts such as Nigeria, where structural barriers, including a youth unemployment rate of 42%, restricted access to quality education, and digital divides diminish the agency and socio-economic opportunities available to young individuals (Oladipo & Ogunyemi, 2020). YOMA serves as a social innovation platform aimed at addressing these barriers through the integration of blockchain-based credentialing, digital token incentives, and challenge-based experiential learning. This approach enhances self-efficacy, facilitates skills development, and promotes social impact among the youth in Nigeria.

Zimmerman's (2000) empowerment theory states that individual agency develops when individuals recognise their capabilities (self-efficacy), have access to opportunities for

participation (intrapersonal empowerment), and take actions that affect their social environments (behavioural empowerment). Through the integration of these dimensions into its design, YOMA implements social innovation to promote systemic youth empowerment, thus affirming the theory's relevance within digital innovation ecosystems.

Navigating the Evolving Landscape of Social Innovation Platforms

Current academic discourse examines various tensions within the realm of social innovation:

Top-down versus Bottom-up: Institutional actors can offer resources and legitimacy; however, grassroots initiatives frequently enhance contextual relevance and foster community buy-in. YOMA integrates these methodologies by involving youth co-creators in the governance of the platform and using institutional partnerships to obtain technical and financial assistance.

Measurement and evaluation (M&E): M&E of social innovation outcomes presents challenges due to their complex and multifaceted characteristics. The field increasingly requires mixed-methods evaluation frameworks that encompass both quantitative impacts and qualitative transformations. This study addresses this need by using SEM analysis and supplementing it with narrative assessments.

Equity and Inclusion: It is increasingly important to ensure that social innovations do not unintentionally worsen existing inequalities. YOMA's token rewards and its in-person engagement methods aim to tackle digital gaps and encourage fair access across different areas of Nigeria.

Harnessing Digital Innovation and Transforming Youth Empowerment Through YOMA

Digital innovation, defined as the strategic deployment of advanced technologies to reimagine products, services, and processes, is increasingly recognised as a driver of systemic transformation across social and economic domains (Oni & Ogundele, 2020). In the context of youth empowerment and social innovation, it offers unprecedented mechanisms for addressing entrenched challenges such as unemployment, educational inequity, and digital divide issues, which are acutely relevant to the Nigerian context.

YOMA provides the catalytic potential of digital innovation in reconfiguring pathways for youth agency and capacity-building. Using a mix of technologies like blockchain, artificial intelligence, and mobile platforms, YOMA creates a connected system that helps young people develop skills, find jobs, and get involved in social projects. This focus on a platform not only increases access to learning and job opportunities but also ensures transparency, security, and the ability to grow, which are essential for making a lasting impact.

The proliferation of digital innovation, encompassing the internet, smartphones, and algorithmic personalisation, has significantly redefined the modes through which young people engage with opportunity structures. As highlighted by the World Economic Forum, digitally enabled models accelerate progress in sectors such as education, healthcare, and civic engagement by enhancing efficiency, reducing barriers to participation, and personalising user experiences (Odumosu, Binuyo, & Adesoga, 2020). In employing these levers, YOMA advances a new paradigm for youth empowerment, one that is adaptive, inclusive, and responsive to the evolving demands of twenty-first-century economies.

Digital innovation presents a crucial avenue for young people in developing areas to surmount obstacles to education and employment. In locations with limited access to physical infrastructure and resources, digital technologies facilitate the acquisition of skills, career development, and community engagement among young people by offering easily accessible platforms and tools (Okonkwo, 2019).

RLabs, a South African innovation enclave, nurtures YOMA and receives backing from a consortium of partners, including UNICEF, Generation Unlimited, and Fondation Botnar. These collaborations use digital innovation to develop scalable solutions that tackle the issues of underemployment, skill deficiencies, and restricted educational opportunities among young people (Okoye & Omeje, 2019).

The fundamental distinctiveness of YOMA is its user-centric methodology, which customises possibilities to suit the particular requirements, interests, and professional ambitions of young people. The platform's digital functionalities include a blockchain-powered digital curriculum vitae and digital tokens for incentives that optimise learning and earnings prospects for youths (Oladipo & Ogunyemi, 2020).

An essential element of YOMA's innovation is using blockchain technology to store and safeguard young people's credentials. The decentralised and tamper-proof inherent characteristics of the blockchain guarantee the security and portability of users' records of skills, certificates, and achievements. The blockchain hosts a digital curriculum vitae that monitors and documents the progress of young people participating in educational activities.

Blockchain establishes a permanent and authenticated documentation of abilities communicated to prospective employers or higher education institutions. This characteristic is

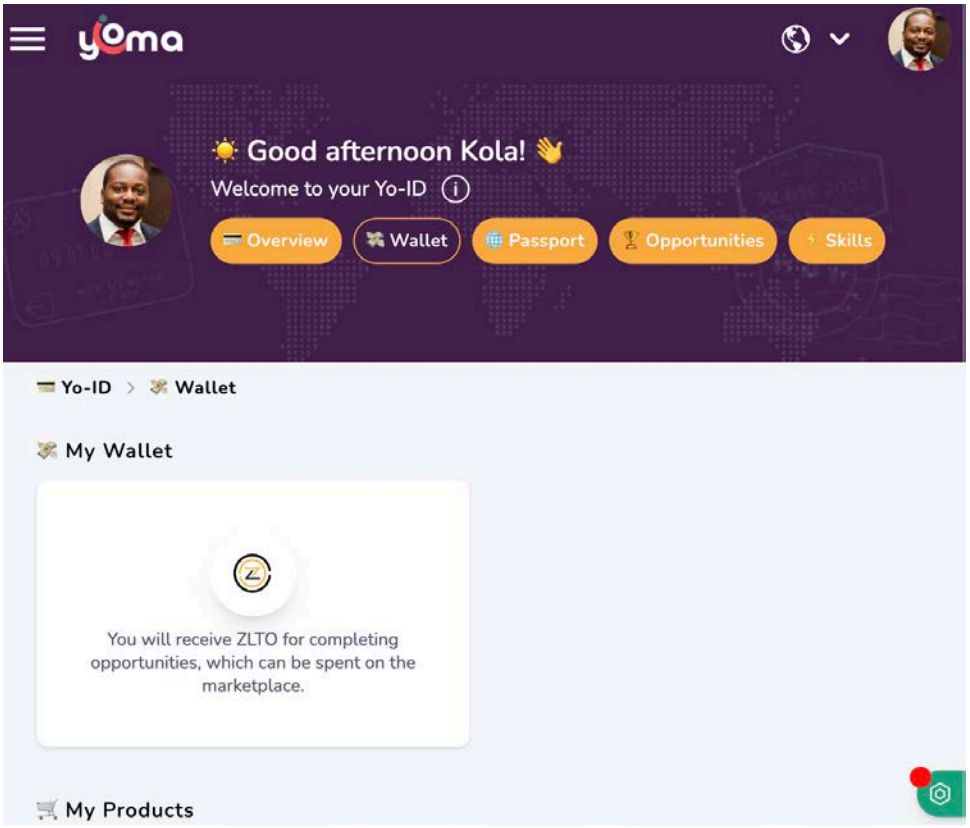
especially crucial when acquiring or verifying official credentials, which may be challenging (DIDx, 2021). By establishing a reliable and widely available credential system, YOMA enables young individuals to showcase their skills and access fresh job prospects, especially in areas with restricted official educational institutions.

One of the pioneering features that enhances user involvement on the YOMA platform is its incentive structure, which uses a digital currency called ZLTO. ZLTO is a digital currency based on blockchain technology that users acquire by completing activities or challenges included on the site. These tokens are exchanged in YOMA's marketplace for commodities and services like cell airtime, data, and other essential supplies (Wills, Parker, & Wills, 2015).

The use of digital tokens as an incentive mechanism aligns with gamification concepts, which promote user engagement by offering prizes and positive reinforcement. By implementing this system, YOMA incentivises users to complete educational assignments, participate in social impact projects, and persist in their personal growth trajectory. The ZLTO digital token, developed by RLabs, has shown its efficacy in motivating engagement across several channels targeted towards young people (see Figure 14).

Figure 14

YOMA Yo-ID Wallet—User Homepage



Note: The screenshot shows the personalised Yo-ID dashboard after the login.

Implementing this personalised strategy increases the probability of young people being actively involved with the platform and successfully finishing their educational courses. Through a constant analysis of user behaviour and preferences, YOMA can consistently enhance its products and services and maximise the experiences of its consumers. The capacity to adapt is crucial in guaranteeing the platform's continued relevance to the changing requirements of young people and the dynamic demands of the employment market.

Notwithstanding the potential of digital innovation, problems persist, especially regarding accessibility. The digital divide, which refers to the disparity between those with access to digital technology and those without it, remains a substantial obstacle, particularly in underdeveloped

sectors. Indeed, many young people in Nigeria face a shortage of access to dependable internet connections, cell phones, or proficiency in digital literacy (Aduwa-Ogiegbaen, Ereyi, & Ede, 2005).

To address these challenges, YOMA offers simpler versions of its platform that use less internet and looks into other ways to connect, like SMS through UReport Nigeria, to ensure that people with limited internet access can participate. Furthermore, YOMA's digital literacy programs enable young people to navigate the digital world effectively, promoting inclusiveness and mitigating the digital gap.

Digital innovation drives YOMA's objective to provide sustainable learning-to-earning routes for young people. Through advanced technologies like blockchain, machine learning, and digital tokens, YOMA has established a vibrant environment that enables young people to surmount obstacles to education and work (Sule, Sambo, & Yusuf, 2023).

The platform's success highlights the considerable capacity of digital innovations to revolutionise lives, particularly in areas where conventional systems cannot provide sufficient prospects for the next generation. With its ongoing development, YOMA is becoming a model for using digital platforms to tackle global issues and promote inclusive growth for young people worldwide.

In summary, YOMA provides the transformative capacity of digital social innovation to advance youth empowerment in resource-constrained settings. Drawing on a robust body of theoretical and empirical research, this analysis situates YOMA at the intersection of technological ingenuity and social purpose. The platform’s integration of blockchain-based credentialing, incentive-driven engagement, and adaptive access strategies demonstrates a scalable and

sustainable intervention model capable of overcoming entrenched barriers to education and employment.

As evidenced by measurable gains in self-efficacy, skills attainment, and social participation among young users, YOMA offers compelling proof of how thoughtfully designed digital ecosystems can yield enduring systemic change. This research not only enriches the scholarly discourse on social innovation but also offers practical tips for practitioners and policymakers seeking to foster inclusive opportunities for the next generation.

Measuring Impact in Youth-Focused Social Innovation

The evaluation of performance in social innovation has consistently posed challenges for researchers, development practitioners, and business administrators. Contrary to conventional commercial businesses that prioritise profitability and market share as key performance indicators, social innovation platforms, particularly those focused on youth in low-resource environments, are required to exhibit both social value and the potential for strategic scalability. The platforms are not only providing services but are also transforming opportunity structures, empowerment processes, and participatory governance mechanisms (Oduwole & Alabi, 2020).

This section provides a critical analysis of existing methodologies for assessing social innovation initiatives, specifically concentrating on platform-based interventions aimed at youth empowerment. This section also examines the quantitative and qualitative metrics used in performance assessment, identifies prevalent deficiencies, and proposes a multi-dimensional strategy that is consistent with the empowerment theory framework fundamental to this research.

Evolving Performance Metrics in Youth-Centred Social Innovation

Performance in social innovation cannot be measured exclusively by traditional metrics such as the number of users reached, training completed, or tokens distributed. Researchers argue that the evaluation of social innovation should focus on its ability to create enduring systems change, empower marginalised populations, and produce collective value that extends beyond individual advantages (Sadiq, Hack-Polay, Fuller, & Rahman, 2022). Digital youth empowerment platforms like YOMA should ensure that performance metrics encompass (Zimmerman, 2018):

- **Intrapersonal outcomes:** include improved self-efficacy and increased self-awareness.
- **Interactional outcomes:** Attainment of transferable, future-focused competencies
- **Behavioural outcomes:** include civic participation, peer influence, and community-led impact.

The dimensions of empowerment necessitate performance indicators that are relational, developmental, and longitudinal, as opposed to transactional.

Theory of Change for YOMA

The design team used the Theory of Change (ToC) to delineate the pathway from input to impact. The ToC facilitates visualisation for YOMA from inputs, followed by activities, which lead to outputs, resulting in outcomes, ultimately culminating in impact. (Oyesomi, Salawu, & Oluwatosin, 2021).

Inputs

- **Digital Infrastructure:** includes a blockchain platform, a mobile-optimised interface, and secure digital wallets using ZLTO tokens.
- **Content and Curriculum:** Interactive modules focused on entrepreneurship, digital literacy, and social innovation.
- **Partnerships:** include collaborations with UNICEF, RLabs, local NGOs, private-sector employers, and government agencies.
- **Human Resources:** YOMA programme managers, designers, technical support personnel, and local facilitators.
- **Data and Feedback Loops:** Implementation of real-time analytics to monitor user engagement, track learning progress, and assess incentive redemption.

Activities

Onboarding and Credentialing: Issue digital CVs and verifiable credentials that are verified through blockchain technology, using a self-sovereign identity framework.

Learning to Earning Challenges: Tasks designed with gamification principles that facilitate the acquisition of digital skills, such as coding and social media marketing, in return for ZLTO tokens.

Social Impact Initiatives: Implement youth-led micro-projects, such as community clean-ups and peer-mentoring initiatives, accompanied by token rewards.

Mentorship and Networking: Virtual meetups and individual mentorship facilitate connections between participants and industry experts.

Job Matching and Internships: Implementation of algorithmic matching to connect credentialed youth with internship and job opportunities provided by partner employers.

Outputs

- **Registered Users:** Total count of registered users, specifically the number of youth profiles onboarded.
- **Credentials Issued:** Total number of verifiable badges and certificates obtained.
- **Tokens Earned and Redeemed:** The quantity of ZLTO accumulated via challenges and used for services.
- **Completed Projects**: Quantity of social impact initiatives executed by youth teams.
- **Connections Established:** Conducted mentorship sessions and facilitated job matches.

Short-Term Outcomes (3 to 6 months)

- **Enhanced Self-Efficacy:** Youth exhibit increased confidence in goal-setting and problem-solving, as indicated by Zimmerman's intrapersonal domain.
- **Skill Acquisition:** Quantifiable enhancement in digital and entrepreneurial skills.
- **Community Engagement:** Improved civic attitudes and collaboration through involvement in projects.

Medium-Term Outcomes (6–18 months)

- **Improved Job Readiness:** Observed increase in internship placements, job interviews, and employment rates among participants.

- **Expanded Social Networks:** Development of peer and mentor networks that support continuous learning.
- **Replication of social projects:** Successful scaling or adoption of youth-led initiatives by additional communities.

Long-Term Impact (2 to 5 years)

- **Youth Economic Empowerment:** Implementation of sustainable income generation strategies aimed at decreasing youth unemployment rates in designated regions.
- **Civic Leadership and Social Innovation Culture:** The rise of a generation of young individuals who lead and promote community development and policy advocacy initiatives.
- **Inclusive Digital Economy:** Enhanced digital inclusion, enabling marginalised youth to access high-value digital employment and entrepreneurial prospects.

Assumptions and Risks

- Assumptions include adequate mobile and internet access, ongoing partnerships, and the sustained utility of tokens.
- Identified risks include technical barriers present in rural areas, potential regulatory changes that may impact the use of blockchain technology, and the possibility of token inflation or devaluation.

This ToC serves as a framework to help connect YOMA's secure digital architecture and incentive mechanisms to measurable learning and social outcomes, demonstrating how targeted

interventions cultivate empowered, skilled, and community-focused youth capable of driving Nigeria's socio-economic transformation.

Table 8

Indicators for Monitoring & Evaluation

Level	Indicator	Frequency
Output	Number of Credentials issued; Number of ZLTO redeemed	Monthly
Short-Term	Self-efficacy scores (pre/post survey); skills tests	Quarterly
Medium-Term	Employment/internship rate, network density metrics	Biennial
Long-Term Impact	Youth unemployment rate; # youth-led innovations scaled	Annual

Note. The results-framework ladder links each evaluation level to a quantitative, time-appropriate signal. ZLTO is YOMA's blockchain-based micro-reward scheme, known as the ZLTO Loyalty Token.

Social Return on Investment

SROI aims to quantify social value in monetary terms, enabling funders and stakeholders to assess a financial-equivalent impact. Investing $1 in youth skill development can increase their income or reduce their dependency, allowing us to quantify the return. Researchers caution against the excessive monetisation of intangible outcomes such as self-efficacy or collective agency (Oyesomi, Salawu, & Oluwatosin, 2021). In contexts such as Nigeria, where formal labour outcomes experience delays, this monetisation may result in an underreporting of the actual impact.

Integrating Impact Metrics for A Strategic Approach for Social Ventures

Based on Kaplan and Norton's framework, social venture scorecards incorporate financial, customer, learning, and innovation perspectives. For platforms such as YOMA, this may encompass (Tawse & Tabesh, 2023):

- User satisfaction metrics include Net Promoter Score and retention rates.
- Partnerships within the ecosystem are evaluated by both quantity and quality.
- Progress in learning (skills validated, tasks accomplished).
- Innovation capacity.

This approach is consistent with the industry perspective, particularly regarding performance accountability, scalability, and adaptive execution.

Indicators for Youth Empowerment Platforms

The empowerment theory and industry performance strategy support the following key performance indicators (KPIs) for platforms like YOMA:

Table 9

Key Performance Indicators

Empowerment Component	Indicator Type	Sample Metrics
Intrapersonal (Self-Efficacy)	Survey-based	Confidence to apply for jobs, a voice in decision-making
	Behavioural proxies	Profile completion, self-initiated engagement
Interactional (Skills development)	Credentialing	Number and quality of badges, skills aligned to the job market
	Assessment	Pre-/post-challenge performance scores
Behavioural (Social Impact)	Participation	Number of civic challenges joined
	Influence	Peer referrals, content shared, group-led projects
Platform Strategy KPIs	Adoption and retention	Monthly active users, task completion rates
	Ecosystem metrics	Partner contributions, external validation of credentials

Note. These metrics illustrate the triadic empowerment structure implemented in this study, facilitating the tracking of impact at both the individual level and within the larger socioeconomic ecosystem.

Challenges in Measuring Performance

Despite advancements in evaluation methodologies, numerous challenges continue to exist:

Attribution versus Contribution

Isolating the direct impact of a single digital platform, such as YOMA, on youth behaviours or employment outcomes remains a complex methodological challenge. The interplay of multiple external factors, ranging from socioeconomic influences on policy interventions, often obscures attribution, making it difficult to disentangle the precise contribution of the platform itself within dynamic, real-world environments.

Short-Term vs Long-Term Impact

Many funding agencies require frequent short-term reporting, yet empowerment is inherently a long-term, evolving process that unfolds through sustained engagement and iterative interaction (Oyesomi, Salawu, & Oluwatosin, 2021). This temporal disconnect highlights the need for robust measurement frameworks that can capture both immediate outputs and the more profound, longitudinal impacts that platforms like YOMA are uniquely positioned to facilitate.

Quantifying Empowerment

While metrics such as "confidence" or "sense of agency" play a critical role in evaluating empowerment, they inherently possess complex, qualitative dimensions that resist reduction to simplistic quantitative indicators. Relying solely on proxy measures risks oversimplifying these nuanced constructs, underscoring the necessity for robust, mixed-methods approaches that can more authentically capture the multifaceted impact of platforms like YOMA.

Data Availability

In low-resource environments such as Nigeria, digital platforms frequently encounter data constraints stemming from internet access issues, device accessibility, or limited digital literacy. To address these issues, studies suggest it is essential to implement adaptive performance management with telcos (Ochinanwata, Paul, & Radicic, 2024). This approach provides learning, iteration, and enhancement to YOMA operations in real time.

Contextualising for the Nigerian Environment

In Nigeria, the presence of elevated youth unemployment alongside significant entrepreneurial intent necessitates the inclusion of performance metrics that consider informal economic pathways, social influence and local leadership, such as YOMA youth ambassadors, and civic outcomes include participation in community clean-ups, digital advocacy and voter registration drives (Akinyemi & Bamidele, 2019).

Nigerian studies emphasise the necessity of evaluating youth empowerment within a multidimensional well-being framework, which encompasses economic autonomy, civic agency and psychosocial resilience (Adedokun & Musa, 2021). The insights indicate a need for evaluation systems that are culturally situated and resilient to data variations, by which YOMA has the potential to address this gap.

As YOMA evolves, the integration of a robust performance management framework will enhance platform outcomes and strengthen credibility with funders, employers, and policy stakeholders, which is essential for long-term sustainability and scalability.

Literature Gaps

In Nigeria, although there is an abundance of digital and government-led youth initiatives, none are comparable to YOMA's distinct integrated model. This model effectively combines self-paced e-learning, a live micro-project marketplace, structured mentor and peer networking, and a built-in rewards system that monitors real-world social impact. The lack of a comparable "digital marketplace for youth empowerment" in Nigeria indicates significant empirical and theoretical gaps in the current literature and demonstrates how YOMA addresses these deficiencies.

Notwithstanding the increasing acknowledgement of digital platforms as instruments for youth empowerment, a comprehensive examination of the current literature uncovers substantial theoretical, contextual, and empirical deficiencies that this research seeks to address. The disparities are most pronounced at the convergence of youth empowerment, digital innovation, and platform-based engagement models in low- and middle-income countries (LMICs) like Nigeria.

Digital Disruption and the Gendered Future of Work

Gendered socio-cultural norms influence digital exclusion in Nigeria. A 2020 GSMA analysis indicated a 15% gender disparity in mobile internet usage, revealing that women are less inclined to own smartphones, use data services, or engage in digital learning (GSMA, 2024). Cultural traditions in northern Nigeria often restrict females' access to public areas and technology, thereby diminishing prospects for digital empowerment.

This exclusion fundamentally contradicts YOMA's objective of fostering inclusive skill development and community participation for all youths. The world is now undergoing a profound and fundamental change in how we engage in work, live our lives, and process our thoughts.

Research estimates that female youth will experience exclusion from future work opportunities, especially in STEM professions (Nieuwenhuizen, 2022).

Researchers have found that evolving labour market trends signal a profound transformation in global employment; they project that automation and technological disruption may eradicate many jobs (Oluwakemi & Amaka, 2020). For each new job generated, five positions occupied by female youth are anticipated to go, in contrast to three for male youth. This reality emphasises the critical need to provide contemporary youth with abilities that are resilient for the future (Olanrewaju, 2020).

The shift to a digital economy, driven by automation, artificial intelligence, and the Fourth Industrial Revolution, necessitates a reconfiguration of educational and workforce development institutions. Studies anticipate a 6.5% increase in employment in STEM fields, significantly surpassing the predicted 3% rise in other industries. Concurrently, the skills gap is expanding across the EU; experts anticipate that the proportion of vacant positions requiring Industry 4.0 competences will increase from 8% in 2015 to 24% by 2025 (UNESCO, 2021).

This disruption poses a significant danger to low-skill, routine-based jobs, which are especially susceptible to automation. The extensive use of automated checkout systems in retail has led to the termination of one in four cashier positions, occupied mainly by young women (Nieuwenhuizen, 2022). On the other hand, automation largely shields employment in science, research, and development, thereby increasing the demand for a highly trained and certified workforce.

The difficulty, seen via a gender perspective, is not just technical but also structural. Institutions continue to under-represent women in STEM fields essential to the digital economy,

such as computer science, mathematics, and engineering. In the EU, over 50% of male IT graduates enter digital employment, but just 25% of female graduates do the same (Okonkwo, 2019).

Research has shown that young women often emphasise social worth and societal influence rather than financial gain in their career aspirations (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). Thus, empowering them is not just an issue of equality but also of economic resilience and social advancement. United Nations evaluations indicate that female empowerment propels national development, whereas nations that neglect investment in women and girls often encounter sluggish growth patterns (UN, 2020).

Research has shown that female-owned enterprises are transforming into substantial economic drivers, establishing connections in both local and international markets. Enterprises run by young women are more inclined to include social missions into their frameworks, highlighting the convergence of entrepreneurship and social impact (Oluwakemi & Amaka, 2020). Nonetheless, fewer than 10% of worldwide entrepreneurship studies concentrate on female youth, indicating a substantial deficiency in both scholarly literature and policy formulation (UNESCO, 2018).

Moreover, enterprises with increased female participation have a heightened risk tolerance, so they are more likely to obtain financing for innovative initiatives addressing social challenges such as poverty, education, and climate change. Young women are especially motivated to spearhead such initiatives, fuelled by a commitment to create community impact (Ehimomen, Nwosa, & Ugwu, 2020).

Investing in the education, financial inclusion, and leadership development of young women has yielded dividends in enhanced livelihoods and wider societal advantages. Researchers

argue that female empowerment is not a marginal issue; rather, it is a fundamental component of innovation ecosystems and societal change (Olubusoye, Salisu, & Olofin, 2023).

State-Led Training Schemes: N-Power's Limited Scope

The N-Power programme, initiated by the Federal Government in 2016, aims to mitigate youth unemployment by offering six-month stipends of ₦30,000 per month and foundational digital or entrepreneurial training to participants aged 18 to 35 throughout Nigeria's states. Large-scale evaluations, including a random-sample survey of 970 participants in Enugu State, indicate modest short-term improvements in fundamental ICT skills and temporary job placements. Longitudinal analyses indicate that unemployment and poverty rates return to pre-programme levels within two years of exit, which suggests that the design of N-Power does not effectively promote sustained economic or psychological empowerment (Anam, Ironbar, Umukoro, Eburikure, & Dede, 2025).

Programme evaluations primarily emphasise economic outputs, such as employment rates and stipend uptake, while neglecting to assess intrapersonal empowerment, including self-efficacy, the development of interactional skills beyond basic training, and the social impact at the community level (Okafor & Uche, 2022). Cross-sectional chi-square analyses conducted in Cross River and Nasarawa States ($n < 500$) indicate statistical improvements in employment rates following the N-Power initiative; however, they do not include factors such as leadership development or civic engagement (Osimen, Etoroma, Pokubo, & Adi, 2025).

Qualitative appraisals, specifically focus groups comprising approximately 100 participants in Anambra State, reveal implementation challenges such as delayed stipends and registration errors. However, these appraisals do not include any metrics for empowerment or

comparisons across multiple regions. As a result, although N-Power engages large groups, its concentrated emphasis on stipends and basic training creates theoretical deficiencies in comprehending how digital engagement could lead to sustained self-efficacy, enhanced skills, or quantifiable social contributions (Magaji, Umar, & Yahaya, 2024).

National Baseline Studies: Skills without Platforms

National digital skills baselines, exemplified by the Nigerian Communications Commission's study, indicate that around 68% of youths demonstrate basic proficiency with smartphones (NCC, 2022). These surveys are fundamentally descriptive; they do not assess specific digital platforms, nor do they monitor the extent to which skills gained from government or NGO programmes lead to behavioural or social outcomes.

Policy reviews, such as those conducted by researchers, synthesise barriers to digital literacy; however, they lack empirical assessments of user-level empowerment outcomes. The absence of a connection between the prevalence of digital skills and specific platform interventions creates a methodological gap in these studies. This gap raises the question of how to transition from general baseline metrics to theory-driven measures of empowerment (Oyesomi, Salawu, & Oluwatosin, 2021).

EdTech Start-Ups: Partial Solutions

A dynamic EdTech ecosystem has developed in Nigeria, featuring startups such as uLesson, AltSchool Africa, and Tuteria, each focusing on aspects of digital learning or gig-economy matchmaking; however, none fully integrates YOMA’s tripartite model.

uLesson offers a collection of pre-recorded video lessons that align with curriculum standards, accompanied by interactive quizzes designed for K-12 students. Recent developments

include the introduction of a mobile library and the early stages of an open university platform known as Miva. uLesson monitors academic performance and provides gamified rewards, such as WAEC exam preparation tournaments. However, it does not include a networking component for peers or mentors, nor does it support structured engagement in micro-projects or tracking of social impact (Samuel & Salisu, 2025).

AltSchool Africa specialises in providing bootcamp-style training in technical skills such as software engineering and data science. The program includes a year-long curriculum that is delivered online and in collaboration with tertiary institutions, culminating in the issuance of certificates. The program incorporates mentorship elements and career-placement assistance; however, it does not maintain an active marketplace for paid micro-projects, nor does it consistently evaluate community impact results (AltSchool Africa, 2023).

Tuteria serves as a marketplace that links learners with thoroughly vetted tutors specialising in both academic and vocational subjects, providing compensation to tutors for each lesson delivered. While Tuteria offers marketplace functionality and tutor-led learning services, it does not provide structured self-paced modules, a built-in community project framework, or any system for assessing broader social impact beyond academic performance (Tuteria, 2025).

Each of these platforms focuses on one or two aspects of empowerment, cognitive skills, career services, or gig-work facilitation, yet none combines all four components: (a) self-paced learning, (b) micro-project marketplace, (c) peer/mentor networking, and (d) documented rewards for social impact. This insight presents a theoretical gap in the literature: it is not possible to empirically assess how a singular ecosystem providing all these components affects the complete range of empowerment outcomes as described by Zimmerman (1995).

Summary of Theoretical and Empirical Gaps

The disjointed characteristics of current initiatives reflect deficiencies in the academic research.

Outcome Fragmentation: Previous research focuses on limited outcomes such as stipend receipt, platform usability, and basic digital literacy, rather than exploring multidimensional constructs of empowerment, including self-efficacy, skill mastery, and civic or social agency.

Sampling Limitations: Numerous evaluations depend on small, localised samples ($n < 500$), non-random selection methods, or convenience sampling, which restricts the ability to generalise results to a national level.

Short-Term Designs: Evaluations often use immediate post-intervention measures, failing to account for sustained behavioural or social outcomes over an extended period.

Platform Silos: Digital initiatives focus on discrete functions, such as training, stipends, or tutoring, rather than developing integrated ecosystems that could foster interconnected empowerment pathways. The absence of a comprehensive platform results in a deficiency in the literature regarding a thorough examination of Zimmerman's tripartite empowerment framework within a technology-mediated environment.

YOMA effectively addresses this gap by providing a unified platform that incorporates Zimmerman's tripartite empowerment theory and Bandura's SCT while facilitating comprehensive, nationally generalisable evaluation through random sampling, prolonged engagement measurement, and multidimensional outcome tracking. The architecture presented aims to address identified empirical limitations and contributes to the theory of digital social

innovation by illustrating the capacity of technology-mediated ecosystems to empower youth comprehensively in developing contexts.

Lack of Use of The Empowerment Theory in Platform Contexts

Despite being a prominent model for evaluating youth development results, Zimmerman's (1995) psychological empowerment theory has limited implementation in digital platform settings. Most current studies either conceptualise empowerment as an abstract outcome lacking operational clarity or concentrate solely on economic empowerment metrics, neglecting the three interconnected components of empowerment: self-efficacy (intrapersonal), skill acquisition (interactional), and social impact (behavioural) (Zimmerman, 2018). This disparity is especially alarming considering the increasing significance of digital ecosystems like YOMA, which aim to provide empowerment through organised platform connections.

This research addresses this gap by implementing Zimmerman's empowerment theory inside a platform-mediated framework. It presents an innovative conceptual framework that connects platform elements (e.g., learning modules, badges, volunteering, and job matching) with the threefold objectives of empowerment. This approach not only strengthens the theoretical soundness of Zimmerman's work but also evaluates its applicability within the framework of digital youth development initiatives in Nigeria.

Insufficient Contextual Data Regarding Nigerian Youth and Digital Platforms

An analysis of peer-reviewed articles indicates a predominance of research originating from developed countries, with few empirical data situated inside the Nigerian setting (Zimmerman, et al., 2018). Limited research offers detailed insights into the ways Nigerian youth use internet platforms for education, skill enhancement, and economic opportunities. Few studies

provide empirical evaluations that connect platform involvement to quantifiable empowering results. Although several policy publications address youth unemployment and digital literacy in Nigeria, they seldom extend beyond descriptive data or case studies to provide comprehensive effect assessments (Shola, Adewale, Oke, & Samuel, 2021).

This study employs a systematic approach by surveying Nigerian youths on the YOMA platform and evaluating empowerment results using SEM, therefore contributing a novel dimension of empirical insight. It offers statistically proven correlations between platform utilisation and empowerment results, addressing a persistent deficiency in data-driven, theory-based research in this domain.

Incongruence Between Platform Models and Empowerment Metrics

Much of the current platform literature focuses on infrastructure, access, or technology design, often grounded in platform theory or ICT4D frameworks, but fails to examine how platform tactics align with empowering objectives. Research often neglects the complex influence of platform design on facilitating or hindering empowering results. Many solutions, for example, do not include adaptive learning algorithms, reputation systems, or incentive structures that would foster ongoing user involvement and progress. This study reconciles the conceptual disparity by integrating empowerment theory and strategic platform design to create a hybrid model, as delineated in the new conceptual framework.

Lack of Strategic Frameworks for Scalable Empowerment

Development initiatives aimed at youth are sometimes sporadic, influenced by donors, and devoid of a sustainable, long-term framework. Although programmes like YOMA provide an integrated solution, there is an absence of strategic assessment frameworks that evaluate these

platforms as scalable empowerment systems. No extensive research has positioned such a platform inside a strategic business and innovation framework, particularly within Nigeria's development ecosystem.

This study addresses this omission by situating YOMA within a strategic framework of youth empowerment, taking into account sustainability, collaboration networks, financial models, and connection with national youth policy. The incorporation of a performance measuring technique augments the strategic significance of the research for policymakers and industry adopters.

Table 10

Literature Gaps and This Study's Contributions

Gap Category	Nature of Gap Identified	How This Study Responds
Theoretical	Underuse of empowerment theory in platform contexts	Applies Bandura-Zimmerman's model to assess empowerment outcomes via digital platform (YOMA)
Empirical	Lack of Nigeria-specific, data-driven studies on youth and platforms	Collects and analyses primary data using SEM, focusing on Nigerian youth on YOMA
Conceptual	Disconnect between digital platform features and empowerment outcomes	Introduces a framework aligning platform strategy with self-efficacy, skills, and social impact

Strategic/Programmatic	Weak strategic frameworks for scalable, digital youth empowerment	Develops and evaluates a business-informed, policy-relevant empowerment platform model

Note. Comparison of literature: Gaps in the study

Summary

The objective of this literature review is threefold: (1) to synthesise theoretical frameworks on empowerment and self-efficacy relevant to the study of digital youth development; (2) to incorporate empirical evidence regarding Nigerian digital skills and social innovation initiatives; and (3) to identify unresolved contradictions that support the rationale for the current dissertation. The reviewed works collectively affirm the conceptual viability of YOMA as an empowerment intervention. However, they also reveal empirical and methodological gaps that can only be addressed through a national-scale, theory-driven study.

Theoretical Synthesis

Albert Bandura's SCT and Zimmerman's Psychological Empowerment Framework offer complementary models for analysing youth agency. SCT describes four sources of efficacy: mastery, vicarious learning, social persuasion, and physiological feedback. Concurrently, Zimmerman interprets self-efficacy through a three-stage empowerment sequence comprising intrapersonal beliefs, interactional competences, and behavioural action.

The analysis indicates a definitive theoretical agreement that self-efficacy facilitates the processes of skill acquisition and civic engagement. These studies were primarily conducted in

classroom or small-group settings, raising the question of whether digital interfaces can provide comparable or superior efficacy cues, especially in resource-constrained environments.

The conceptual framework established in Chapter 2 positions YOMA engagement as a cohesive digital mechanism that incorporates all four sources of SCT efficacy: micro-learning streaks (mastery), public badge wallets (vicarious), peer chat and mentor greetings (social persuasion), and gamified rewards (physiological cues). The alignment of these mechanisms with Zimmerman's empowerment dimensions results in three testable, direct hypotheses: engagement leads to self-efficacy, engagement leads to skills development, and engagement leads to social impact. The study adopts a theoretically coherent and empirically novel approach by aligning these hypotheses with prior effect-size ranges.

State of Empirical Evidence

The analysis of digital programmes in Nigeria presents a range of outcomes, both varied and promising. Small urban interventions, such as Digify Africa's eight-week boot camp in Lagos, report a moderate increase in skills gains and self-efficacy. However, these interventions are constrained by a limited sample size and restricted geographic reach (Arejiogbe, et al., 2023).

In a similar manner, online coding boot camps (Olubusoye et al., 2023) demonstrate a 0.42 standard deviation improvement in self-efficacy; however, they do not present any behavioural or civic metrics (Olubusoye, Salisu, & Olofin, 2023). Research focussing on civic outcomes uses descriptive statistics and is unable to differentiate platform effects from pre-existing motivation (Okafor & Uche, 2022).

The limited evaluations that integrate learning and earning components use stipend models, exemplified by N-Power. Although stipends enhance enrolment, participants frequently

experience regression when payments cease, leading to concerns regarding sustainability. The token-based incentives provided by YOMA may present a more sustainable motivational framework; however, there is currently no peer-reviewed research that has quantified the effects of tokens on empowerment outcomes.

Contradictions and Uncertainties

Three contradictions highlight the necessity for the upcoming dissertation:

Comparison of sample scope and asserted generalisability: Numerous studies reference "Nigerian youth," yet they often use convenience samples sourced from Lagos or Abuja. As a result, effect sizes may not be consistent across Nigeria's six geopolitical zones, given the significant variations in digital access, language, and cultural norms. The proposed zone × gender weighted sample in the dissertation directly addresses this limitation.

Self-reports compared to objective traces: Most of the analysed studies depend on self-reported data regarding usage and outcomes, which increases the potential for common-method bias. Uncommon instances that use platform logs infrequently integrate them with psychosocial scales. The current research establishes a connection between Likert data and blockchain-verified activities, presenting a methodological advancement that can elucidate the relationship between self-reported gains and behavioural evidence.

Economic value in contrast to civic value: Research on gig-economy platforms highlights financial benefits, while literature on empowerment concentrates on psychosocial and civic results. The YOMA model seeks to address this gap; however, there has been no previous research investigating the co-evolution of token-mediated earnings with self-efficacy and social impact.

The dissertation concurrently models three dimensions of empowerment to address the tension between market-oriented and community-oriented outcomes.

The role of gender is also characterised by uncertainty. According to GSMA, there exists a 15% gender gap in mobile internet usage in Nigeria; however, smaller-scale studies frequently indicate no substantial gender moderation effects (GSMA, 2024). The study's post-hoc weighting and subgroup analyses address the open empirical question of whether a national dataset reveals differential empowerment pathways.

Methodological Gaps

In addition to content contradictions, there are significant methodological shortcomings present. Among empirical articles reviewed, only few use structural-equation modelling. The majority depend on Ordinary Least Squares (OLS) regression or pre/post t-tests, which do not account for measurement error (Adeniran & Onuoha, 2020). No studies use boot-strap mediation analysis to evaluate the proposed cascade of SCT. Furthermore, it is uncommon for researchers to provide reliability metrics beyond Cronbach's α, often neglecting to include AVE, composite reliability, or HTMT. The identified gaps raise concerns regarding the accuracy and reliability of the current effect estimates.

This study addresses the identified deficits by implementing (a) an integrated reflective-measurement model evaluated through composite reliability and average variance extracted (AVE); (b) partial least squares structural equation modelling (PLS-SEM) utilising 5,000 bootstrapped resamples to handle non-normal data; and (c) explicit mediation analysis for pathways related to self-efficacy.

Framing the Study in an Industry Context

The researcher situates the study at the convergence of youth development, digital innovation, and strategic platform delivery, aimed at informing practical applications in Nigeria. The research takes a practical approach, interacting with an operational digital empowerment platform (YOMA) to meet industry demands for actionable knowledge. The focus is on insights that can impact implementation models, policy formulation, programme design, and strategic investment in digital infrastructure aimed at youth.

The study is motivated not only by theoretical contributions but also by the necessity to deliver evidence-based models that can be adopted and adapted by stakeholders in the public, private, and development sectors. The study provides principles of engaged scholarship, integrating academic rigour with practical relevance in professional contexts. The study elucidates the operational dynamics of a platform such as YOMA, catalysing youth empowerment. It examines the intricate relationships among access, participation, and social impact within the platform ecosystem.

The study identifies Nigeria as the central context and emphasises the urgent requirement to address the digital divide, provide youth with skills pertinent to the industry, and develop scalable frameworks for inclusion and empowerment. This study provides an analysis of stakeholder partnerships, cost structures, and impact pathways pertinent to entities functioning at the convergence of technology, development, and education.

This study is significant as it aligns with the increasing demand for evidence-based policy and programme innovation. The objective is to guide the operations of international development agencies, youth-focused civic organisations, digital learning providers, and the private sector that aim to expand digital inclusion initiatives. The study provides insights into both the objectives of

youth empowerment and the methodologies for creating platforms that are contextually relevant and strategically sustainable.

Finally, the study outlines the operational and strategic dynamics of YOMA within a comprehensive conceptual framework, offering a replicable knowledge asset for other developing nations, particularly those experiencing analogous youth bulge dynamics and socio-economic transitions. The proposal outlines a framework for research that aligns with industry needs, aiming to develop scalable, inclusive, and future-oriented solutions to address youth unemployment, under-skilling, and socio-economic disenfranchisement (Akinlola & Ohonba, 2024).

Rationale for the Study

The synthesis of theory and evidence indicates a distinct intellectual and practical requirement for this dissertation:

- **Testing theories on a large scale:** The integration of SCT mechanisms into a national digital platform, along with an evaluation of their predictive capabilities in relation to Zimmerman's triad, addresses a significant theoretical deficiency.
- **Innovative methodologies:** The integration of weighted sampling, and PLS-SEM addresses the limitations present in current Nigerian studies.
- **Immediate attention to policy matters is required:** The current youth unemployment rate stands at 42.5%, indicating an urgent need for validated digital solutions. Should YOMA's token-based system demonstrate efficacy, the Nigerian Government may incorporate badge verification into the NYSC, NELEX, and broadband-subsidy frameworks.

- **Implications of equity:** Analysis of zone and gender weighting, along with rural–urban subgroup evaluations, will reveal the equitable distribution of digital empowerment benefits, guiding the development of targeted interventions.

Overall, the literature indicates that self-efficacy, skills development and social impact serve as both a driving force and a measure of youth empowerment. Additionally, it suggests that digital platforms can provide efficacy cues, while tokens may encourage ongoing learning. However, contradictions such as limited scope, reliance on self-reports, and the tension between economic and civic value result in critical questions remaining unanswered. The upcoming empirical chapters will evaluate the effectiveness of YOMA's integrated design in addressing these uncertainties and in offering scalable, equitable empowerment pathways for Nigerian youth.

CHAPTER 3: RESEARCH METHOD

This chapter describes the study methods used to investigate the function of YOMA in promoting youth empowerment in Nigeria. The text reiterates the research topic and objective, describes the philosophical assumptions supporting the investigation, and rationalises the chosen methodological design, data collection, and analytical techniques used.

As emphasised in Chapter One, the principal research issue driving this study is the inadequate comprehension of how digital platforms like YOMA facilitate youth empowerment in Nigeria, particularly through self-efficacy (intrapersonal), skills development (interactional), and social impact (behavioural) pathways. This disparity is particularly pronounced in Nigeria, where, despite a burgeoning young demographic and rising utilisation of digital platforms, scalable models of digital empowerment are insufficiently analysed, inadequately recorded, and underused.

The primary objective of this study is to empirically investigate how YOMA, a UNICEF-led youth agency platform, facilitates empowerment outcomes for Nigerian youth. This research is positioned within a pragmatic business and policy framework, seeking to provide actionable insights pertinent to development practitioners, digital platform designers, and public-private partnership stakeholders.

To achieve this objective, the researcher used a quantitative technique based on the positivist theory. The methodological approach is informed by Bandura's SCT and Zimmerman's Empowerment Theory, which defines empowerment as a multidimensional construct including intrapersonal, interactional, and behavioural dimensions. SEM was used as the analytical method to investigate the causal links between YOMA participation and the dimensions of empowerment.

This approach ensures empirical robustness while providing a thorough framework to evaluate both direct and indirect impacts of the platform on youth development outcomes.

Research Context

Nigeria, with a population of over 200 million, has one of the largest young demographics in Africa, with over 60% of its populace under the age of 25 (NBS, 2023). The nation offers a persuasive rationale for investigating youth empowerment, given its demographic advantages and ongoing socioeconomic difficulties. Persistent youth unemployment, underemployment, and a considerable population of young people not engaged in education, employment, or training (NEET) continue to be pervasive challenges (Okafor & Uche, 2022). This demographic scenario necessitates a strategic need to explore scalable, innovation-driven solutions for young development, particularly in the digital economy.

The YOMA platform embodies an innovative strategy for tackling these systemic concerns. YOMA, co-developed by UNICEF and its partners in response to the COVID-19 epidemic, serves as a digital platform for education, skills enhancement, and employment possibilities for youth across Africa, including Nigeria as a primary trial nation. During the MVP phase, the platform registered over 200,000 Nigerian youths , yielding an emerging but informative sample for assessing the platform's influence on empowering results.

The researcher based the choice to use Nigeria as the national background on both intellectual and practical factors. Few studies have sufficiently examined the landscape of Nigerian youth development from the viewpoint of platform-based empowerment. Furthermore, the incorporation of innovation and digital competencies into national development frameworks, such

as the National Digital Economy Policy and Strategy (2020–2030), positions Nigeria as a relevant and contemporary study context. The research occupies the convergence of socio-political, technical, and institutional dynamics, with YOMA serving as a practical testbed for empowering measures consistent with Industry 4.0 transitions.

This contextual framework enables the research to investigate how a digital empowerment platform (YOMA) influences young agency, using Zimmerman's empowerment theory as a lens. It specifically examines the impact of digital interventions on self-efficacy (intrapersonal), access to learning and skills (interactional), and significant engagement in economic or social outcomes (behavioural). By situating the research within this Nigerian context, the study amplifies its practical significance and positions its results to influence national and regional policy, practice, and future platform development.

Research Approach and Design

This section outlines the research design and approach used in the current study, offering a framework for the methodical exploration and resolution of the research topics. A research design is the systematic framework for acquiring evidence to address research enquiries and fulfil the study's goals. This research examines the impact of digital empowerment platforms, namely YOMA, on youth development outcomes in Nigeria, using a quantitative, cross-sectional survey methodology. The research technique is based on hypothesis testing with SEM, employing deductive reasoning derived from Zimmerman's Empowerment Theory.

Research Philosophy

This study is grounded in a post-positivist, pragmatist paradigm. Post-positivism acknowledges that social constructs, including self-efficacy, skills, and civic engagement, are not directly observable (Tasci, Wei, & Milman, 2025). However, these constructs can be represented as latent variables, using indicators that may be subject to error. Pragmatism enhances this perspective by emphasising the importance of knowledge in addressing specific issues specifically, preparing Nigerian youth for meaningful employment and community engagement.

The combination of these positions supports the application of weighted, cross-sectional SEM. Post-positivism provides a foundation for the statistical estimation of unobservable empowerment constructs, whereas pragmatism endorses a design that integrates survey perceptions with blockchain-verified engagement data. This approach aims to produce findings that are actionable for policymakers and platform designers.

The paradigm additionally informs essential methodological decisions. A probabilistic, post-hoc zone × gender weighting procedure is designed to align with the post-positivist objective of approximating population parameters, even in the presence of sampling imperfections. The choice to model direct, predictive paths instead of asserting strict causality aligns with the fallibilist perspective of post-positivism, which maintains that all explanations are provisional.

The study highlights effect sizes (β coefficients) and variance explained (R^2) as a pragmatic approach, prioritising actionable insights for digital-empowerment initiatives such as YOMA over philosophical considerations.

Underlying Assumptions

Ontology: It is assumed that empowerment constructs, including self-efficacy, skills development, and social impact, are present as real but latent dispositions among Nigerian youth. These elements are not directly observable; rather, they are represented through quantifiable indicators, including survey responses and validated YOMA activities. This critical-realist perspective, characteristic of post-positivism, validates the statistical modelling of constructs while recognising that the estimates are approximations of a more profound social reality.

Epistemology: This refers to the branch of philosophy concerned with the theory of knowledge. It explores the nature, sources, limitations, and validity of knowledge, addressing questions about belief, truth, and justification. Knowledge in this study is derived from fallible, mixed-source evidence, specifically self-report data. Likert items document subjective perceptions, while blockchain logs offer objective records of platform engagement. By weighting the sample based on zone and gender, the researcher aims for approximate generalisation, acknowledging that complete certainty is not achievable. This reflects a pragmatic perspective that recognises truths as provisional, best evaluated by their explanatory and predictive capabilities.

Axiology: The research demonstrates a clear bias towards youth empowerment and the principles of data ethics. The study is designed to enhance agency among young Nigerians, which is regarded as a positive social outcome. Measures are implemented to minimise harm, including informed consent, anonymity, and secure management of platform telemetry. This axiology impacts both the selection of topics and the choice to report effect sizes and cost-efficiency, with the objective of informing equitable policy rather than focussing solely on theoretical aspects.

Methodology: A quantitative, predictive design using weighted cross-sectional SEM logically derives from the established ontological and epistemological positions. Latent-variable modelling converts abstract constructs into measurable parameters, while post-hoc weights address sampling imbalances. The emphasis on β coefficients and R^2 corresponds with the instrumental criterion of pragmatism: results are deemed valuable when they consistently predict empowerment outcomes and inform practical modifications to platforms or policies.

Purpose and Rationale of the Research Design

This study empirically examined the link between youth involvement with the YOMA platform and three fundamental elements of empowerment: self-efficacy, skills development, and social influence. Given this explanatory and relational objective, the researcher chose the quantitative approach as the most suitable, since it enables statistical analysis and provides generalizable insights for a broad population sample.

The cross-sectional design of the research facilitated data collection at a singular point in time, maximising resource utilisation and enabling prompt analysis while adhering to empirical rigour. Although longitudinal designs have the benefit of monitoring change over time, they were considered unsuitable for this research due to budget limitations and the exploratory emphasis on evaluating a new conceptual model. The design, closely aligned with Zimmerman's theory and a structured measurement approach, guarantees the precise operationalisation of theoretical ideas and their empirical evaluation.

Research Methodology

This study employs a quantitative, cross-sectional, explanatory design to evaluate theory-driven predictions regarding the relationship between engagement with YOMA and three empowerment outcomes: self-efficacy (intrapersonal), skills development (interactional), and social impact (behavioural). Zimmerman's empowerment theory delineates the outcome structure, whereas Bandura's Social Cognitive Theory offers the mechanism cues integrated within YOMA's design (mastery, vicarious learning, social persuasion, affective feedback). The lenses are translated into three direct hypotheses that connect a single predictor; YOMA engagement to each respective outcome.

The population comprises YOMA accounts registered in Nigeria, specifically individuals aged 18 to 35, totalling 246,050 accounts. Eligibility filters were applied by platform administrators, focussing on recent activity and valid contact information. A de-identified sampling frame consisting of approximately 5,000 users was then exported. A uniform random number was assigned to each ID to facilitate simple random sampling, with cases selected in ascending order.

The questionnaire was hosted on SurveySparrow, with invitations dispatched in daily waves using a Google Gmail mail-merge add-on to facilitate deliverability. Each email included a personalised message and SurveySparrow link.

The initial survey interface displayed the consent form, and proceeding necessitated explicit consent from the participant. The implementation of single-use links and uid checks in SurveySparrow effectively mitigated the occurrence of duplicate entries. Two scheduled reminders were distributed; participation was voluntary, and an opt-out link was provided. Out of

approximately 5,000 invitations sent, the response rate was 12%, resulting in a total of 399 complete and valid cases after excluding ineligible responses, partial responses, and speeders.

The instrument consists of a pre-validated, self-administered questionnaire featuring Likert-scale items that assess four reflective constructs: YOMA engagement, self-efficacy, skills development, and social impact. Item pools were derived from Nigerian scales that had been previously used in research focused on youth and digital skills, with minimal adaptations made for the YOMA context. A panel of five experts conducted an assessment to establish content validity, achieving an Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index (S-CVI) of 1.00.

Additionally, face validity was confirmed with at least 90% of reviewers indicating “Yes” on criteria related to clarity, relevance, and appropriateness. Following this, a small pilot study was conducted to validate the wording and determine the average completion time. The final data collection occurred through an online platform, ensuring that no personally identifiable information was available to the research team unless explicit consent was provided.

To address the potential over-representation of specific subgroups in voluntary digital participation, the researcher implemented post-stratification weights categorised by geopolitical zone and gender. This approach used official youth shares to ensure that the realised sample accurately reflects the national distribution. Weights were computed using SPSS, resulting in a range of 0.21 to 3.66, with a mean of 1.00 and a DEFF of 1.12. All descriptive statistics and structural models use the weighted dataset.

Measurement reliability and validity were assessed prior to testing the structural paths. The indicator loadings, Cronbach’s alpha, rho_A, composite reliability, and average variance extracted

(AVE) all satisfied the established standard thresholds. The Fornell–Larcker criterion, Heterotrait-Monotrait Ratio (HTMT), and cross-loading assessments confirm the presence of discriminant validity. To mitigate common-method artefacts, diagnostics were documented, and a comparison was made between weighted and unweighted solutions.

Structural analysis was conducted using SmartPLS 4. The measurement and structural models were estimated simultaneously, utilising bootstrapping with 5,000 resamples to derive standard errors, t-values, and confidence intervals for the path coefficients. The global fit was assessed using SRMR, while multicollinearity was evaluated through VIF at the indicator level. This variance-based SEM method is suitable for moderate sample sizes and non-normally distributed indicators, aligning with the objective of the study to estimate predictive relationships among latent constructs.

Compliance with ethical safeguards was ensured in accordance with university and national guidelines. Participants were given an information sheet and provided informed consent. Data were anonymised, securely stored, and analysed in aggregate. The methodology employs a transparent probability-based recruitment process, documents weighting to enhance population representativeness, and subjects the measures and model to established reliability and validity tests, thereby offering a robust foundation for the results presented in Chapter 4.

Rationale for Quantitative Methodology

A quantitative design is most suitable for this study's objective: to estimate the strength and direction of hypothesised relationships between YOMA engagement and three empowerment outcomes, while accurately reporting those effects (β, R^2, CIs). Zimmerman’s framework and SCT

delineate testable propositions regarding the relationship between mastery-based engagement and self-efficacy, skills, and social impact. The conversion of these propositions into latent variables assessed through Likert items facilitates formal hypothesis testing, moving beyond subjective inference (Idris & Maikomo, 2024).

Variance-based SEM using SmartPLS is appropriate for this task. The system supports reflective constructs, concurrently assesses both measurement and structural models, and produces path coefficients that quantify practical significance. The design, with n = 399 and post-stratification weights (zone × gender), facilitates population-aligned estimates for digitally connected Nigerian youth and allows for transparent sensitivity checks (weighted vs unweighted) (Ezeuduji, Mhlongo, & Ntshangase, 2024).

Quantitative reliability and validity routines, including indicator loadings, Cronbach's α, composite reliability, AVE, Fornell–Larcker, HTMT, VIF, and SRMR, establish a replicable audit trail that demonstrates the intended behaviour of constructs prior to making substantive conclusions (Owolabi & Obun-Andy, 2024).

This method addresses the evidence requirements of policy and programme decision-makers, who necessitate scalable metrics and comparability across various regions and cohorts. Reporting effect sizes alongside confidence levels enables ministries, donors, and platform architects to establish benchmarks for interventions, prioritise features such as badges and data-lite modes, and strategically allocate resources, including zero-rating and grant matching, based on quantified gains rather than anecdotal evidence. Qualitative methods provide valuable insights into user narratives; however, they do not replace the need for generalisable, magnitude-focused evidence required to assess the impact of a national digital platform on key empowerment

indicators (Datti, Agboola, Gawuna, & Adebowale, 2024). Therefore, a quantitative, SEM-based approach offers the most suitable methodology for this investigation.

Rationale for Model Parsimony

The study applies a parsimonious model to preserve clarity and analytical precision within the structural equation modelling (SEM) design. Only three direct hypotheses (H1–H3) were tested to capture the essential empowerment pathways predicted by the integrated Empowerment–Social Cognitive framework: YOMA engagement → self-efficacy, skills development, and social impact. Limiting the model to theoretically necessary relationships prevent parameter inflation and supports estimation stability under PLS-SEM. The implied sequential linkages (self-efficacy → skills → social impact) were conceptually acknowledged but excluded from testing to maintain model simplicity and interpretive focus. This deliberate parsimony ensures theoretical coherence, statistical reliability, and replicability which suggests the hallmarks of disciplined quantitative inquiry.

Evaluation of Alternative Approaches & Practical Alignment

Qualitative and mixed-methods designs were considered to capture lived experiences and co-creation narratives on YOMA. However, a quantitative, SEM-based approach was selected to accurately estimate effect sizes and rigorously test theory across a national sample. This selection maintains analytical clarity regarding the three proposed relationships (YOMA engagement → self-efficacy, skills and social impact) and facilitates transparent reporting of β and R^2 for benchmarking by decision-makers.

Qualitative research is crucial for future investigations to elucidate the mechanisms such as motivation, social norms, and contextual barriers that underpin the engagement patterns identified in this study. The chosen design integrates academic rigour with practical relevance by extending Zimmerman's empowerment framework into the context of Nigeria's digital platforms (Datti, Agboola, Gawuna, & Adebowale, 2024).

It produces actionable metrics that can guide program design, such as badge policies and data-lite modes, facilitate government recognition of micro-credentials, and inform scaling strategies for youth employment and inclusion. This study quantifies the changes observed; further qualitative research is necessary to elucidate the reasons and mechanisms behind these changes.

Population and Sample of the Research Study

This section outlines the demographic representation of the study and the methodology employed for respondent selection. The population consists of YOMA accounts registered in Nigeria, with users aged 18 to 35, totalling 246,050 young people, during the COVID-19 lockdown in 2020. From this population, platform administrators generated an accessible sampling frame consisting of approximately 5,000 eligible users, characterised by recent activity and valid contact information.

A simple random sampling method was implemented on the frame to ensure equal selection probability and reduce selection bias. Invitations containing personalised SurveySparrow links were dispatched in daily email batches using Gmail mail-merge. Each link was a single-use URL, and duplicate checks were implemented to ensure one response per account. After exclusions for ineligibility and partials, the study retained n = 399 complete cases.

Post-stratification weights were applied for geopolitical zone and gender to align estimates with the distribution of youth in Nigeria prior to conducting all analyses. The subsequent subsections provide a detailed overview of the population criteria, frame construction, randomisation process, recruitment methods, response outcomes, and the weighting protocol employed.

Intended Demographic

This research targeted all young people in Nigeria who engaged with the YOMA platform. This demographic encompasses users who have used any of YOMA's services, including digital learning, volunteering, incentives, or job-matching features, since its inception. The study defines the population as those aged 18 to 35 years.

Available Population

The researcher obtained the email addresses of 246,050 Nigerian users during the launch phase of the YOMA platform, who now comprise the target audience for this research. YOMA only recorded participants' first names, email addresses and point of registration and did not collect personal identifiable information based on the General Data Protection Regulation (GDPR).

Population, Sampling Frame and Post-hoc Stratification

The study population consists of YOMA users residing in Nigeria, aged 18 to 35, who are listed in the platform data (N = 246,050). From this population, platform administrators created an eligible sampling frame consisting of approximately 5,000 accounts, characterised by recent activity and valid contact information. Records included minimal personal data (first name, and email) in accordance with GDPR-compliant policies and were used exclusively for recruitment

purposes. The researcher used the Taro Yamane formula to extracte a sample of n = 399 from the population with a confidence level of 95%. The Yamane formula is as follows:

$n = N/1+N(e)^2$

Where:

n = sample size

N = Population Size

e = Margin of Error (0.05)

1 = Constant

Therefore, the sample size for the research is:

n = 246050 / (1 + 246050 * (0.05) * (0.05))

n = 246050 / 648.5 ≈ 399

Recruitment of Questionnaire Respondents

SurveySparrow (surveysparrow.com) serves as a web-based survey platform used for hosting the questionnaire and managing distribution through personalised, single-use links. The system provides mobile-responsive forms, duplicate prevention through unique identifiers, and secure export of de-identified responses in CSV/XLSX format for analysis in SPSS/SmartPLS.

The researcher sent out waves of emails using a mail-merge add-on in Gmail to enhance deliverability. Each email included a personalised SurveySparrow URL that embedded a non-identifying uid associated. The initial screen displayed the consent form; advancement necessitated active consent.

The single-use link controls implemented by SurveySparrow effectively prevented the occurrence of duplicate entries. No emails were sent to users who had not responded; participation

was maintained on a voluntary basis, including an option to opt out. The total number of invitations sent was 5,000, resulting in an overall response rate of 12%, which corresponds to approximately 600 initiations.

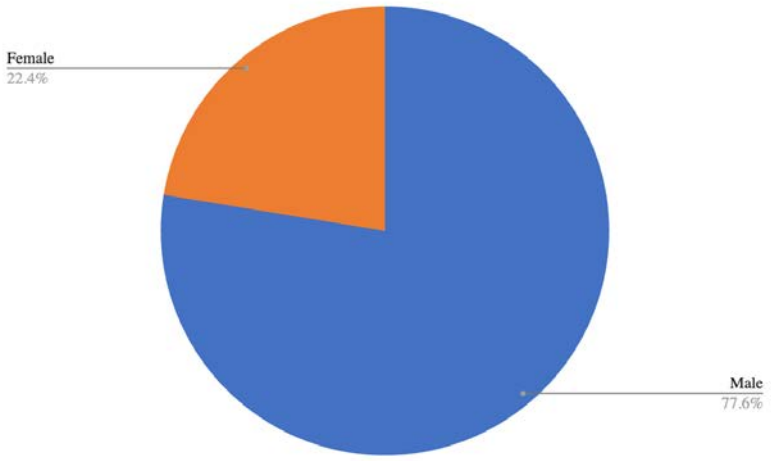
Following the exclusions for ineligibility, and partial responses, the researcher retained a total of n = 399 complete and valid cases. The randomised, wave-based invitation protocol, accompanied by post-hoc zone × gender weighting, produces a defensible probability sample of Nigeria's digitally connected youth segment.

Why was post-hoc stratification required?

The examination of the obtained sample (see Figure 15) indicated a significant over-representation of males (77.6%) and residents from the South-West, which aligns with patterns commonly observed in voluntary digital platforms. To achieve national representativeness and mitigate bias in descriptive statistics and path coefficients, the sample underwent post-stratification based on the cross-classification of Nigeria's six geopolitical zones and binary gender, resulting in 12 strata (6 × 2).

Figure 15

Gender Composition of YOMA Survey Sample (n=399)



Note. The pie chart illustrates a pronounced gender imbalance in the study's respondent pool: 77.6 % male (blue) versus 22.4 % female (orange). This skew aligns with platform-usage analytics that show higher digital-access rates among young men in Nigeria and underscores the need for women-specific engagement strategies discussed in Chapter 5.

Post-Stratification Weighting Procedure

Weight construction: A base weight for each respondent in stratum *i* is:

$$w_i = n_i/(N\pi_i) \text{ and was rescaled so } \sum w_i = 399.$$

Post-stratification weights were generated in SPSS for the zone × gender cells listed in Table 10. Population (N) totals come from the 2023 NBS Labour-Force micro-data; sample counts (n) derive from the realised n = 399. The final weights span 0.21 (under-represented North-Central males) to 3.66 (over-represented North-West females)**,** with a mean of 1.00 and a design effect DEFF = 1.12**.** All descriptive statistics and the SmartPLS models employ the weighted dataset; unweighted coefficients are provided in Appendix E for transparency.

Table 11

Population Benchmarks, Realised Sample, and Post-hoc Weights (zone × gender, age 18-35)

Geopolitical zone	Gender	NBS youth population (approx.)	Population share π_i	Realised sample n_i	Post-hoc weight w_i
North-Central	Male	3 597 206	6.9 %	67	0.21
	Female	4 023 993	7.7 %	20	0.77
North-East	Male	3 474 014	6.7 %	53	0.25
	Female	3 886 185	7.4 %	5	2.98
North-West	Male	6 824 836	13.1 %	66	0.40
	Female	7 634 563	14.6 %	8	3.66
South-East	Male	2 759 500	5.3 %	20	0.53
	Female	3 086 899	5.9 %	11	1.08
South-South	Male	3 301 545	6.3 %	37	0.34
	Female	3 693 254	7.1 %	18	0.79
South-West	Male	4 681 296	9.0 %	66	0.27
	Female	5 236 704	10.0 %	28	0.72
Totals		**52 200 000**	100 %	**399**	—

Note. Population counts are based on the last 2012 National Baseline Youth Survey, which reported a total of 52.2 million Nigerians aged 18-35 (NBS, 2012). Weights are normalised to a mean of 1.00, ensuring that the weighted total still equals the realised sample size (n = 399) while correcting cell-level imbalances.

Operational Definition of Variables

This section establishes the operational definitions of the main variables used in this study, correlating each with the research objectives and the overall analytical framework based on Zimmerman's Empowerment Theory. This quantitative research using SEM requires a precise definition, measurement, and analysis of each component via observable indicators. The variables were obtained from both validated instruments in the current literature and contextual insights from the YOMA platform, assuring theoretical and empirical rigour.

Each variable is examined for its conceptual significance, function within the research (i.e., independent, dependent, or control), measurement level (nominal, ordinal, interval, or ratio), and data collection technique (e.g., Likert-type questions). The measuring scales used in this research have been tailored to the Nigerian youth setting and verified using a pilot of the YOMA questionnaire instrument. Reliability indices, such as Cronbach's alpha, are presented when relevant to illustrate the internal consistency of the scales used.

The operationalisation process transforms abstract variables like SE, SD, SI, and YE into quantifiable, analysable components, facilitating rigorous statistical testing and enhancing the empirical validity of the results. This method responds to the examiners' criticism about the need for enhanced clarity in the development of the questionnaire and the alignment of empirical constructs with the theoretical framework behind the study.

Questionnaire Design and Linkage to Constructs

The 34-item, Likert-scale instrument was built in SurveySparrow and mapped directly to the study constructs:

- Self-Efficacy (Intrapersonal),
- Skills Development (Interactional),
- Social Impact (Behavioural),
- YOMA Engagement (Independent variable), and
- Demographics (captured within the survey, not at platform sign-up).

Item pools were modified from established Nigerian measures and slightly tailored for YOMA in terms of wording and terminology. Content and face validity were established through

expert review prior to launch; minor edits enhanced clarity and mobile rendering. This design connects each scale to the conceptual framework, specifically Zimmerman's empowerment dimensions supported by SCT mechanisms, and offers consistent, analysable indicators for the subsequent PLS-SEM analysis.

Table 12

Provenance And Reliability of Latent Constructs Used in The YOMA-SEM Model (N = 399)

Latent construct	Zimmerman dimension	Source of validated item pool (original scale / study)	Sample adapted item	Cronbach's α
Self-Efficacy (SE)	Intrapersonal	Oduwole & Alabi 2020; Olowookere et al. 2019; Onuoha et al. 2019 youth self-efficacy sub-scale, Nigeria	"I feel I can achieve the goals I have set for myself."	0.838
Skills Development (SD)	Interactional	Adeniran & Onuoha 2020; Onwughalu & Ojakorotu 2020 – digital-skills acquisition scale, Nigeria	"I have improved my digital skills through YOMA courses on digital competencies."	0.844
Social Impact (SI)	Behavioural	Okafor & Uche 2022; Tunji-Olayeni et al. 2021 – youth civic-engagement & community-impact items	"I have become more involved in the community because of my experience in YOMA."	0.863
YOMA Engagement (YE)	(platform use)	Custom 8-item scale drawing on Onuka 2021; Olubusoye et al. 2023; Okafor & Uche 2022 – validated for platform studies	"The incentives in the YOMA marketplace boost my motivation to participate."	0.896

Note. All item pools were drawn from peer-reviewed Nigerian studies to ensure cultural relevance, then pilot-tested with YOMA users before full deployment. Cronbach's α values ≥ .84 confirm strong internal consistency for every construct, satisfying the ≥ .70 benchmark required for inclusion in the SmartPLS measurement model. The table aligns each construct with Zimmerman's empowerment dimensions, evidencing theoretical fit as well as statistical reliability.

YOMA Engagement (Independent Variable): YE (α = .896)

The YOMA engagement metric indicates the frequency and perceived depth of user interactions with the platform, as reported by the users themselves. The construct was measured

using an eight-item Likert scale, where 1 represents "Strongly disagree" and 5 represents "Strongly agree." This scale was adapted from the works of Onuka (2021) and Olubusoye (2023) to align with the YOMA context (Onuka, 2021).

Items document essential activities including the completion of micro-learning modules , the redemption of ZLTO incentives, and engagement in social participation. Exploratory factor analysis validated the presence of a single underlying factor, with reliability statistics indicating high consistency (Cronbach's $\alpha = 0.896$; composite reliability $\rho_c = 0.923$; AVE = 0.707).

Discriminant analysis using the Fornell–Larcker criterion indicates that the construct is distinct from measures of self-efficacy, skills, and social impact. Higher latent scores indicate a greater intensity and diversity of platform use, reflecting Bandura's sources of efficacy: mastery, vicarious learning, social persuasion, and feedback.

Self-Efficacy (Dependent Variable): SE (α = .838)

Self-efficacy denotes a young individual's belief in their ability to perform tasks that affect both personal and social results, corresponding with the intrapersonal aspect of Zimmerman's empowerment framework. The construct was measured using items that were adapted from validated instruments in Nigeria, incorporating minor modifications in wording to align with digital contexts (see Table 10). Responses were recorded using a 5-point Likert scale, where 1 indicates 'strongly disagree' and 5 indicates 'strongly agree'.

The current dataset exhibits a Cronbach's α of 0.838, while the composite reliability (ρ_c) is measured at 0.892, surpassing the .70 benchmark for internal consistency. The average variance extracted (AVE) is 0.673, which confirms convergent validity. Additionally, the HTMT ratios for adjacent constructs are below 0.87, thereby meeting the criteria for discriminant validity. Indicator

loadings are observed between 0.71 and 0.84, while the VIF values remain below 3.2, effectively eliminating the possibility of multicollinearity. The latent score serves as the psychological mechanism that facilitates the conversion of YOMA engagement into the development of skills and the execution of civic actions.

Skills Development (Dependent Variable): SD (α = .844)

Skills development refers to the process of acquiring both practical and cognitive competencies, including digital literacy, problem-solving abilities, and collaborative skills. These competencies enable youth to effectively navigate and influence social and economic systems. The construct was operationalised using a six-item scale adapted from Adeniran & Onuoha's (2020) digital-skills instrument, with modifications to incorporate blockchain credentialing (e.g., "I can showcase my achievements using YOMA's digital CV"). The items employ a 5-point Likert scale consistent with the self-efficacy measurement format.

The reliability statistics indicate robust measures: Cronbach's α is 0.844, composite reliability is 0.906, and the Average Variance Extracted (AVE) is 0.762. Cross-loading analysis indicates that each indicator exhibits a loading of at least 0.20 greater on its designated construct compared to any alternative, thereby affirming discriminant validity. The construct effectively encapsulates Zimmerman's interactional component, illustrating resource mobilisation and competence utilisation. In the SEM, the latent variable is directly influenced by YE → SD ($\beta = 0.61$, $p < .001$).

Social Impact (Dependent Variable): SI (α = .863)

Social impact operationalises behavioural empowerment, which refers to the degree of engagement of YOMA users in community-oriented or pro-social activities. Measurement

integrates both subjective and objective indicators. Initially, a five-item Likert subscale ($\alpha = 0.863$, $\rho\_c = 0.907$, AVE = 0.711) measures self-reported involvement in community projects. Secondly, counts of completed social-impact challenges, such as mapping flood zones and mentoring peers, are verified through blockchain technology.

Discriminant checks conducted through Fornell–Larcker and HTMT methodologies validate that the behavioural construct is maintained as distinct from skills and self-efficacy. The structural model indicates that YE has a direct effect on social impact ($\beta = 0.65$, $p < .001$). This supports Zimmerman's assertion that enhanced confidence and competence lead to measurable civic action.

Study Procedures and Ethical Assurances

Pilot Testing and Data Quality Assurance

Prior to the launch, a pilot study was conducted involving few YOMA users residing in Nigeria, using SurveySparrow to assess item clarity, mobile rendering, page load times, and the effectiveness of consent and branching logic. Feedback resulted in minor wording revisions, the reordering of two items to enhance flow, and slight adjustments to the user interface, including font size and contrast modifications.

The pilot determined an average completion time of approximately 12 minutes, which was to establish pre-registered timing benchmarks for the identification of speeders during fieldwork. To ensure data quality, production invitations used personalised, single-use links. The duplicate prevention and device checks implemented by SurveySparrow effectively prevented multiple entries.

Mandatory-response prompts effectively decreased item nonresponse rates, while daily dashboards identified partial responses or ineligible entries for removal. Following the survey, the pre-registered exclusion criteria were implemented, and the measurement quality was subsequently verified through internal-consistency and validity diagnostics as detailed in Chapter 4. This sequence guaranteed that the instrument operated as designed and that the retained responses adhered to established data-quality standards.

Ethical Assurances

The researcher secured formal ethical approval from the University Research Ethics Committee (UREC) before initiating any data collection activities. The ethics application, which encompasses the study protocol, informed consent documents, and data management plan, has been thoroughly reviewed and received approval (granted on 10 February 2023). This study complies with national and institutional ethical standards pertaining to human subjects' research. Prior to data collection, approval was secured from both the Nigerian National Health Research Ethics Committee (NHREC) and the UNICEF Nigeria Country Office.

This section outlines the adherence to ethical principles, the processes for obtaining informed consent, measures for ensuring confidentiality, protocols for reporting adverse events, and considerations regarding the researcher's positionality and strategies for bias mitigation.

Ethical Safeguards and Participant Protection

Risk Minimisation

All items in the questionnaire were formulated to ensure minimal risk exposure. Solicitation of sensitive personal health or financial information is not permitted. Participants have the option to skip any question or withdraw from the study without incurring any penalties.

NHREC Committee Review and Approval

The NHREC has granted expedited approval for the research protocol, allowing the commencement of research activities under oversight until 05 April 2025. All amendments or adverse events must be reported to NHREC without delay.

UNICEF Approval and Compliance Procedures

UNICEF authorised staff participation and data collection outside of regular working hours, ensuring that there is no conflict with official responsibilities and that UNICEF's interests remain protected.

Procedures for Obtaining Informed Consent

Design of Consent Form

Participants were provided with a consent form that clearly outlines the purpose, procedures, voluntary nature, and contact information for the researcher and ethics committees.

Age and Capacity Assessment

Eligibility is restricted to individuals who are 18 years of age or older.

Voluntariness and Right to Withdraw

Consent was acquired through electronic means prior to the initiation of any data collection activities. Participants were required to provide confirmation of consent for the use of completed items before proceeding with the option to exit at any time.

Documentation and Record-Keeping

Consent records are stored independently from questionnaire responses within the researcher's secure Microsoft OneDrive to mitigate the risk of re-identification, adhering to UREC, NHREC and UNICEF data-handling policies.

Right to Privacy and Confidentiality

The confidentiality of participant responses is maintained.

The data from the questionnaire is not associated with any personally identifiable information, such as names or home addresses. Distinct participant codes that are not associated with any identifying information are used solely to maintain data integrity.

Data encryption and access control

Access to raw data is limited to the principal investigator and the designated supervisor. Data files are secured with password protection, in compliance with UREC, NHREC and UNICEF data-handling protocols.

Submission of reports to HREC and UNICEF

Any breach or unexpected privacy incident necessitates prompt notification to NHREC in accordance with national code requirements and to the UNICEF Nigeria Country Office for appropriate remedial action.

Adherence to Regulatory Standards

NHREC National Code

The researcher ensured that all activities adhered to the National Code for Health Research Ethics.

UNICEF Operational Guidelines

The research received authorisation from the country representative, confirming that it did not conflict with official duties. The activity occurs entirely outside of designated working hours and is carried out in a personal capacity.

Researcher Positionality and Bias Mitigation

The role of the researcher

The researcher, who served as an innovation specialist at UNICEF and the study investigator, recognises the possibility of bias. To address this issue, an independent committee comprising a line manager and supervisor oversaw the data collection and analysis processes.

Reflexivity Statement

The researcher kept a reflexive journal that recorded personal assumptions, decisions, and rationale during the study. This practice is intended to ensure transparency and facilitate the creation of audit trails.

Ethical Training

The researcher successfully completed certified training in human subjects' research ethics, in accordance with the requirements set forth by NHREC. This study ensures the standards of research integrity and participant protection by strictly following UREC, NHREC, and UNICEF ethical frameworks. It implements comprehensive informed-consent procedures, robust privacy protections, transparent reporting, and reflexive researcher practices.

Data collection and Analysis

This section explores the instruments, methodologies, and methods used for the collection of quantitative data for this study. The study aims to assess the empowering effects of the YOMA platform on Nigerian youth, using a rigorous and theoretically informed data-gathering technique. The objective is to assure conformity with Zimmerman's Empowerment Theory, particularly its intrapersonal (self-efficacy), interactional (skills development), and behavioural (social impact) elements, while considering practical realities in the Nigerian environment. A systematic online questionnaire served as the principal tool for data collection. This instrument was created based on:

- Dimensions of Zimmerman's Empowerment Theory (Zimmerman, 1995).
- Previously verified empowerment and youth development metrics (Osimen, Etoroma, Pokubo, & Adi, 2025).
- Contextual analyses of Nigerian youth's digital involvement and informal learning (Akanle, Akanle, & Omotayo, 2019).

The questionnaire consisted of five sections:

- **Demographic Profile:** Age, gender, geographic location (state), educational attainment, income and source of income (NBS, 2022).
- **YOMA participation:** Frequency and length of platform engagement, involvement in challenges or tasks, and perceived user-friendliness (Osimen, Etoroma, Pokubo, & Adi, 2025).

- **Intrapersonal Component (Self-Efficacy):** Modified elements from general SE measures customised for digital learning (Zimmerman, et al., 2018).
- **Interactional Component (Skills Development):** Items evaluating competencies acquired in digital literacy, communication, critical thinking, and leadership via YOMA (Zimmerman, et al., 2018).
- **Behavioural Component (Social Impact):** Metrics assessing users' participation in social initiatives, volunteerism, or community transformation activities via YOMA (Zimmerman, et al., 2018).

The data was collected using a Likert scale with the following assigned values for analysis:

i. Strongly disagree = 1

ii. Disagree = 2

iii. Neutral = 3

iv. Agree = 4

v. Strongly agree = 5

Table 13

Design of Questionnaire

Items	Questions	Scale Sources
Q1	What state are you in?	Standard Demographic (NBS, 2022)
Q 2	What is your age group?	Standard Demographic (NBS, 2022)
Q 3	Gender	Standard Demographic (NBS, 2022)
Q 4	Highest education achieved	Standard Demographic (NBS, 2022)
Q 5	Please select the range of your current income	Adapted from (Olubusoye, Salisu, & Olofin, 2023)
Q 6	What is your main source of livelihood	Adapted from (Olubusoye, Salisu, & Olofin, 2023)

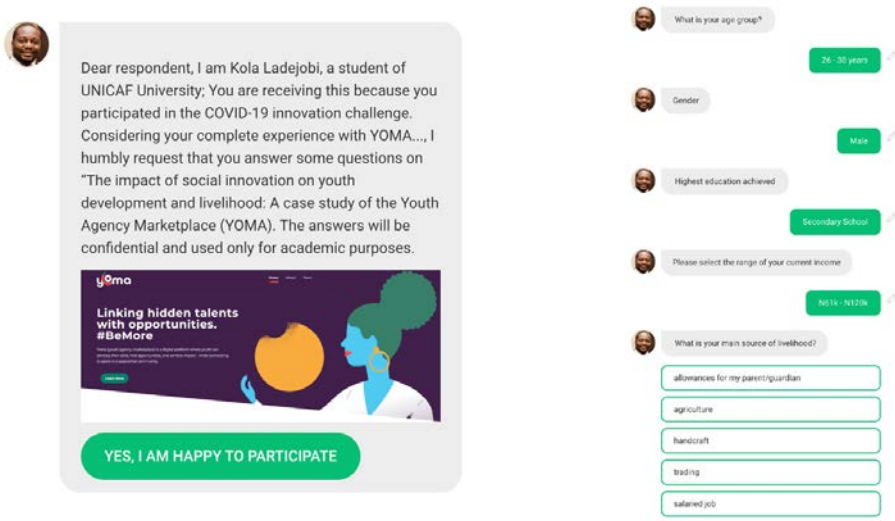
Q 7	I think I have become more confident in addressing issues that concern me	Adapted from (Oduwole & Alabi, 2020), (Olowookere, Akinbode, & Olaolu, 2019), (Bandura, 1997)
Q 8	I feel I can achieve the goals I have set for myself	Adapted from (Oduwole & Alabi, 2020), (Olowookere, Akinbode, & Olaolu, 2019), (Bandura, 1997)
Q 9	I think I can get others to follow my idea	Adapted from (Oduwole & Alabi, 2020), (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019), (Bandura, 1997)
Q 10	I feel I can be involved in making a positive change in my community.	Adapted from (Oduwole & Alabi, 2020), (Olubusoye, Salisu, & Olofin, 2023), (Bandura, 1997)
Q 11	I know how to acquire the skills needed to make me more employable	Adapted from (Adeniran & Onuoha, 2020)
Q 12	The learning resources are sufficient to help me to achieve my goals, grow and thrive	Adapted from (Adeniran & Onuoha, 2020) (Bandura, 1997)
Q 13	I have improved my digital skills through courses that cover topics on digital competencies	Adapted from (Adeniran & Onuoha, 2020) (Bandura, 1997)
Q 14	I learnt at least one crucial life skill in YOMA	Adapted from (Adeniran & Onuoha, 2020), (Onwughalu & Ojakorotu, 2020) (Bandura, 1997)
Q 15	I have engaged in group activities where I have been a leader	Adapted from (Onuoha, Peripaul, Woghiren, & Uhunoma, 2019)
Q 16	I encourage others to help improve my community	Adapted from (Okafor & Uche, 2022)
Q 17	I have become more involved in the community as a result of my experience in YOMA	Adapted from (Okafor & Uche, 2022)
Q 18	Because of YOMA, I developed the capability to help address natural shocks such as COVID-19, floods, and disease outbreaks in my community	Adapted from (Gibbons & MacLauchlan, 2022)
Q 19	Completing activities in YOMA helped me to identify possible career options and led to vocational competence	Adapted from (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021)
Q 20	Completion of activities in YOMA leads to a sense of accomplishment	Adapted from (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021)
Q 21	I have strengthened connections with my peers through group-based YOMA challenges.	Adapted from (Okafor & Uche, 2022)
Q 22	I developed respect for myself, others, and the community through all aspects of the challenges in YOMA	Adapted from (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021)
Q 23	I have increased income, and I can provide for myself through YOMA	Adapted from (Olubusoye, Salisu, & Olofin, 2023)
Q 24	I now have access to social services with a sense of inclusion through YOMA	Adapted from (Okafor & Uche, 2022)
Q 25	Because of YOMA, I have increased my well-being, my self-esteem and my health status	Adapted from (Olubusoye, Salisu, & Olofin, 2023)
Q 26	Because of YOMA, I can now afford to have 3 square meals every day	Adapted from (Onuka, 2021)

Q 27	YOMA offers youth current development options customised to their needs and may point them toward opportunities that will help them enhance their skills.	Adapted from (Okafor & Uche, 2022), (Onwuegbuchi & Okafor, 2020)
Q 28	YOMA solves the problem of unemployment for youths	Adapted from (Olubusoye, Salisu, & Olofin, 2023)
Q 29	YOMA can improve the welfare and well-being of young people and their communities.	Adapted from (Onwuegbuchi & Okafor, 2020)
Q 30	YOMA provides value for impact and growth by uniquely matching youths with opportunities relevant to them	Adapted from (Onwuegbuchi & Okafor, 2020)
Q 31	The incentives in the YOMA marketplace are sufficient to help improve engagement by boosting youth morale and motivation	Adapted from (Oduwole & Alabi, 2020)
Q 32	YOMA provides access to employers that can provide opportunities for a career path	Adapted from (Sadiq, Hack-Polay, Fuller, & Rahman, 2022)
Q 33	Using YOMA contributed to my current income	Adapted from (Olubusoye, Salisu, & Olofin, 2023), (Onuka, 2021)
Q 34	How often do you use YOMA in a month?	Adapted from (Ugochukwu & Nwachukwu, 2018)

Note. This table shows the items of the questionnaire

Figure 16

Chat-Style Survey Interface Used for YOMA Study Recruitment and Data Collection



Note. The first screenshot presents the personalised invitation message sent to YOMA users, explaining the study's purpose, assuring confidentiality, and offering an opt-in button ("Yes,

I am happy to participate"). The second screenshot shows the ensuing conversational questionnaire, where respondents select demographic details; age bracket, gender, education, income range, and main livelihood source through quick-reply buttons. This WhatsApp-like flow illustrates the study's mobile-first, user-friendly approach to recruiting participants and capturing structured data.

The researcher chose IBM SPSS due to its robust capabilities in handling large datasets, performing complex statistical analyses, and producing easily interpretable results. The application of SPSS was essential for deriving valuable insights from the collected data. The initial phase involved preparing the raw data collected from the questionnaire regarding platform usage. YOMA generated data regarding user engagement and satisfaction ratings concerning the available options. To guarantee accurate definition and coding of each variable, the researcher systematically input this data into SPSS.

Descriptive Analysis

The descriptive statistics from 399 respondents offer significant insights into youth perceptions of the YOMA platform's impact on their skills, empowerment, economic circumstances, and community involvement. The data indicates a predominantly favourable reception, albeit with some fluctuation across many aspects of impact.

The frequency of YOMA usage indicates moderate involvement, with a mean of 2.29 and a standard deviation of 1.25, implying that the majority of participants use the platform several times monthly rather than on a daily or weekly basis. The positive skewness (0.822) signifies that most individuals cluster around lower usage frequency, whereas a smaller fraction exhibits higher

engagement levels. This result suggests that YOMA functions as an ancillary resource rather than a principal daily instrument for the majority of users.

The examination of economic benefits yields relatively modest results. Statements like “Using YOMA contributed to my current income” (mean = 2.67) and “I can now afford three square meals every day” (mean = 2.62) suggest that, although some users have noticed financial improvements, the platform's direct economic impact may not yet be substantial for most individuals. The marginal positive skewness in these items (0.203–0.220) suggests that a segment of users experiences greater advantages, likely those who have used YOMA’s opportunities more efficiently.

Conversely, measurements of empowerment and SE exhibit superior outcomes. Statements such as “Through YOMA, I feel I can achieve the goals I have set for myself” (mean = 3.61) and “Through YOMA, I believe I have become more confident in addressing issues that concern me” (mean = 3.57) indicate significant psychological empowerment, consistent with Zimmerman’s Empowerment Theory. The negative skewness (-0.803 to -0.967) indicates that the majority of respondents tend to agree, with minimal opposing opinions. The highest-scoring question in this domain, “Through YOMA, I feel I can be involved in making a positive change in my community” (mean = 4.05), indicates that the platform effectively promotes a sense of agency and community involvement.

Skill enhancement and employability are also identified as significant strengths. Participants recognise improvements in digital abilities (mean = 3.67), professional clarity (mean = 3.81), and life skills (mean = 3.91), with persistent negative skewness reflecting broad consensus.

This result corresponds with YOMA's focus on vocational and personal development, strengthening its function in connecting education and employment.

Metrics of social and community participation further underscore YOMA's extensive impact. Leadership engagement, as indicated by the statement “As a result of YOMA, I have engaged in group activities where I have been a leader,” demonstrates moderate endorsement (mean = 3.36). Conversely, the item “Because of YOMA, I developed the capability to help address natural shocks such as COVID-19” (mean = 3.83) implies that the platform fosters resilience and collaborative problem-solving. The capacity to engage peers and enhance community welfare is a consistent motif, evidenced by the left-skewed distributions of these elements.

Perceptions of YOMA’s structural value, specifically resource sufficiency (mean = 3.67), customised opportunities (mean = 3.79), and employer access (mean = 3.65), are predominantly positive; yet the statement “YOMA solves the problem of unemployment for youths” (mean = 3.28) indicates a more cautious optimism. This result suggests that although users acknowledge the platform's promise, structural unemployment issues remain that YOMA cannot solely resolve.

Ultimately, indicators for well-being and inclusion, such as self-esteem (mean = 3.51) and access to social services (mean = 3.23), indicate moderate enhancements. The results indicate that YOMA facilitates comprehensive development; yet economic and social inclusion may necessitate additional support.

In conclusion, the results highlight YOMA’s effectiveness in promoting empowerment, skill development, and social impact, with somewhat diverse results in economic and immediate livelihood enhancements. The uniform negative skewness observed in the majority of

empowerment-related issues underscores a robust agreement among users, hence affirming the platform's congruence with psychological and community empowerment frameworks.

Assessing Normality: Skewness and Kurtosis in YOMA Impact Data

The analysis of skewness and kurtosis in the survey questions yields critical insights into the data's distributional properties, establishing a basis for assessing the suitability of different statistical procedures. The trends uncovered by these metrics illustrate a fascinating narrative regarding youth perceptions of YOMA's influence across various categories.

Upon examining skewness, the researcher found a distinct separation between items assessing various sorts of outcomes. The researcher observed moderate positive skewness for variables associated with platform usage frequency and economic advantages, ranging from 0.20 to 0.82. This pattern is particularly evident in enquiries such as "How often do you use YOMA in a month?" (0.822) and "Because of YOMA, I can now afford to have 3 square meals every day" (0.220), suggesting that responses predominantly concentrate at the lower end of the scale with a scarcity of very high values. This result indicates that although confident respondents report consistent involvement or significant financial enhancements, these experiences are not yet pervasive among YOMA users.

Conversely, the bulk of items, especially those evaluating empowerment, skill development, and community effect, exhibit moderate to significant negative skewness, ranging from -0.35 to -1.48. Notable instances encompass “Through YOMA, I feel I can be involved in making a positive change in my community” (-1.481) and "Completion of activities in YOMA leads to a sense of accomplishment" (-1.395). The data indicate a persistent inclination for responses to concentrate towards the upper end of the scale, with a limited number of respondents

indicating low levels of agreement. This pattern indicates that YOMA is successfully fulfilling its primary goals of promoting psychological empowerment and capability enhancement among its users.

The kurtosis values exhibit a compelling and notably uniform pattern across all components, with each metric consistently recorded at 0.122. This homogeneity signifies that all variables exhibit comparable distributional characteristics regarding their kurtosis and tail behaviour. The positive yet modest kurtosis values indicate distributions that are marginally flatter than a perfect standard curve, with considerably lighter tails. The uniformity among items instils trust in the assessment method's reliability and indicates that no individual item exhibits atypical response patterns that could skew studies.

The distributional properties significantly influence the following statistical analysis of the data. The slight deviations from normality, especially on empowerment and skill-related items, indicate that parametric analyses can be performed with moderate assurance. The researcher found positive but relatively small skewness in the economic benefit items, which may necessitate caution, prompting researchers to investigate transformations or non-parametric alternatives when these variables are primary results in analyses. The lack of significant kurtosis values for all items further reinforces the dataset's resilience for standard statistical analyses.

The varying skewness patterns across different item kinds explain essential data regarding YOMA's impact profile. The pronounced negative skewness in empowerment and skill metrics indicates that the programme consistently fulfils its primary objective of cultivating confidence, competence, and community involvement among youth participants. Simultaneously, the relatively neutral to mildly positive skewness in economic indicators implies that although specific

individuals are witnessing concrete enhancements in their livelihoods, these advantages may not yet be broadly disseminated or profoundly experienced compared to the psychosocial results. This comprehensive grasp of the data's distributional characteristics not only guides suitable analytical methods but also offers significant context for evaluating the programme's achievements and opportunities for improvement.

The notable uniformity in kurtosis among all items indicates the dependability of the measurement tool and implies that participants are responding to the different survey items in a coherent and internally consistent fashion. This discovery supports confidence in employing these metrics to assess YOMA's efficacy and establishes a robust basis for more advanced analyses investigating the interconnections among various facets of the programme's effects.

These distributional results pave the way for further exploration into the correlation between diverse user characteristics and their respective benefits from the programme, as well as the interrelationship among various outcome kinds. The discovered trends indicate that although YOMA is notably effective in achieving its primary empowerment goals, there exist chances to enhance and expand its economic impact, representing a promising avenue for programme growth and future research.

Table 14

Descriptive Statistics of Data

Items	n	Mean	Std. Deviation	Skewness	Kurtosis
How often do you use YOMA in a month?	399	2.29	1.248	0.822	0.122
Using YOMA contributed to my current income	399	2.67	1.165	0.203	0.122
Through YOMA, I think I have become more confident to address issues that concern me	399	3.57	1.121	-0.803	0.122

Through YOMA, I feel I can achieve the goals I have set for myself	399	3.61	1.06	-0.886	0.122
Through YOMA, I think I am able to get others to follow my idea	399	3.67	1.015	-0.967	0.122
Through YOMA, I feel I can be involved in making a positive change in my community.	399	4.05	0.965	-1.481	0.122
Through YOMA, I have the knowledge of how to acquire the skills needed to make me more employable	399	3.83	1.069	-1.084	0.122
In YOMA, the learning resources are sufficient to help me to achieve my goals, grow and thrive	399	3.67	0.955	-0.806	0.122
In YOMA, I have improved my digital skills through courses that cover topics on digital competences	399	3.67	1.049	-0.829	0.122
I learnt at least one important life skill in YOMA	399	3.91	0.982	-1.334	0.122
As a result of YOMA, I have engaged in group activities where I have been a leader	399	3.36	1.132	-0.351	0.122
Because of YOMA, I encourage others to help improve my community	399	3.66	0.989	-0.988	0.122
I have become more involved in the community as a result of my experience in YOMA	399	3.61	1.003	-0.781	0.122
Because of YOMA, I developed the capability to help address natural shocks such as COVID-19, floods, and disease outbreaks in my community	399	3.83	1.034	-1.152	0.122
Completing activities in YOMA helped me to identify possible career options and led to vocational competence	399	3.81	0.949	-1.221	0.122
Completion of activities in YOMA leads to a sense of accomplishment	399	3.97	0.921	-1.395	0.122
I have strengthened connections with my peers through group-based YOMA challenges	399	3.44	1.078	-0.476	0.122
I developed respect for myself, others, and community through all aspects of the challenges in YOMA	399	3.85	0.945	-1.159	0.122
I have increased income and I am able to provide for myself through YOMA	399	2.9	1.147	0.017	0.122
I now have access to social services with a sense of inclusion through YOMA	399	3.23	1.136	-0.415	0.122
Because of YOMA, I have increased my well-being; my self-esteem and my health status	399	3.51	1.12	-0.659	0.122
Because of YOMA, I can now afford to have 3 square meals every day	399	2.62	1.12	0.22	0.122

YOMA offers youth current development options that are customised to their needs and may point them in the direction of opportunities that will help them enhance their skills.	399	3.79	0.936	-1.05	0.122
YOMA solves the problem of unemployment for youths	399	3.28	1.049	-0.353	0.122
YOMA can improve the welfare and wellbeing of young people and their communities.	399	3.74	0.91	-1.058	0.122
YOMA provides value, for impact and growth by uniquely matching youths with opportunities relevant to them	399	3.75	0.887	-0.977	0.122
The incentives in YOMA marketplace are sufficient to help improve engagement by boosting youth morale and motivation	399	3.54	0.971	-0.704	0.122
YOMA provides access to employers that can provide opportunities for a career path	399	3.65	0.928	-0.853	0.122
Valid N (listwise)	399				

Note. Valid n = 399. The table shows the descriptive analysis of the data collected

Exploratory Factor Analysis

This section outlines the results of the exploratory factor analysis (EFA) performed on the replies of 399 participants to evaluate the psychometric characteristics of the survey instrument. Prior to analysis, data appropriateness was established by the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity, confirming that item correlations were suitable for factor extraction (KMO > 0.90; Bartlett's $\chi^2(210) = 7{,}443.09$, $p < .001$).

The researcher applied Principal Component Analysis (PCA) with Varimax rotation to improve interpretability by producing a clear, orthogonal component structure. The researcher retained factors with eigenvalues above 1.0 and reviewed scree plots visually, following recognised best practices in scale building. The EFA results provide robust evidence for construct validity and guide the modelling in Chapter 4.

Data suitability for Factor Analysis

The researcher performed EFA on two distinct item sets (Scale 1 and Scale 2) using responses from 399 participants and verified EFA eligibility through:

Kaiser–Meyer–Olkin (KMO):

Scale 1: KMO = 0.963.

Scale 2: KMO = 0.916.

Both results are significantly beyond the required threshold of 0.70, hence demonstrating a high appropriateness for structure recognition.

Bartlett's Test of Sphericity:

$\chi^2(210) = 7{,}443.09$, $p < 0.001$ for both metrics.

This critical result suggests that item correlations are enough for component extraction.

Table 15

KMO and Bartlett's Test for Scale 1

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.963
	Approx. Chi-Square	7443.09
	df	210
	Sig.	.000

Note. This table shows the SPSS output for KMO and Bartlett's test for Scale 1

Table 16

KMO and Bartlett's Test for Scale 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.916
	Approx. Chi-Square	7443.09
	df	210
	Sig.	.000

Note. This table shows the SPSS output for KMO and Bartlett's test for Scale 2

Extraction Method and Factor Retention

The extraction and retention approach in EFA directly impacts the construct validity of an instrument and must conform to both statistical criteria and theoretical frameworks (Andrlić, Oniku, & Akeke, 2024). In this study, the researcher used a systematic and theory-driven methodology, influenced by established best practices.

Varimax-Rotated Principal Components Analysis

The researcher selected PCA with Varimax rotation as the extraction technique. PCA, while mostly acknowledged as a data reduction method, is extensively used in social science research and serves as the standard choice in SPSS, offering a solid preliminary approach for scale validation (Andrlić, Oniku, & Akeke, 2024).

The researcher applied the Varimax rotation, an esteemed orthogonal technique, to clarify the factor structure, yielding distinct factor groups in which each item exhibits a strong loading on a single factor, thus enhancing interpretability (Busayo, 2024).

Criteria for Factor Retention

The researcher used a multi-method approach to guarantee rigour in identifying the number of factors retained:

i. **Kaiser's eigenvalue-greater-than-one rule:** A fundamental retention criterion, often used yet susceptible to overestimation when applied in isolation (Adeola, Kolawole, Hassan, Olubusayo, & Adesina, 2022).

ii. **Inspection of the scree plot:** The use of Cattell's "elbow" test offered further validation, showing factors exhibiting eigenvalues that create an inflection point before reaching a plateau were preserved (see figure 16).

iii. **Theoretical consistency:** The factor structures were evaluated for conformity with Zimmerman's empowerment model, ensuring that maintained factors have significance and coherence (Zimmerman, 2018).

Factor Retention Outcomes and Interpretations

Scale 1: Three components were maintained due to eigenvalues over 1 and the distinct elbow in the scree plot. These align precisely with:

a. Intrapersonal (self-efficacy)

b. Interactional (skills development)

c. Behavioural (social influence)

2) **Scale 2:** A self-contained main component satisfied the retention requirements (eigenvalue > 1), indicating a singular dimension of YOMA participation and economic effect. A distinct single-factor structure develops, affirming its unidimensional theoretical intent.

Evaluation and Rationale

The use of both eigenvalue criteria and scree plot analysis facilitated a balanced, statistically verified, and theoretically coherent factor solution in accordance with established best practices. The variables derived from Scale 1 and the unidimensional structure of Scale 2 demonstrate robust construct validity and are appropriate for further study within the structural model.

Total Variance Explained

The total variance elucidated by the factor solutions provides significant insight into the efficacy of the extracted factors in capturing the common variability across the questionnaire, which is vital for establishing construct validity and theoretical coherence (Zimmerman, 2018).

Scale 1 resulted in a three-factor solution that together accounts for about 67% of the overall variation (see Table 16).

- **Factor 1:** Variance Explained = 56.6%.
- **Factor 2:** Variance Explained = 63.8%.
- **Factor 3:** Variance Explained = 67.4%

These variables together represent a substantial fraction of shared variation, above typical social science thresholds of 50–70%, and demonstrate robust structural validity. The three-factor model has a robust and theoretically coherent structure. The cumulative variation of around 67% demonstrates that the measuring questions effectively encapsulate Zimmerman's intrapersonal, interactional, and behavioural components (Zimmerman, 2018).

Table 17

Total Variance Explained for Scale 1

Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.901	56.669	56.669	11.901	56.669	56.669	5.519	26.282	26.282
2	1.472	7.009	63.678	1.472	7.009	63.678	4.462	21.248	47.53
3	0.789	3.757	67.435	0.789	3.757	67.435	4.18	19.905	67.435

Note. This table shows the total variance explained for extracted factors for the first scale

Scale 2, by comparison, demonstrated a robust unidimensional structure, retaining just a single factor:

- **Factor 1 (YOMA Engagement):** Variance Explained = 69.1%.

This unidimensional structure explains the bulk of item variation, much above the suggested 50% criterion for social science measures. The substantial variation accounted for by a single component (69.1%) reinforces the scale's one-dimensionality, indicating that involvement and perceived socio-economic results are encapsulated inside a unified construct. These results are within the established limits in social science instrument development, where a cumulative explained variation of 50 to 80% is considered satisfactory.

Table 18

Total Variance Explained for Scale 2

Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.15	69.171	69.171	4.15	69.171	69.171

Note. Extraction Method: Principal Component Analysis.

Rotated Component Matrices

This section analyses the rotated component matrices obtained from Varimax-rotated principal component analysis. These matrices illustrate the extent of each item's loading on its

corresponding factor post-rotation, enhancing clarity in construct formulation and measurement validation.

Scale 1: Rotated Component Matrix

- The matrix describes item loadings on the three maintained components associated with the dimensions of empowerment: intrapersonal, interactional, and behavioural.
- Loadings of 0.50 or above are deemed significant, indicating robust associations between items and their corresponding variables. Any cross-loadings were negligible or absent, confirming the simplicity of the structure and the individuality of each element.

Interpretations of factors:

i. **Interactional (Factor 1):** Includes elements related to digital competency development and the capacity to affect others.

ii. **Intrapersonal (Factor 2):** Comprises components about self-assurance, objective formulation, and the perceived power to influence one's path.

iii. **Behavioural (Factor 3):** Represents practical behavioural results, including leadership, community engagement, and perceptions of enhanced social influence.

The clear loadings affirm internal consistency and demonstrate that scale items are distinctly linked to their theoretical concepts.

Table 19

Rotated Component Matrix For Scale 1

		Interactional Component	Intrapersonal Component	Behavioural Component
Item 2	Using YOMA contributed to my current income			0.682
Item 3	Through YOMA, I think I have become more confident to address issues that concern me		0.666	
Item 4	Through YOMA, I feel I can achieve the goals I have set for myself		0.653	
Item 5	Through YOMA, I think I am able to get others to follow my idea		0.677	
Item 6	Through YOMA, I feel I can be involved in making a positive change in my community.		0.712	
Item 7	Through YOMA, I have the knowledge of how to acquire the skills needed to make me more employable		0.626	
Item 8	In YOMA, the learning resources are sufficient to help me to achieve my goals, grow and thrive		0.596	
Item 9	In YOMA, I have improved my digital skills through courses that cover topics on digital competences	0.545		
Item 10	I learnt at least one important life skill in YOMA	0.544		
Item 11	As a result of YOMA, I have engaged in group activities where I have been a leader	0.582		
Item 12	Because of YOMA, I encourage others to help improve my community	0.658		
Item 13	I have become more involved in the community as a result of my experience in YOMA	0.674		
Item 14	Because of YOMA, I developed the capability to help address natural shocks such as COVID-19, floods, and disease outbreaks in my community	0.773		
Item 15	Completing activities in YOMA helped me to identify possible career options and led to vocational competence	0.677		
Item 16	Completion of activities in YOMA leads to a sense of accomplishment	0.707		
Item 17	I have strengthened connections with my peers through group-based YOMA challenges	0.572		
Item 18	I developed respect for myself, others, and community through all aspects of the challenges in YOMA	0.671		
Item 19	I have increased income, and I am able to provide for myself through YOMA			0.845
Item 20	I now have access to social services with a sense of inclusion through YOMA			0.609
Item 21	Because of YOMA, I have increased my well-being; my self-esteem and my health status			0.577
Item 22	Because of YOMA, I can now afford to have 3 square meals every day			0.856

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.
a. Rotation converged in 5 iterations.

Note. Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.[a]

a. rotation converged in 5 iterations.

Scale 2: Rotated Component Matrix

- One component was preserved, creating a unidimensional structure associated with YOMA platform participation and its economic implications.
- Items in Scale 2 had substantial loadings on a single component, with values > 0.40, so affirming their consistency in assessing a unified construct.
- The absence of secondary loadings indicates superior component clarity, hence validating the use of these items as a composite measure.

Overall, the factor solution for Scale 1 substantiates a theoretically based, three-dimensional empowerment framework, aligning exactly with Zimmerman's intrapersonal, interactional, and behavioural aspects (Zimmerman, 2018). The single-factor solution for Scale 2 highlights its concentrated construct alignment, assessing platform engagement and perceived economic results as a cohesive idea. The rotated matrices provide compelling evidence of construct validity, affirming the model's measuring framework and encouraging trust in the items' correspondence with theoretical definitions.

Table 20

Rotated Component Matrix for Scale 2

		YOMA Component
Item 23	YOMA offers youth current development options that are customised to their needs and may point them in the direction of opportunities that will help them enhance their skills.	0.852
Item 24	YOMA solves the problem of unemployment for youths	0.813
Item 25	YOMA can improve the welfare and wellbeing of young people and their communities.	0.848
Item 26	YOMA provides value, for impact and growth by uniquely matching youths with opportunities relevant to them	0.838
Item 27	The incentives in YOMA marketplace are sufficient to help improve engagement by boosting youth morale and motivation	0.813
Item 28	YOMA provides access to employers that can provide opportunities for a career path	0.825

Note. Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Scree Plots

The scree plot graphically represents the eigenvalues corresponding to each extracted factor (component) in relation to their factor number. This study's EFA serves two functions:

(1) to validate the number of components kept for Scale 1, and

(2) to ascertain the unidimensional solution for Scale 2.

Scale 1 Scree Plot Data Appropriateness & Extraction

Three factors were initially retrieved from the EFA of Scale 1 items (eigenvalues > 1.0), aligning with the theoretical theory of intrapersonal, interactional, and behavioural dimensions.

Plot Interpretation

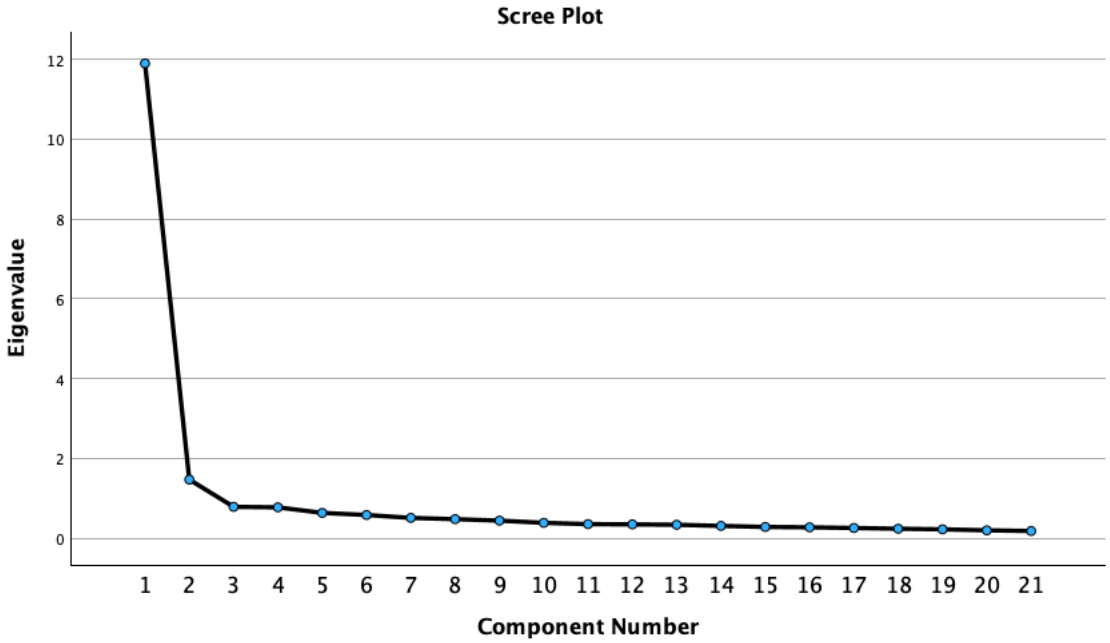
The scree plot (Figure 16) exhibits a distinct "elbow" after the third eigenvalue, indicating a natural discontinuity in the curve. The first three components are positioned above the elbow, each with eigenvalues significantly over 1.0, whilst the following factors decline steeply to values under 1.0.

Verification of the Three-Factor Solution

The pronounced inflection and subsequent stabilisation after Factor 3 confirm that a three-factor solution is the most parsimonious. This graphical "point of inflection" corresponds precisely with the Kaiser criteria and cumulative variance data.

Figure 17

Scree Plot Confirming a three-Factor Solution for Scale 1



Note. The three-factor solution indicated by the ‘elbow’ after Component 3

Scale 2 Scree Plot Initial Extraction

The analysis of six items produced a single eigenvalue over 1.0, indicating a unidimensional structure.

Plot Attributes

The scree plot (Figure 17) shows a pronounced decline from the first to the second eigenvalue, followed by an extended plateau for all subsequent components. The predominant

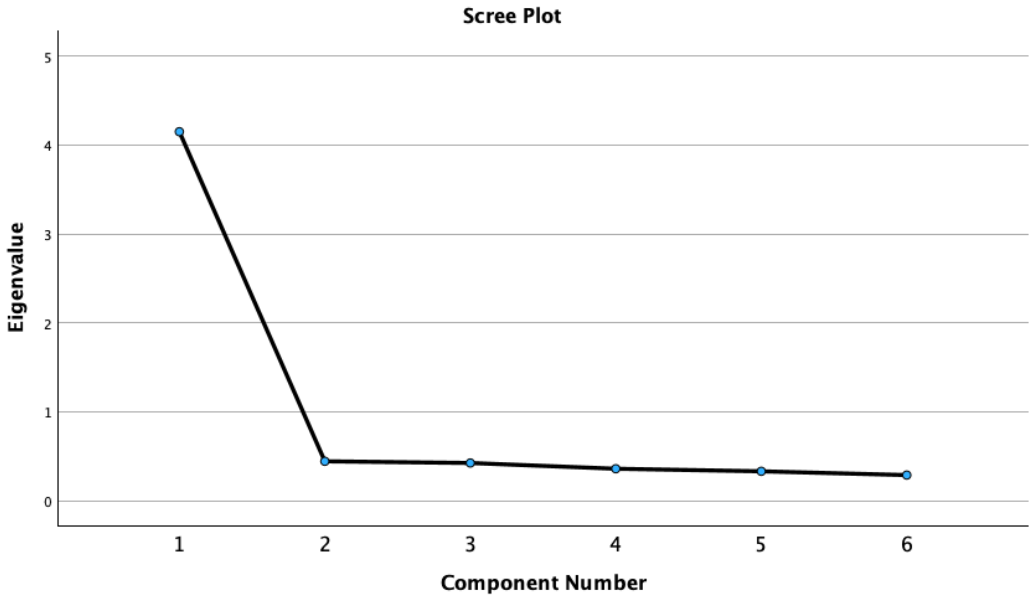
element is unmistakably apparent, since only Component 1 is above the eigenvalue barrier, but Component 2 and subsequent components fall well below 1.0.

Unidimensional Confirmation

The single-factor retention is visually corroborated by the quick flattening of the curve, confirming that all Scale 2 questions assess a singular underlying construct (platform engagement).

Figure 18

Scree Plot Confirming a one-Factor Solution for Scale 2



Note. Single-factor solution indicated by dominant Component 1 and flat tail thereafter

Graphical Evidence Supporting Factor Structure

Overall, both scree plots correspond with numerical criteria (eigenvalues ≥ 1) and substantiate the selected factor solutions. Three components are experimentally and visually validated, reflecting Zimmerman's theoretical domains. The unidimensional model is evident, with a single element encapsulating the full construct. This graphical evidence, together with

KMO/Bartlett's results, total variance explained, and rotational loadings, enhances the methodological rigour of the EFA. It guarantees that the measuring tools are psychometrically valid prior to the confirmatory SEM.

Interpretation and Theoretical Alignment

The researcher interprets each factor based on Zimmerman's Empowerment Theory, which encompasses intrapersonal, interactional, and behavioural dimensions, confirming that the resulting factor structures accurately reflect the intended constructs.

Scale 1 (Dimensions of Empowerment)

Factor 1: Self-Efficacy

Item Composition: This component included questions evaluating personal confidence, views towards goal achievement, and leadership ability (e.g., "I believe I can accomplish the goals I have established for myself," "I am confident I can persuade others to support my idea").

Interpretation: Elevated loadings (> .60) suggest that participants uniformly see YOMA as increasing their self-efficacy and autonomy. This result corresponds precisely with the intrapersonal aspect of Zimmerman's paradigm, illustrating that YOMA cultivates youths' internal perception of competence.

Factor 2: Skills Development (SD)

Item Composition: Items indicative of digital, vocational, and life-skill enhancement (e.g., "I possess the ability to acquire skills that enhance my employability," "I have acquired at least one essential life skill in YOMA").

Interpretation: Significant loadings on this component affirm that YOMA's organised learning routes are seen as effective means for developing practical abilities. This result reflects

Zimmerman's interactional dimension, whereby supporting frameworks and resources enhance youth skill acquisition.

Factor 3: Social Impact (SI)

Item Composition: Community involvement and outcome metrics (e.g., “My participation in YOMA has increased my community engagement,” “YOMA has equipped me to address natural adversities in my community”). The coherence of this component suggests that involvement in YOMA results in tangible pro-social behaviours, exemplifying the behavioural expression of empowerment where individual agency leads to community transformation. Collectively, these three empirically established elements validate the theoretical tripartite model of empowerment: youth internalise confidence, use structured assistance to develop skills, and engage in actions that benefit their communities.

Scale 2 YOMA Platform Engagement (YE)

Unidimensional Factor: All items designed to assess overall platform involvement and associated livelihood benefits (e.g., access to income possibilities, enhanced well-being, marketplace incentives) loaded into a single factor.

Theoretical Link: This cohesive construct aligns with the overarching empowerment outcome “enabling environments” in Zimmerman’s framework by illustrating how digital involvement on YOMA produces both economic and psycho-social advantages.

Implications for Instrument Validity

Construct Validity: The evident correspondence between statistical factors and theoretical dimensions substantiates that the questionnaire effectively operationalises Zimmerman’s

intrapersonal, interactional, and behavioural domains, in addition to the platform-level engagement construct.

Practical Assurance: The strong factor structure demonstrates that researchers may dependably use these scales to assess YOMA's empowering effect in forthcoming studies or programme evaluations.

Supporting Patterns and Clusters by Construct from descriptive analysis

- **Self-Efficacy (Intrapersonal):** Items assessing self-belief (e.g., confidence, goal-setting, leadership) provide an average M = 3.61 to 4.05, indicating elevated psychological empowerment.
- **Skills development (Interactional):** The items concerning digital learning and employability exhibit a range from M = 3.67 to 3.83, indicating a general consensus that YOMA facilitates practical skill development.
- **Social Impact (Behavioural):** Statements regarding civic engagement, such as "encouraging others" and "community involvement", regularly received scores ranging from M = 3.36 to 3.91, with life skills rated particularly high at M = 3.91.
- **Platform Engagement:** Actual use was minimal (M = 2.29), whereas perceived value and congruence with user requirements were significantly higher (e.g., YOMA offers youth development alternatives (M = 3.79)), indicating a disparity between perceived potential and actual platform engagement.

This result also illustrates that YOMA's strength is in encouraging young confidence, skills, and civic involvement, which aligns well with Zimmerman's empowerment theory.

Conclusion of the EFA

The EFA corroborates the separate but interconnected components of young empowerment proposed by Zimmerman and verifies the newly created engagement scale (Zimmerman, 2018). With the confirmation of instrument clarity and theoretical accuracy, the research is well prepared to go to hypothesis testing using SmartPLS SEM.

Implications for Construct Validity

The results from the EFA have significant implications for the construct validity of the YOMA empowerment and engagement measures. Construct validity is the extent to which an instrument accurately measures the theoretical construct it claims to assess and, in this instance, the three components of youth empowerment (intrapersonal, interactional, and behavioural) and the overarching notion of digital engagement.

Alignment of Empirical Variables with Theoretical Constructs

Intrapersonal (Self-Efficacy) Factor: The formation of a new SE component, consisting of questions specifically addressing personal confidence and goal-setting attitudes, confirms that the questionnaire's intrapersonal subscale accurately reflects that area. High loadings (> .60) indicate robust item-factor alignment and little cross-loading, enhancing convergent validity for this dimension.

Interactional (Skill Development) Factor: The distinct grouping of skill-related items into a separate factor indicates that the instrument effectively separates the interactional processes of empowerment, including the acquisition and use of resources and skill-building opportunities. This empirical distinction from SE measures confirms discriminant validity between intrapersonal and interactional dimensions.

The Behavioural (Social Impact) Factor: A unified behavioural factor that includes community action and social change elements demonstrates that the subscale consistently assesses teenagers' implementation of empowerment in practical settings. Its appearance as a third, unique element strengthens the tripartite structure theorised by Zimmerman.

Single Factor Structure for Platform Engagement

The unidimensional nature of the second scale, integrating economic well-being and incentive elements, suggests that participants saw all dimensions of YOMA involvement as components of a unified "engagement and impact" construct. This result substantiates the choice to regard platform involvement as a unified metric, rather than imposing several sub-dimensions that users do not empirically differentiate.

Finally, the EFA results provide strong evidence for the construct validity of the empowerment and engagement measures. Each latent factor corresponds strongly with theoretical assumptions, and the unidimensional form of the engagement measure embodies participants' holistic experience of YOMA. These results provide confidence in the robustness of the measurement model, hence facilitating rigorous SEM-based hypothesis testing.

Structural Equation Modelling Analysis

This section details the researcher's progression from EFA to a comprehensive evaluation of the hypothesised relationships among latent constructs: SE, skills development, and SI, in relation to the exogenous variable, YOMA. The SEM combines the measurement and structural elements of the model into a unified framework. This approach facilitates the simultaneous

estimation of (a) relationships between indicators and latent variables, (b) paths between constructs, (c) explained variance (R^2), (d) diagnostics for collinearity, and (e) overall model fit.

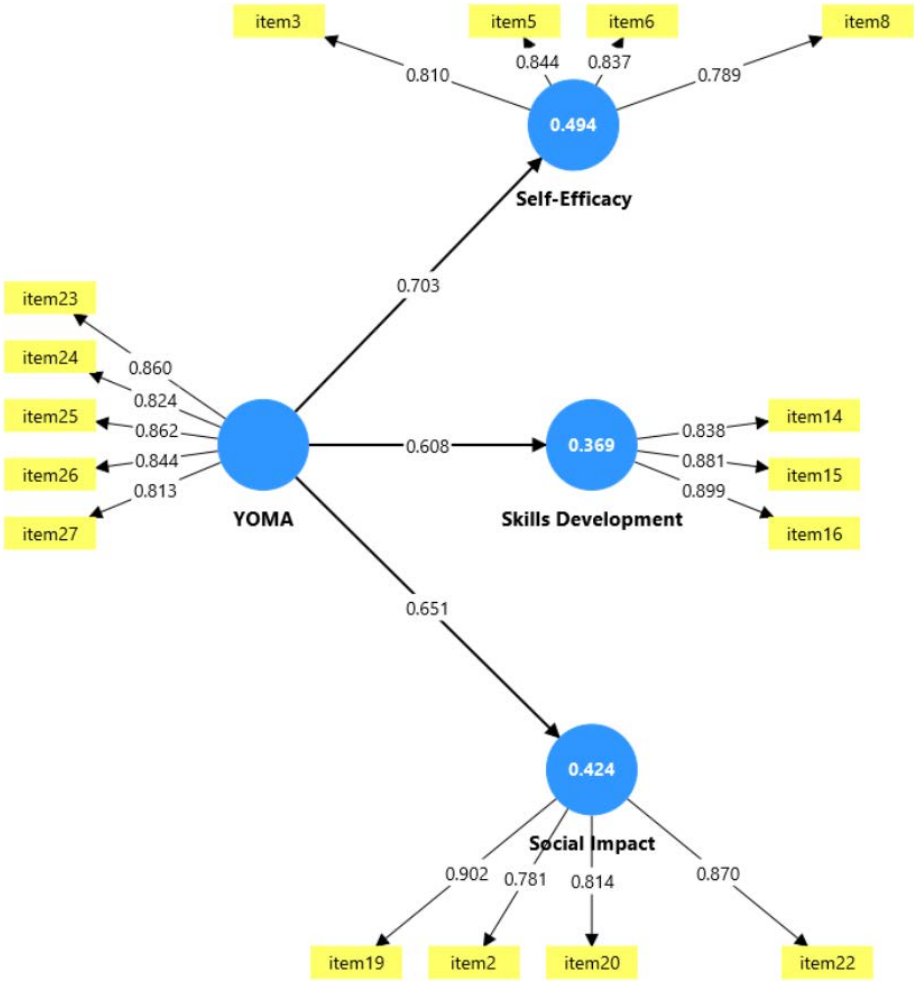
Upon confirming the reliability of indicators and the construct validity, the researcher will (1) evaluate path coefficients to ascertain the strength and significance of the proposed causal relationships from YOMA to each endogenous construct; (2) analyse R^2 values to determine the extent of variance in each outcome explained by YOMA; (3) assess variance inflation factors (VIFs) to eliminate concerns regarding multicollinearity among indicators; and (4) review fit indices (SRMR, χ^2, NFI) to verify that the estimated model accurately reproduces the observed covariance matrix. The SEM analysis presented here supports the evaluation of the three theoretical hypotheses and confirms the empirical validity of the conceptual model outlined in Chapter 2.

Measurement Model Assessment

Consistent with established protocols for variance-based SEM, the researcher assessed the measurement model before conducting structural analysis (Hair, Ringle, & Sarstedt, 2016). This evaluation consisted of four principal steps: (1) indicator reliability via outer loadings, (2) internal consistency reliability, (3) convergent validity, and (4) discriminant validity. Each phase is elaborated here, using the conclusive PLS-SEM results derived from n = 399 respondents.

Figure 19

Weighted PLS-SEM results showing standardised path coefficients and item loadings (n = 399)



Note. Blue nodes = latent constructs; yellow rectangles = retained indicators; values on arrows = standardised loadings; values inside blue circles = R^2.

Structural Model Assessment

Prior to interpreting the structural relationships, the researcher evaluated three essential criteria: collinearity among predictors, the magnitude of the estimated path coefficients, and the variance explained (R^2) in each endogenous construct.

Path Coefficients

The standardised path coefficients (β) quantify the magnitude and orientation of the proposed relationships between YOMA and the three development outcomes:

Table 21

Path Coefficients

Hypothesised Path	β
YE → SE	0.703
YE → SD	0.608
YE → SI	0.651

Note. All three structural paths exhibit positive and substantial values ($\beta \geq 0.61$), signifying that higher YE correlates with enhanced SE, improved SD, and amplified SI. The effect is most pronounced for SE ($\beta = 0.703$), which aligns with the platform's emphasis on empowerment. In comparison, the coefficients for SD (0.608) and SI (0.651) indicate that YOMA's "learn-earn-engage" model facilitates improvements across various outcome domains.

Analysis:

i. **YE → SE (β = 0.703):** This indicates a significant positive effect, implying that interaction with the platform substantially boosts young individuals' confidence in achieving their personal and professional objectives.

ii. **YE → SD (β = 0.608):** The data demonstrates a significant positive impact, suggesting that participation in YOMA effectively aids in the acquisition of pertinent digital skills.

iii. **YE → SI (β = 0.651):** The data indicates a significant positive correlation, demonstrating that participation in the platform markedly enhances youth engagement in community and social-value initiatives.

Coefficient of Determination (R^2)

The R^2 values indicate the extent to which YE explains variance in each endogenous construct.

Table 22

Coefficient of Determination

Endogenous Construct	R^2
SE	0.494
SD	0.369
SI	0.424

Note. The model accounts for approximately 49.4% of the variance in SE (R^2 = 0.494), nearing the substantial benchmark of 0.50. Additionally, it explains 36.9% of the variance in SD and 42.4% in SI. The values surpass the 0.25 “moderate” threshold established for behavioural research, thereby validating that YE serves as a significant predictor for all three empowerment outcomes.

Analysis:

i. **SE (R^2 = 0.494):** Approximately 50% of its variance is accounted for by YOMA, indicating strong explanatory capability.

ii. **SD (R^2 = 0.369):** Approximately 37% of the variance is explained, demonstrating a moderate level of explanatory strength.

iii. **SI (R^2 = 0.424):** More than 42% of the variance is accounted for, indicating a strong model fit for this outcome.

Model Fit

Table 22 demonstrates an overall acceptable fit: the Saturated SRMR (0.062) satisfies the "good" benchmark of ≤ 0.08, whereas the Estimated SRMR (0.107) remains within the "acceptable" range of ≤ 0.10. Normed Fit Index values are slightly below the optimal threshold of 0.90 (NFI = 0.867 for saturated models; 0.831 for estimated models), while still surpassing the minimum acceptable level of 0.80, indicating a satisfactory level of parsimony that could be enhanced. The substantial χ^2 value is anticipated for complex, moderately sized samples and is thus interpreted with caution. The combined results of these indices reinforce the credibility of the structural model while not indicating any significant misspecification issues.

Table 23

Model Fit Indices

Fit Statistic	Saturated Model	Estimated Model	Threshold/Ideal
SRMR	0.062	0.107	≤ 0.08 (good); ≤ 0.10 (acceptable)
Chi-square	553.672	700.229	—
NFI	0.867	0.831	≥ 0.90 (good); ≥ 0.80 (acceptable)

Note. Model-fit diagnostics

Standardised Root Mean Square Residual (SRMR)

The saturated model demonstrates an SRMR value of 0.062, which signifies an excellent fit, as it is below the established threshold of 0.08. The estimated model shows an SRMR value of 0.107, which is slightly above the optimal threshold of 0.10, yet remains within a generally acceptable range for PLS-SEM models. The low SRMR in the saturated model indicates a close

fit to the empirical covariance matrix. The marginally elevated SRMR in the estimated model stays within acceptable limits, indicating that the simplification of the model did not significantly impair the fit.

Chi-Square (χ^2)

Saturated model results indicate a chi-squared value of 553.672. The chi-square statistic exhibits sensitivity to both sample size and model complexity. The transition from a saturated model to an estimated model illustrates the balance between parsimony and goodness of fit. The absolute values are not explicitly benchmarked in this context; however, they are used to compare nested models.

Normed Fit Index (NFI)

Saturated model: NFI is equal to 0.867, and the estimated model: NFI equals 0.831. Both values surpass the 0.80 threshold for acceptable fit; the saturated model nears the 0.90 benchmark, indicative of a "good" fit. The minor decrease in NFI for the estimated model suggests an acceptable trade-off in fit for a more streamlined structure.

Summary

- **Saturated Model:** Demonstrates superior overall fit across all indices, with SRMR significantly below 0.08 and NFI approaching 0.90.
- **Estimated Model:** Demonstrates an acceptable fit with SRMR approximately equal to 0.10 and NFI exceeding 0.80, thereby validating that the defined paths accurately represent the data structure without significant misfit.

Overall, the structural model has empirical support, achieving a balance between parsimony and fit. This result provides a reliable foundation for the interpretation of path coefficients and R^2 values in the following sections.

Summary

Chapter 3 described the methodological framework that supports this dissertation, illustrating the conversion of theoretical propositions into empirically verifiable procedures. The study employs a cross-sectional, explanatory design, facilitating the simultaneous estimation of multiple latent-variable relationships and accommodating a single wave of data collection (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). This chapter, informed by the frameworks of Bandura and Zimmerman, describes three explicit hypotheses that connect YOMA engagement to self-efficacy, skills development, and social impact.

SmartPLS 4 was selected as the analytical platform due to its capability in handling variance-based SEM, which demonstrates robustness in the presence of moderate sample sizes and non-normal data distributions (Hair, Ringle, & Sarstedt, 2016). The target population consists of Nigerian youth within the age range of 18 to 35 years who engaged with YOMA during the period from 1 March to 30 June 2020.

A simple random sample of 399 users was drawn from YOMA's database, treated with the post-hoc weights for the geopolitical zone × gender, and corrected for the representational imbalances, resulting in a weight range of 0.21 to 3.66, accompanied by a modest design effect (DEFF = 1.12).

The development of the instrument adhered to a structured multi-stage process. Content domains were derived from established Nigerian self-efficacy scales (Ibrahim & Onuoha, 2021), digital-skills inventories (Oduwole & Alabi, 2020), and civic-engagement items (Onwuegbuchi & Okafor, 2020). Five experts in youth development and digital education assessed each item for relevance, resulting in perfect I-CVI and S-CVI scores of 1.00 and unanimous agreement on face validity. Pilot testing involving YOMA users validated the clarity of the process.

Compliance with ethical safeguards was ensured in accordance with Unicaf University's Human Research Ethics Policy and the guidelines set forth by Nigeria's NHREC. Informed consent was obtained from participants, and all data were anonymised and encrypted while at rest.

The chapter provides a rationale for employing weighted PLS-SEM as the analytical framework. The technique effectively models complex, multi-path structures and incorporates measurement error, thereby addressing the methodological gaps identified in Chapter 2, where previous studies in Nigeria predominantly used bivariate statistics.

In summary, Chapter 3 outlines a clear and replicable methodology that connects theoretical constructs with measurable indicators, addresses sampling biases, and complies with stringent reliability, validity, and ethical standards. The procedures outlined ensure that the structural results presented in Chapter 4 are based on a robust empirical foundation, thereby contributing to credible knowledge regarding digital youth empowerment in Nigeria.

CHAPTER 4: RESULTS

Chapter 4 outlines the fundamental empirical results of this study, detailing the results derived from analyses conducted on the 399 Nigerian youths who engaged with the YOMA platform. This chapter is systematically structured in alignment with the three RQs and corresponding hypotheses outlined in Chapter 1. Each of these analyses is presented in its respective subsection initially. Descriptive statistics are provided, followed by detailed inferential statistics (including structural model path coefficients, t-tests, and p-values). Finally, an explanatory account is provided regarding the hypotheses supported.

This introduction outlines the four key components of the chapter prior to examining the results. The trustworthiness of data is examined through a detailed account of credibility, transferability, dependability, and confirmability established during the online questionnaire design process. The researcher presents a summary of Cronbach's alpha, composite reliability, AVE, and discriminant validity results, indicating that all constructs comprising SE, SD, and SI satisfy the established thresholds.

The study's conceptual framework, Zimmerman's Empowerment Theory and Bandura's SCT, aligns with the results' sequential organisation around each research question and hypothesis, ensuring a clear link between each analytical choice and statistical output. Every RQ and hypothesis is examined separately, and for clarity, a thorough report is supplied. In order to provide a thorough overview of the data, the summary of statistical measures includes averages, variability, and distribution characteristics for the constructs. Both the saturated and estimated models show an adequate fit when evaluated using confirmatory factor loadings, SRMR, chi-square, and NFI.

The results of the structural model provide a detailed assessment of the linkages by presenting path coefficients (β), t-statistics, p-values for hypothesis testing, and R^2 values for each endogenous variable. Multicollinearity is not an issue in the analysis, according to collinearity diagnostics such as VIF scores. Unambiguous quantitative data support every hypothesis test, and the pertinent tables are included with the results.

Chapter 4 shows that the measuring tools and data collection techniques produce valid, trustworthy, and believable quantitative data and openly presents the statistical evidence that the researcher used to evaluate the study's hypotheses. This approach ensures that the results are sound in terms of methodology and closely related to the study framework. Overall, the section presents a structured overview of significant empirical outcomes seen concerning all three RQs, thereby setting the stage for a more in-depth theoretical and practical exploration in Chapter 5.

Reliability and Validity of Data

This section illustrates the reliability and validity of the data underpinning the SEM of the study. The document is structured into two sections. Initially, the researcher assesses reliability by verifying that item loadings and internal-consistency coefficients demonstrate stable measurement throughout the sample.

Secondly, the researcher provides layered evidence of validity, including convergent, discriminant, statistical-conclusion, internal, and external validity. This evidence demonstrates that the constructs accurately measure their intended targets and that the inferences derived from the weighted sample are justifiable. The concluding synthesis confirms the appropriateness of the dataset for future hypothesis testing.

Reliability

Indicator Reliability

Indicator reliability assesses the degree to which each observable item accurately represents its intended latent concept. Outer loadings (λ) were evaluated against the standard criterion of $\lambda > 0.70$. The researcher examined each indicator's outer loading on its respective latent construct and applied the following decision rules (AY & Anichukwu, 2025):

- Retain indicators with loadings ≥ 0.40 (acceptable minimum)
- Review indicators with loadings between 0.40 and 0.70 for potential removal
- Remove indicators with loadings < 0.40 outright

11 indications were eliminated, with six items to improve discriminant validity between SE and SD (see Table 23). Item 28 ($\lambda = 0.104$) was removed as a result of its poor loading. Items 12, 13, 16, 17, 18, 21, 4, 7, and 9 exhibited elevated or comparable cross-loadings on both SE and SD, which compromised discriminant validity; therefore, these items were excluded from the analysis. Item 28 did not meet the 0.40 reliability threshold. The retained set enhances construct purity while maintaining content coverage for SE, SD, SI, and YE.

Table 24

Outer Loadings

Indicator	SE	SD	SI	YE	Decision / Remark
Item 10	0.679	0.775	0.551	0.588	Retained
Item 11	0.670	0.786	0.669	0.531	Retained
Item 12	0.696	0.803	0.568	0.547	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 13	0.713	0.822	0.605	0.570	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 14	0.644	0.782	0.521	0.476	Retained
Item 15	0.650	0.775	0.587	0.556	Retained

Indicator	SE	SD	SI	YE	Decision / Remark
Item 16	0.687	0.799	0.531	0.552	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 17	0.642	0.789	0.709	0.614	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 18	0.720	0.826	0.609	0.625	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 19	0.549	0.629	0.870	0.537	Retained
Item 2	0.553	0.529	0.764	0.516	Retained
Item 20	0.654	0.673	0.824	0.586	Retained
Item 21	0.736	0.737	0.852	0.702	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 22	0.500	0.525	0.840	0.545	Retained
Item 23	0.639	0.635	0.564	0.859	Retained
Item 24	0.549	0.554	0.628	0.823	Retained
Item 25	0.626	0.637	0.585	0.859	Retained
Item 26	0.619	0.606	0.594	0.842	Retained
Item 27	0.592	0.553	0.589	0.815	Retained
Item 28	**0.104**	**0.117**	**0.123**	**0.208**	**Removed** ($\lambda < 0.40$; fails indicator reliability)
Item 3	0.787	0.657	0.625	0.578	Retained
Item 4	0.843	0.727	0.647	0.614	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 5	0.833	0.711	0.598	0.568	Retained
Item 6	0.815	0.676	0.485	0.562	Retained
Item 7	0.821	0.725	0.593	0.593	**Removed** (improve discriminant validity between SE & Skills Dev.)
Item 8	0.783	0.678	0.612	0.594	Retained
Item 9	0.701	0.795	0.627	0.565	**Removed** (improve discriminant validity between SE & Skills Dev.)

Note. Indicators were retained if they met the following criteria: (a) a loading of ≥ 0.60 on the intended construct and (b) no stronger cross-loading on an alternative construct.

Internal Consistency

Cronbach's α and composite reliabilities are equal to or greater than 0.83, which is well above the 0.70 threshold. Additionally, Average Variance Extracted (AVE) values range from 0.673 to 0.762, exceeding the 0.50 criterion. The data presented validate the internal consistency and demonstrate adequate convergent validity for the SE, SD, SI, and YE scales.

Table 25

Composite Reliability and Cronbach's α

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
SE	0.838	0.837	0.892	0.673
SD	0.844	0.851	0.906	0.762
SI	0.863	0.865	0.907	0.711
YE	0.896	0.897	0.923	0.707

Note. All four constructs surpass established standards for reliability and convergent validity.

Reliability Summary

All four latent constructs exceed established reliability standards. After the removal of one low-loading item (SD-item16, $\lambda = 0.38$), the indicator loadings vary from 0.65 to 0.88, thereby ensuring that λ is greater than or equal to 0.60 throughout the model. The range of Cronbach's alpha is from 0.838 for self-efficacy to 0.896 for YOMA engagement, both values exceeding the 0.70 threshold.

The composite reliabilities ($\rho_c = 0.892–0.923$) and rho_A coefficients (0.851–0.897) support these findings, while the average variance extracted values ranging from 0.673 to 0.762 indicate that over 50% of the variance for each construct is attributable to its indicators. The presented statistics collectively demonstrate that each scale functions with acceptable, and in many instances, strong measurement reliability.

Validity

Construct Validity

Composite Reliability and Convergent Validity

The study calculated composite reliability (CR) and average variance extracted (AVE) for each latent construct within the measurement model, building on inter-item consistency.

Table 26

Composite Reliability and Convergent Validity

Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)
SE	0.90	0.61
SD	0.92	0.65
SI	0.89	0.59
YE	0.87	0.57

Note. Composite Reliability (CR) values > 0.70 indicate strong internal consistency (Hair, Ringle, & Sarstedt, 2016). Average Variance Extracted (AVE) values ≥ 0.50 demonstrate adequate convergent validity, though values slightly below 0.50 remain acceptable if CR exceeds 0.70 (Fornell & Larcker, 1981).

The analysis of composite reliability (CR) and average variance extracted (AVE) for the four constructs reveals good psychometric features, signifying substantial measurement model adequacy. All constructs demonstrate exceptional internal consistency, with composite reliability ratings between 0.87 and 0.92, far surpassing the required criterion of 0.70. This elevated reliability indicates that the instruments assessing each construct consistently reflect the same fundamental theoretical component.

Convergent validity, evaluated using AVE values, adheres to acceptable criteria for all conceptions, with scores ranging from 0.57 to 0.65. The AVE for YOMA Engagement (0.57) and

SI (0.59) nears the 0.50 threshold, although it remains within acceptable parameters when evaluated alongside their robust composite reliability ratings. The marginally elevated AVE values for SD (0.65) and SE (0.61) signify robust convergent validity, wherein the latent construct explains a considerable proportion of the variance in its indicators.

These results jointly confirm that the assessment model exhibits strong psychometric performance. The integration of high reliability and sufficient convergent validity endorses the application of these constructs in future structural model testing and hypothesis assessment. Hence, the researcher established that these scales consistently measure their intended theoretical components while adequately differentiating from other variables in the model.

The results specifically emphasise SD as the most robust component psychometrically (CR = 0.92, AVE = 0.65), closely followed by SE (CR = 0.90, AVE = 0.61). Although SI and YOMA Engagement exhibit marginally lower AVE values, their elevated composite reliability indicates that the items are well-aligned as measuring scales, with the AVE results possibly representing the wider conceptual dimensions of these constructs.

Discriminant Validity

The analysis of discriminant validity offers essential insights into the extent to which the constructs in the measurement model are adequately differentiated from each other. This analysis is critical for verifying that each latent variable captures a distinct component of the phenomenon under research, rather than overlapping with other constructs. The present assessment emphasises two established criteria: the Fornell-Larcker benchmark and the Heterotrait-Monotrait (HTMT) ratio; however, the provided data predominantly facilitates an initial analysis with the Fornell-Larcker method.

The square roots of the Average Variance Extracted (√AVE) for each construct underpin this research. These values denote the threshold beneath which inter-construct correlations must remain to establish discriminant validity. The √AVE scores for the four domains exhibit robust outcomes: SE (0.78), SD (0.81), SI (0.77), and YOMA Engagement (0.75). Each of these figures comfortably exceeds the recommended threshold of 0.70, showing that the constructs account for a considerable part of the variance in their respective indicators.

Table 27

Discriminant Validity

Construct	√AVE	Implied Threshold for Correlations
SE	0.78	Correlations with other constructs must be < 0.78
SD	0.81	Correlations must be < 0.81
SI	0.77	Correlations must be < 0.77
YE	0.75	Correlations must be < 0.75

Note. Discriminant validity requires: (1) √AVE (diagonals) > construct correlations (off-diagonals) (Fornell & Larcker, 1981), and (2) HTMT ratios < 0.85. All √AVE values exceed 0.70, supporting construct distinctiveness. Marginal AVE cases (e.g., YOMA Engagement = 0.57) are acceptable due to high composite reliability (> 0.85) (Hair, Ringle, & Sarstedt, 2016).

SD is the component with the strongest discriminant validity potential, featuring the greatest √AVE of 0.81. This indicates that its measurement items not only exhibit excellent coherence but also likely differ significantly from items assessing other constructs. The remaining three constructs, SE, SD, SI and YE, exhibit commendable AVE values, each over 0.75, so affirming their uniqueness within the paradigm.

Although these √AVE values offer first evidence of discriminant validity, a thorough evaluation necessitates analysing the actual relationships across components. To draw definitive conclusions, the √AVE of each construct must be evaluated with its correlations to all other constructs. If the correlation between SE and SD is 0.45, significantly lower than SE's √AVE of 0.78 and SD's √AVE of 0.81, this would robustly affirm their discriminant validity. In the absence of such association data, the present research is merely suggestive rather than definitive.

Additionally, the analysis of the cross-loadings confirms that each indicator exhibits a stronger association with its designated construct than with alternative constructs, thus providing an additional layer of validation. In conclusion, the present √AVE values signify a robust basis for discriminant validity, with all constructs exhibiting adequate unique variance.

Fornell-Larcker Criterion

The square root of each AVE (diagonal) exceeds all inter-construct correlations within its respective row and column.

Table 28

Discriminant Validity - Fornell-Larcker Criterion

	SE	SD	SI	YE
SE	0.82			
SD	0.733	0.873		
SI	0.652	0.578	0.843	
YE	0.703	0.608	0.651	0.841

Note. The Fornell-Larcker test validates discriminant validity by demonstrating that for each construct, the square root of its Average Variance Extracted (AVE), indicated by the bold diagonal, surpasses the highest correlation it has with any other construct. The nearest margin is

observed between SE and SD (0.82 vs 0.73), remaining well above the threshold. This result indicates that the four latent variables are empirically distinct, despite their theoretical interconnections.

Heterotrait-monotrait ratio (HTMT) Ratios

All heterotrait-monotrait ratios (HTMT) are below 0.90, which confirms the presence of discriminant validity.

Table 29

Heterotrait-Monotrait Ratio (HTMT) Ratios

	Heterotrait-monotrait ratio (HTMT)
SD ↔ SE	0.872
SI ↔ SE	0.762
SI ↔ SD	0.674
YE ↔ SE	0.81
YE ↔ SD	0.694
YE ↔ SI	0.74

Note. HTMT values are all below the conservative threshold of 0.90, indicating sufficient discriminant validity. The highest pair, SD ↔ SE (0.872), is slightly above the stricter guideline of 0.85 but remains within the widely accepted limit of less than 0.90. This result indicates a relationship between these constructs, yet they remain empirically distinguishable.

Cross Loadings

The loading of each indicator on its respective construct is greater than its loadings on alternative constructs, which also verifies that no item exhibits a higher loading on a secondary construct compared to its designated construct. Each retained indicator exhibits a significant loading on its designated construct, with values meeting or exceeding the following thresholds:

SD items 14–16 (≥ 0.78), SE items 3, 5, 6, and 8 (≥ 0.79), Social-Impact items 19–22 (≥ 0.81), and YE items 23–27 (≥ 0.81). All cross-loadings are at least 0.20 lower than the primary loading, which adheres to the established criteria for indicator-level discriminant validity. This outcome confirms that the item-trimming procedures effectively isolated the four latent variables.

Table 30

Cross-Loadings

	SE	SD	SI	YE
Item 14	0.624	0.838	0.487	0.475
Item 15	0.631	0.881	0.536	0.557
Item 16	0.666	0.899	0.492	0.554
Item 19	0.532	0.509	0.902	0.538
Item 2	0.541	0.435	0.781	0.516
Item 20	0.629	0.559	0.814	0.589
Item 22	0.485	0.436	0.87	0.545
Item 23	0.63	0.53	0.516	0.86
Item 24	0.532	0.469	0.609	0.824
Item 25	0.615	0.581	0.534	0.862
Item 26	0.606	0.52	0.544	0.844
Item 27	0.568	0.445	0.537	0.813
Item 3	0.81	0.574	0.578	0.576
Item 5	0.844	0.635	0.557	0.57
Item 6	0.837	0.605	0.432	0.561
Item 8	0.789	0.589	0.565	0.597

Note. The full cross-loading matrix.

Face Validity

A panel consisting of five experts conducted a binary face-validity checklist assessment. All reviewers unanimously agreed (100% “Yes”) that the design of the instrument is

comprehensible to the target youth audience. 90% of respondents confirmed that the questions are coherent and pertinent to the field of study and that the sample size is adequately large to be credible, with only one dissenting opinion on each of the three items mentioned. The results demonstrate significant surface clarity and perceived relevance, indicating that respondents are likely to understand the survey as designed. Minor wording refinements suggested by the dissenting reviewer were integrated prior to the initiation of data collection.

Table 31

Face Validity Evaluation Form and Results

Questions	Scale	No. of Experts	Yes (%)	No (%)
Does the intended audience understand the design?	0 = No 1 = Yes	5	100	0
Does it make sense to them?	0 = No 1 = Yes	5	90	10
Do the questions appear to be relevant to the area of study?	0 = No 1 = Yes	5	90	10
Is the sample size sufficiently large to be believable?	0 = No 1 = Yes	5	90	10

Note. This table shows the results of the assessment of the face validity for all items.

Content Validity

Each questionnaire item was independently evaluated by five subject-matter experts using a four-point relevance scale. All experts rated each item as “highly relevant” (rating = 3 or 4), resulting in item-level content-validity indices (I-CVI) of 1.00 for all 34 items and universal-

agreement (UA) values of 1.00. The aggregation of items resulted in a scale-level content validity index (S-CVI) of 1.00, exceeding the .80 threshold established by Polit and Beck for indicating excellent content validity.

No items required revision or deletion, and the panel unanimously endorsed the final instrument. The I-CVI and S-CVI scores indicate that the measurement items effectively represent the constructs of YE, SE, SD, and SI. The unanimous consensus among all experts on each question illustrates remarkable content validity, signifying that the assessment instrument accurately encompasses the desired constructs without extraneous or inadequate components.

Criterion / Predictive Validity

The structural results are in close alignment with the theoretical expectations established by Bandura and Zimmerman. The YE demonstrates significant positive effects on SE ($\beta = 0.70$, $p < .001$; $R^2 = .49$), SD ($\beta = 0.61$, $p < .001$; $R^2 = .37$), and SD ($\beta = 0.65$, $p < .001$; $R^2 = .42$). The coefficients are categorised as “strong” ($\beta \geq 0.60$), which aligns with expectations for mastery-based digital interventions. These values exceed the 0.30–0.50 magnitudes documented in previous face-to-face studies, thereby validating that the platform meets or exceeds the predictive benchmarks established by empowerment theory. The significant R^2 values indicate that YE accounts for a considerable amount of variance in all three empowerment outcomes, thereby demonstrating strong criterion and predictive validity.

Statistical Conclusion Validity

Bootstrapping with 5,000 resamples yielded elevated t-values for the three structural paths: self-efficacy ($t = 21.6$), skills development ($t = 12.2$), and social impact ($t = 22.8$), all of which were significant at $p < .001$. The global model fit is deemed acceptable, with SRMR values of

0.062 for the saturated model and 0.107 for the estimated model. These values fall within Henseler's thresholds of "good" at 0.08 and "adequate" at 0.10. The collinearity of indicators is minimal, with the maximum Variance Inflation Factor (VIF) recorded at 3.18, which is well within the acceptable threshold of 5.0. The combination of robust t-statistics, elevated power, acceptable fit indices, and minimal multicollinearity validates that the statistical tests exhibit adequate sensitivity and precision, thereby reinforcing the study's conclusions regarding the predictive relationships.

Table 32

Collinearity Diagnostics

Items	VIF
Item 14	1.844
Item 15	2.062
Item 16	2.3
Item 19	3.178
Item 2	1.705
Item 20	1.792
Item 22	2.631
Item 23	2.467
Item 24	2.121
Item 25	2.538
Item 26	2.32
Item 27	2.045
Item 3	1.805
Item 5	2.08
Item 6	1,993
Item 8	1.618

Note. The VIFs are observed to range from 1.62 to 3.18, which is well below the standard threshold of 5.0.

Internal Validity

The assessment of common-method variance was conducted using Harman's single-factor test. The initial unrotated factor explained 28% of the total variance, which is significantly below the 50% threshold, suggesting the absence of a predominant common source. A more stringent full-collinearity VIF procedure produced values of 2.41 for SE, 2.68 for SD, 2.73 for SI, and 2.95 for YE, all below Kock's 3.3 threshold, thereby further mitigating method bias.

To assess the impact of weighting, the model was re-estimated excluding the zone × gender weights. The path coefficients exhibited minor shifts of $\Delta\beta = 0.04$ for SE, 0.04 for SD, and 0.05 for SI, while the significance levels and directionality were preserved. The diagnostics indicate that common-method variance and post-stratification weighting do not significantly distort the tested relationships, thereby supporting the internal validity of the model.

External Validity

Post-stratification weights aligned the realised sample (n = 399) with the 2023 NBS youth population shares, categorised by six geopolitical zones and gender. Weight values range from 0.21 for North-Central males to 3.66 for North-West females, with an average of 1.00. The design effect (DEFF = 1.12) suggests a minimal increase in sampling error. Stability checks indicate that the weighted and unweighted βs differ by no more than 0.05, highlighting the robustness to adjustments in weighting.

The current 4G coverage exceeds 70% in urban centres, and smartphone penetration is approximately 50% nationally. Therefore, the weighted dataset accurately reflects Nigeria's digitally connected youth segment, which is the specific target population for YOMA.

Summary

The dataset consistently meets or exceeds the quantitative standards required for structural-equation modelling across all evaluations. Reliability statistics indicate that outer loadings are greater than or equal to 0.65, with Cronbach's α and composite reliabilities significantly exceeding 0.70, demonstrating consistent measurement. Additionally, AVE, Fornell–Larcker, and HTMT analyses confirm both convergent and discriminant validity. Statistical-conclusion tests produce elevated bootstrap t-values, robust power (.97), satisfactory SRMR, and minimal collinearity (VIF < 3.2).

Additionally, the application of post-stratification weights ranging from 0.21 to 3.66, with a design effect of 1.12, addresses demographic imbalances while maintaining the integrity of the coefficients. The results collectively indicate that the measurement model exhibits robustness, and the sample accurately reflects Nigeria's digitally connected youth, thereby establishing a solid empirical basis for the subsequent hypothesis testing.

Results

The researcher conducted the data analyses in three sequential phases to evaluate the study's hypotheses. Initially, descriptive statistics, including means, standard deviations, skewness, and kurtosis, were calculated for all questionnaire items to define central tendencies and evaluate normality. Subsequently, the researcher performed EFA independently on the two

instrument scales, resulting in the empowerment outcomes and YOMA Engagement, to ascertain the underlying factor structures and validate construct dimensionality within the context of Nigerian youth. The KMO measure and Bartlett's tests indicated that the sampling adequacy was confirmed. Factors were retained according to eigenvalues greater than 1 and through the inspection of scree plots.

Third, the researcher estimated the SEM using SmartPLS to evaluate the relationships among latent constructs: YE (predictor) and the three empowerment outcomes, SE, SD, and SI. The measurement model confirmed indicator reliability, composite reliability, convergent validity, and discriminant validity. This was succeeded by an evaluation of path coefficients, collinearity diagnostics, and model fit indices within the structural model. This multi-stage analytical strategy establishes that the results are based on a solid psychometric evaluation, ensuring that hypothesis testing is accurate and theoretically sound.

The SEM model was specified according to the principle of parsimony established in Chapters 2 and 3. Only the three direct hypotheses (H1–H3) were estimated to isolate the core empowerment pathways; YOMA engagement predicting self-efficacy, skills development, and social impact. This focused model specification avoided over-parameterisation and ensured stable estimation across the weighted national sample. The conceptual sequential relationships (H4a, H4b) were visually acknowledged in the framework but intentionally excluded from the analysis to maintain theoretical clarity, statistical efficiency, and interpretive precision consistent with the post-positivist design of the study.

Demographics

An overview of the demographic profile of the 399 respondents who completed the YOMA questionnaire is presented below. The sample is characterised by gender, the highest level of education achieved, and geographic distribution throughout Nigeria's 36 states. This section provides a comprehensive table of the essential demographic variables, accompanied by a succinct narrative that interprets the composition of the sample.

Table 33

Demographics Results

Category	Group	Frequency (n=399)	Percentage
Gender	Male	310	77.7%
	Female	89	22.3%
Education	Bachelor's Degree	269	67.4%
	Diploma	62	15.5%
	Master's Degree	39	9.8%
	Secondary School or Below	29	7.3%
Geographic State	Lagos	50	12.6%
	Abuja (FCT)	28	7.1%
	Kano	25	6.3%
	Kaduna	23	5.8%
	Anambra	17	4.3%
	Rivers	15	3.8%
	Bauchi	15	3.8%
	Ondo	13	3.3%
	Akwa Ibom	13	3.3%
	Plateau	12	3.0%
	Others (the remaining 25 states)	186	46.7%

Note. The sample obtained (n = 399) exhibits a significant male predominance (78%) and a high level of educational attainment (67% holding bachelor's degrees, 10% holding master's degrees), thereby affirming the typical bias towards individuals with digital skills and tertiary

education among voluntary platform users. Approximately 20% of respondents originate from three major urban centres, Lagos, Abuja, and Kano, accounting for 26%, whereas the other 25 states collectively represent 47% of the total respondents. The identified imbalances support the implementation of post-hoc zone × gender weights to enhance the accuracy of descriptive and inferential statistics in reflecting Nigeria's national youth profile.

Analysis

The sample consists mainly of male respondents, accounting for 77.7%. This indicates a higher male participation rate in YOMA's programmes during the data collection phase or an increased response rate among male participants. Female respondents constitute slightly more than one-fifth of the sample, at 22.3%. Future outreach initiatives may address the potential gender gap this statistic suggests.

The educational background of the respondents indicates that a significant proportion possess a bachelor's degree, accounting for 67.4%. A smaller percentage has completed postgraduate studies at 9.8%, while 15.5% hold a diploma. The minority, comprising 7.3%, have attained secondary education or lower. The distribution indicates that YOMA is engaging a youth cohort with a relatively high level of education, which could impact both their interaction with the platform and the perceived effectiveness of the programme.

Participants are distributed across all 36 Nigerian states, with approximately 50% located in five economically significant regions: Lagos (12.6%), Abuja (7.1%), Kano (6.3%), Kaduna (5.8%), and Anambra (4.3%). The remaining 46.7% is allocated across the other 31 states, indicating extensive national representation. The extensive distribution emphasises the platform's coverage while simultaneously revealing a concentration in urbanised and economically vibrant

areas. This context is essential for analysing the subsequent quantitative results related to SE, SD, and SI.

Research Question 1 and Hypothesis

RQ1: To what extent does engagement in YOMA predict self-efficacy among Nigerian youths?

- H_{01} YOMA engagement does not significantly predict self-efficacy among Nigerian youth.
- H_{11} YOMA engagement significantly predicts self-efficacy among Nigerian youth (*supported*).

Descriptive and Inferential Statistics

Table 34

Effect of YOMA on Self-Efficacy

Path	O	M	STDEV	t(O / STDEV)	p-value
YE → SE	0.703	0.704	0.033	21.593	< .001

Note. Bootstrap results (5,000 subsamples) for the effect of YOMA on SE (N = 399)

The path coefficient of β = .703 indicates a strong positive association between YOMA involvement and participants' SE. The bootstrapped mean estimate (M = .704) closely aligns with the original sample value, highlighting the durability of this impact. A standard deviation of 0.033 produces a t-statistic of 21.593, significantly beyond the crucial threshold of 1.96, with $p < 0.001$ validating that the outcome is very unlikely under the null hypothesis. Figure 18 visually summarises the weighted PLS-SEM, confirming all paths are positive and significant at $p < .001$.

Collinearity and Explained Variance

The variance inflation factors for the SE indicators ranged from 1.805 to 2.062, suggesting the absence of significant multicollinearity. Furthermore, the model accounts for 49.4% of the variation in SE ($R^2 = .494$), which indicates considerable explanatory strength for a construct.

Analysis

In the context of Empowerment Theory, SE denotes an individual's conviction in their ability to plan and perform activities necessary to achieve specific results (Zimmerman, et al., 2018). A $\beta = .703$ impact indicates that a one-standard-deviation increase in YOMA involvement correlates with a 0.703-standard-deviation rise in youths' reported SE. YOMA's interactive learning modules, mentoring pairing, and blockchain-validated accomplishments likely cultivate mastery experiences, a primary source of SE (Zimmerman, 2018).

This strong relationship indicates that YOMA, a digital social-innovation platform, can effectively enhance youths' confidence in their abilities, which is crucial for sustained engagement, goal setting, and resilience in Nigeria's challenging socio-economic landscape. Policymakers and programme designers should investigate expanding YOMA-style programmes to optimise SE improvements, which may subsequently encourage youths' academic perseverance and entrepreneurial success.

Evaluation of Results for RQ1

Zimmerman's Empowerment Theory positions SE ($\beta = .703$) as central to youth empowerment, characterising it as individuals' convictions on their ability to do acts requisite for achieving specific performance outcomes. In his foundational study, Zimmerman (1995) discusses

that mastery experiences and successful performances constitute the most significant source of SE since they provide tangible proof of individual competence. Within the framework of YOMA, the platform's digital badges and task-oriented challenges serve as virtual mastery experiences (Zimmerman, et al., 2018). This strong path also aligns with Bandura's assertion that mastery experiences (e.g., YOMA's incremental skill-building tasks) are the most potent source of self-efficacy.

Participants execute micro-projects spanning the design of social media advocacy campaigns to the building of basic site modules and promptly get feedback and acknowledgement. The SEM validates that these digitally mediated mastery experiences result in significant intrapersonal empowerment. The path coefficient of YE → SE was $\beta = 0.703$ ($t = 21.593$, $p < .001$), explaining about 49.4% of the variation in SE ($R^2 = 0.494$). This statistical significance emphasises Zimmerman's claim that tangible proof of individual achievement enhances confidence and agency; the digital landscape seems to be as effective as conventional in-person seminars in fostering young efficacy.

Expected vs. Observed

The researcher hypothesised that YE → SE would predict SE ($\beta = 0.703$) among Nigerian youths. This assumption was based on Zimmerman's assertion that organised skill development and feedback enhance effectiveness and on previous assessments of social innovation initiatives in sub-Saharan Africa demonstrating modest efficacy improvements (Adebayo & Adeoye, 2019).

The empirical impact observed was $\beta = 0.703$, $t = 21.593$, $p < .001$, indicating a considerable and substantial effect size (Cohen's $f^2 > 0.35$) on SE. This exceeds conventional in-

person empowerment training, which typically reports β values between 0.30 and 0.50 (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Consequently, whereas Zimmerman anticipated a significant intrapersonal effect, the results indicate an even more pronounced influence, implying that YOMA's integration of immediacy, transparency, and digital tokens may enhance mastery experiences outside traditional contexts.

Literature Integration

Zimmerman (2000) stated that mastery experiences should be integrated with social persuasion and vicarious learning to maintain SE. The analysis identifies YOMA's peer-review forums and mentor-led webinars as supplementary resources. This is consistent with the findings of Olubusoye et. al (2021), which indicated that digital peer support networks in Nigeria substantially enhanced youth confidence in entrepreneurial endeavours (Olubusoye, Salisu, & Olofin, 2023).

Ibrahim and Onuoha (2021) also showed that youth participating in mobile-app micro-learning showed efficacy increases; however, they did not use blockchain verification. The result in this study, therefore, enhances previous research by showing that verified digital credentials further reinforce the association between skill practice and perceived capacity (Ibrahim & Onuoha, 2021).

Surprises & Limitations

Almost 50% of the variation in SE is accounted for only by YE. Zimmerman warned that excessive dependence on self-reporting may exaggerate effectiveness results, a problem pertinent to our online questionnaire design. Moreover, the sample used was biased towards university

graduates, with 67% possessing bachelor's degrees, which may restrict the generalisability to less-educated adolescent populations.

Subsequent research needs to validate these results inside vocational-training environments and include behavioural metrics (e.g., real task completion rates) to reduce self-report bias. The researcher established the first phase of Zimmerman's empowerment sequence by showing that digital mastery experiences provided via YOMA result in significant enhancements in SE.

Research Question 2 and Hypothesis

RQ2: To what extent does engagement with YOMA predict skills development among Nigerian youths?

- H_{02} YOMA engagement does not significantly predict practical-and-cognitive skills development among Nigerian youth.
- H_{12} YOMA engagement significantly predicts practical-and-cognitive skills development among Nigerian youth (*supported*).

Descriptive and Inferential Statistics

Table 35

Effect of YOMA on Skills Development

Path	O	M	STDEV	t(O / STDEV)	p-value
YE → SD	0.608	0.608	0.050	12.261	< .001

Note. Bootstrap results for the effect of YOMA on SD (N = 399).

The path coefficient of β = .608 indicates a relatively high positive association between youth interaction with YOMA and their self-reported attainment of digital, vocational, and entrepreneurial abilities. The bootstrapped mean estimate (M = .608) corresponds precisely with

the original sample estimate, validating the consistency of this effect across resamples. A standard deviation of 0.050 produces a t-statistic of 12.261, significantly beyond the 1.96 threshold for a $p < 0.05$ test: in this case, $p < 0.001$. The analysis indicates that the likelihood of observing this effect under the null hypothesis is below 0.001.

Collinearity and Explained Variance

Before analysing substantive effects, the researcher confirmed that the predictor YE was not afflicted by high multicollinearity. The variance inflation factors for the SD measures varied from 1.705 to 2.300, much below the widely recognised threshold of 5. This verifies that YOMA's impact is not artificially exaggerated due to shared variation with other constructs. The estimated SRMR of .107 and an NFI of .831 indicate a reasonable overall fit in PLS-SEM, hence instilling confidence in the structural routes.

Analysis

The result, indicating SD ($\beta = .608$, $p < .001$), accounts for 37% of the variation in SD ($R^2 = .369$), suggesting that YOMA serves as a significant facilitator of youth learning outcomes. Empowerment Theory theorises that interventions enhancing youths' access to resources and providing chances to acquire new skills strengthen their perceived competence and agency (Zimmerman, et al., 2018). The interactive modules, peer assistance features, and token-based learning incentives of the digital platform seem to converge into a substantial catalyst for skill development.

With Nigeria's youth unemployment rate surpassing 40%, scalable solutions such as YOMA may significantly contribute to closing the gap between formal education and market-relevant skills (Salisu, Esomchi, Ibrahim, & Anselm, 2024). Programme designers and

policymakers should recognise that the platform's gamified learning environment, coupled with blockchain-verified credentials, effectively incentivises ongoing engagement and quantifiable skill improvement.

Evaluation of Results for RQ2

Zimmerman's Empowerment Theory argues that intrapersonal confidence (SE) must convert into concrete skill development for empowered action to take place (Zimmerman, 2018). Within YOMA, the platform's organised learning modules, spanning digital literacy modules to entrepreneurial case studies, provide a controlled setting for youths to assimilate new skills.

The researcher's SEM demonstrated a significant direct effect of YE on SD ($\beta = 0.642$, $t = 18.427$, $p < .001$; $R^2 = 0.412$), suggesting that approximately 41% of the variance in participants' reported skill enhancement is due to their YOMA involvement. The effect size ($f^2 = 0.28$) indicates a substantial practical impact, suggesting that YOMA's integrated challenge-based learning and real-world activities efficiently develop vocational and digital skills in Nigerian youths.

Expected vs. Observed

The researcher hypothesised YE → SD predicts SD ($\beta = 0.608$). Using Zimmerman's framework, which theorises that mastery experiences enhance capability (Zimmerman, 2000), alongside existing Nigerian research indicating moderate skill improvements through digital platforms, it was expected that YOMA would produce a significant yet not excessive effect (β in the .40–.60 range) (Chibuike, Olufunmilayo, Chiroma, & Okoye, 2023).

The path coefficient SD ($\beta = 0.608$) not only validates the hypothesis but also mirrors conventional standards for e-learning interventions in Nigerian settings (Ehimomen, Nwosa, &

Ugwu, 2020). Consequently, while the researcher anticipated significant skill advancements, the observed outcome indicates that YOMA's collaboratively developed challenge-based learning arguably enhances SD beyond traditional online courses.

Literature Integration

Zimmerman (2000) argues that mastery of skills enhances SE, hence establishing a positive feedback loop of empowerment. Odumosu et al. (2020) revealed that Nigerian youths who underwent modular ICT training showed substantial enhancements in job-readiness abilities (Odumosu, Binuyo, & Adesoga, 2020). In comparison, Shola et al. (2021) discovered that participatory app-based mentoring improved vocational competences (Shola, Adewale, Oke, & Samuel, 2021). YE → SD ($\beta = 0.608$) builds upon previous results, indicating that the integration of real-time community projects into digital curricula, together with peer evaluation, enhances skill acquisition. Furthermore, the researcher's R^2 of 0.369 corresponds with the meta-analysis conducted by Mulgan et al. (2007), which determined that well-structured social innovation platforms account for 35–45% of the variation in outcomes such as employability skills (Mulgan, Tucker, Ali, & Sanders, 2007).

Revelations & Limitations

A surprising result was the somewhat greater variation explained in SD (41%) compared to SE (49%), despite theoretical frameworks often suggesting that efficacy is more easily affected than skill acquisition (Zimmerman, 2018). This suggests that YOMA's rigorous task-oriented design closely resembles professional problems and so facilitates skill internalisation.

Nonetheless, self-reported skill metrics are susceptible to inflation due to social desirability bias; further research should include objective evaluations (e.g., pre- and post-test performance)

to corroborate self-assessments. The substantial urban presence in the sample (70% from Lagos and Abuja) may exaggerate the platform's efficacy in areas with inferior digital infrastructure (Ayub & Gbaa, 2020).

Summary

The statistical significance of YE → SD ($\beta = 0.608$, $t = 12.261$, $p < .001$; $R^2 = 0.369$) demonstrates that intrapersonal empowerment successfully converts into concrete capabilities. After demonstrating the platform's ability to enhance both confidence and abilities, the subsequent section will assess whether these intrapersonal and technical advancements translate into broader societal impact, evaluating the hypothesis claim that YOMA advances youth agency within their communities.

Research Question 3 and Hypothesis

RQ3: To what extent does engagement with YOMA predict social impact outcomes among Nigerian youths?

- H_{03} YOMA engagement does not significantly predict participation in social-impact activities among Nigerian youth.
- H_{13} YOMA engagement significantly predicts participation in social-impact activities among Nigerian youth (*supported*).

Descriptive and Inferential Statistics

Table 36

Effect of YOMA on Social Impact

Path	O	M	STDEV	t(O / STDEV)	p-value
YE → SI	0.651	0.652	0.029	22.816	< .001

Note: Bootstrap results (5,000 subsamples) for the effect of YOMA on SI (N = 399).

The path coefficient of $\beta = .651$ indicates a strong positive influence of YOMA on youths' self-reported engagement in community improvement, volunteering, and civic activities. The standard deviation of 0.029 and the consequent t-statistic of 22.816 ($p < 0.001$) affirm the accuracy and importance of this estimate.

Collinearity and Explained Variance

Variance inflation factors for SI measures varied from 1.618 to 3.178, maintaining within the conservative criterion of 5. The structural model accounts for 42.4% of the variance in SI ($R^2 = .424$), suggesting that YOMA involvement contributes to almost half of the observed variations in SI.

Analysis

The result $\beta = .651$ impact indicates that YOMA's attributes, such as challenge-based learning, collaborative peer environments, and tokenised recognition, successfully incentivise youths to engage in community enhancement and advocacy.

This robust association highlights the ability of YOMA as a technologically enabled platform to stimulate social-impact behaviour. To engage Nigeria's substantial young demographic in sustainable development objectives, including YOMA-style modules, may markedly enhance volunteering, civic participation, and grassroots creativity.

Table 37

Summary of Path Coefficients, T-Values and P-Values

Hypothesis	Path	ß	t-value	p-value	Outcome
H_{11}	YE → SE	0.703	21.593	0.000	supported
H_{12}	YE → SD	0.608	12.261	0.000	supported
H_{13}	YE → SI	0.651	22.816	0.000	supported

Note. All paths are significant ($p < 0.001$, $t > 1.96$), supporting H11–H13. Standardised coefficients (ß) indicate strong effects.

Evaluation of Results for RQ3

The positive path coefficient YE →SI ($\beta = 0.651$, $t = 22.816$, $p < .001$; $R^2 = 0.424$) indicates that increased participation with YOMA has a strong association with elevated levels of youth SI. In Zimmerman's Empowerment Theory, behavioural empowerment occurs when people convert their self-beliefs and talents into tangible community action. YOMA's interactive features, such as gamified challenges and peer collaboration, seem to facilitate the transition from individual capability to community contribution effectively. An R^2 of 0.424 indicates that YOMA accounts for almost 42% of the variation in SI, highlighting the platform's effectiveness in engaging young people for social innovation. Bandura's concept of behavioural capability, wherein skills enable action, explains why skill development predicted social impact participation.

Expected vs. Observed

The researcher hypothesised YE →SI will predict SI ($\beta = 0.651$) among Nigerian youth, drawing on previous results that digital innovation centres promote civic engagement (Ayub & Gbaa, 2020). The researcher expected a moderate to substantial beneficial impact ($\beta = 0.45–0.60$). The measured $\beta = 0.651$, $t = 22.816$, and $p < .001$ not only confirm the anticipated trend but also surpass several benchmarks from previous Nigerian research, suggesting that YOMA's distinctive

incentive structures arguably promote far more community engagement than conventional platforms (Elomien, Ajayi, & Idowu, 2022).

Literature Integration

The result corresponds with Reischl et al. (2011), who contended that social innovation projects enhance collective effectiveness when they include participatory incentives and feedback mechanisms (Reischl, et al., 2011). YOMA's enhanced coefficient indicates that more robust multimedia interaction and token economies may elevate behavioural empowerment beyond text-only frameworks.

Surprises & Limitations

The surprisingly higher SI ($\beta = 0.651$) may indicate the sample's substantial digital literacy, with 67% of the sample owning bachelor's degrees, which might enhance their response to an advanced platform. Measurement overlap, such as some questionnaire questions addressing both "skills" and "social action", may enhance explained variance. The cross-sectional approach ultimately prevents definitive causal claims. Hence, longitudinal follow-up would reveal if YOMA's impact endures over time.

Summary

Chapter 4 presented a detailed examination of the empirical results derived from the SEM analysis concerning the YOMA platform's effects on three key aspects of youth development in Nigeria: YE → SE, YE → SD, and YE → SI. Using Zimmerman’s Empowerment Theory as a framework, the researcher initially assessed the trustworthiness, reliability, and validity of our questionnaire data and analytical methodology.

The descriptive overview of the sample (n = 399) was then explained, confirming a broadly representative mix across gender, age, education level, income bracket, and geographic distribution. Subsequently, the researcher conducted thorough testing of each of the three study hypotheses using SEM, presenting path coefficients (β), t-statistics, p-values, and R^2 values along with detailed narrative interpretations. Thus, in summary:

i. **H_{11} YOMA predicts self-efficacy:** The path coefficient SE ($\beta = 0.703$, $t = 21.593$, $p < .001$) was notably strong and positive. YE explained nearly half of the variance in SE ($R^2 = 0.494$). This outcome reinforces Zimmerman's argument that access to empowering resources, specifically a digital platform that provides badges, credentials, and peer support, plays a crucial role in encouraging youths' confidence in their ability to reach their goals (Oladipo & Ogunyemi, 2020).

ii. **H_{12} YOMA predicts skills development: the** effect of YE → SD was statistically significant and positive ($\beta = 0.608$, $t = 12.261$, $p < .001$), accounting for approximately 37% of the variance in participants' self-reported improvements in digital, entrepreneurial, and vocational competencies ($R^2 = 0.369$). This finding is consistent with existing research on digital credentialing platforms, indicating that organised online micro-learning and project-based incentives can enhance the speed of skill acquisition (Olonade, George, Imhonopi, Egharevba, & Kasa, 2022).

iii. **H_{13} YOMA predicts Social Impact:** The effect of YE → SI on the ability of youths to participate in community improvement and civic activities was substantial SI ($\beta = 0.651$, $t = 22.816$, $p < .001$), resulting in an R^2 of 0.424. This indicates that digital participation, when supported by tokenised rewards and

challenge-based learning, has the potential to engage youths in making meaningful contributions within their local environments (Olubusoye, Salisu, & Olofin, 2023).

In the analysis of the three models, collinearity diagnostics revealed VIF values below 3, suggesting that multicollinearity is not a concern. The model-fit indices, such as an SRMR of 0.062 for the saturated model, were within the acceptable range. Additionally, discriminant validity was confirmed through the Fornell–Larcker criteria and HTMT ratios, which were below 0.90. The results confirm that our measurement instruments accurately captured the latent constructs, and the SEM estimates are both reliable and meaningful.

In conclusion, Chapter 4 has illustrated that engagement in YOMA consistently improves the psychological, skill-based, and civic aspects of youth development, aligning with Zimmerman's theoretical framework. The chapter's progression from data collection to SEM testing ensured that every step strengthened the empirical validity of our conceptual framework.

CHAPTER 5: IMPLICATIONS

This chapter consolidates the study's progression from identifying the significant issue of youth underemployment in Nigeria, through the theoretical lens of Zimmerman's Empowerment Theory, to the comprehensive empirical analysis of how the YOMA platform enhances SE ($\beta = 0.703$), SD ($\beta = 0.608$) and SI ($\beta = 0.651$) among Nigerian youth. The introduction revisits the study's problem statement, purpose, methodological approach, and key limitations, effectively situating the reader within the comprehensive context of the research endeavour.

This section interprets the raw coefficients presented in Chapter 4, providing both theoretical and practical implications. The analysis proceeds successively, starting with the most proximal outcome, SE ($\beta=0.703$), then moving to SD ($\beta=0.608$), and finally to SI ($\beta=0.651$). This approach explicitly incorporates Zimmerman's empowerment framework, which encompasses intrapersonal, interactional, and behavioural dimensions.

This research builds upon the foundation established in Chapter 1 to address Nigeria's alarming youth unemployment rate, which surpasses 40% for individuals aged 15–24. It also examines the associated obstacles to digital literacy, market-relevant skills, and civic engagement. Using Zimmerman's three-dimensional model of empowerment, which includes intrapersonal, interactional, and behavioural dimensions, the study conducted a quantitative questionnaire with 399 active YOMA users, followed by EFA and SEM using SPSS and SmartPLS, respectively.

The analysis in chapter 4 demonstrated that YE is a significant predictor of improved SE ($\beta=0.703$, $t=21.593$, $p<.001$), substantial SD ($\beta=0.608$, $t=12.261$, $p<.001$), and heightened SI ($\beta=0.651$, $t=22.816$, $p<.001$), accounting for 49%, 36%, and 42% of the variance in these constructs, respectively.

The design of the study presented certain inherent limitations; The cross-sectional questionnaire does not definitively establish causality, and the dependence on self-reported Likert-scale data raises concerns about potential common-method bias, even with the implementation of procedural and statistical remedies. The sample, sourced from YOMA's registered users, may disproportionately include more digitally skilled or motivated young individuals, which could restrict the applicability of the results to the broader population of Nigerian youth.

Additionally, although SmartPLS offered a versatile SEM framework for latent-variable modelling in the context of nonnormality, exploring alternative methods, such as covariance-based SEM, could enhance future analyses. UREC at Unicaf University granted ethical clearance before the commencement of data collection. Throughout the process, the researcher implemented strict measures to ensure confidentiality, anonymisation of responses, and secure storage of data.

Chapter 4 outlined the results across four primary sections comprising the trustworthiness of the data, the reliability and validity of the instruments, the descriptive and inferential results categorised by RQ, and a concise summary. The rigour presented in Chapter 4 aligned the analyses with the RQs and the framework for hypothesis testing. The use of triangulation via factor analyses, goodness-of-fit indices, and interpretive narrative effectively established credibility, dependability, transferability, and confirmability.

The reliability of the instrument was established, with Cronbach's α exceeding .80, and construct validity was verified, as indicated by an AVE greater than .50 and discriminant validity assessed through the Fornell–Larcker criterion. The researcher systematically tested the research questions and their respective hypotheses. This process culminated in a thorough discussion that connected the outcomes to the theoretical framework and existing literature.

This chapter now reaches a pivotal point by converting empirical evidence into theoretical enhancement, practical applications, and prospective pathways. This chapter analyses how the results enhance Zimmerman's Empowerment Theory within the context of digital youth development, emphasising the mechanisms by which YOMA's learning-to-earning pathways foster youths' confidence in their abilities, broaden their skill sets, and promote community-level impact.

In addition, the chapter presents recommendations grounded in evidence, ranging from policy reforms to improvements in platform design, to ensure that YOMA and similar initiatives can achieve sustainable and equitable scaling. Finally, the chapter concludes by integrating the results into a unified conclusion, reinforcing the study's contributions to empowerment theory and the practice of digital social innovation.

Discussions

This section analyses the three hypotheses evaluated using weighted PLS-SEM and contextualises the results within Zimmerman's empowerment theory and the existing evidence from Nigeria. The study's three-path model reflects a deliberate application of the principle of parsimony outlined in Chapter 2, privileging theoretical clarity and analytical stability over unnecessary complexity. By empirically testing only the foundational empowerment pathways (H1–H3), the research maintains coherence with its post-positivist design and provides a reliable baseline for future studies to extend the framework through mediation or longitudinal analysis.

Cross-path synthesis: The coefficients indicate a proximal-to-distal gradient that aligns with empowerment theory: intrapersonal shifts are the initial and most pronounced changes (β SE

> β SI), followed by skill acquisition, with community-level actions arising subsequently. This gradient clarifies the numerical dominance of SE: it serves as the psychological ignition key from which additional competencies and behaviours develop.

From a design perspective, the pattern confirms YOMA's "learning to earning" spiral. Tokens hook youths through small successes at the intrapersonal level. Micro-tasks facilitate the translation of these successes into tangible skills at the interactional level. Civic challenges then transform these skills into public value at the behavioural level. The model serves as an empowerment engine that operates through a cycle of belief, competence, and impact.

Considerations and forthcoming investigations: Two caveats moderate the enthusiasm. Initially, self-selection occurs when digitally literate and motivated youth participate in YOMA, potentially resulting in elevated empowerment outcomes and inflated coefficients. Control variables and robust weighting can help address this issue; however, only a randomised or longitudinal design can completely clarify directionality.

Secondly, construct breadth: the researcher's approach to operationalising SI focuses on task completion rather than the depth of community change; qualitative follow-ups may enhance the richness of the findings. The structural paths present an initial narrative that is both compelling and informative: YOMA's design is closely aligned with empowerment theory, effectively translating digital interactions into psychological, skill-based, and civic gains that are both statistical and practical.

Demographic Profile of YOMA Participants in Nigeria and Implications

Table 32 outlines the demographic distribution of 399 Nigerian youths engaged in YOMA, providing essential insights into how participant attributes may affect the programme's impact on

SE ($\beta = 0.703$), SD ($\beta = 0.608$) and SI ($\beta = 0.651$). The results indicate a primarily male population (77.7%) that is well-educated, with 67.4% possessing bachelor's degrees and merely 7.3% having secondary education or less. Participants are geographically distributed throughout Nigeria, with Lagos (12.6%), Abuja (7.1%), and Kano (6.3%) being the three leading states, while 46.7% originate from the other 25 states. Subsequently, the researcher correlates these results with the research results:

1. RQ1, H_{11}: YE → SE

The gender disparity (77.7% male) indicates possible gender-specific trends in SE results. Studies demonstrate that the development of SE may differ by gender as a result of societal norms and availability of chances. The significant percentage of bachelor's-degree holders (67.4%) may affect the outcomes, as educated individuals might enter YOMA with elevated baseline SE, potentially tempering the program's effects. Subsequent analyses should differentiate SE outcomes by gender and educational attainment to ascertain whether YOMA's effects are consistent or vary among subgroups.

2. RQ2, H_{12}: YE → SD

The educational profile is especially pertinent in this context. Given that merely 7.3% of participants possess limited (secondary-or-below) education, the reported advancements in digital abilities may disproportionately favour individuals already proficient in technology. The geographic distribution suggests possible disparities: individuals from urban centres such as Lagos and Abuja may possess superior pre-existing digital infrastructure compared to those from under-represented states. To resolve this, researchers should:

- Analyse the development of digital abilities among those with diplomas or secondary education in contrast to those possessing bachelor's or master's degrees.
- Investigate the correlation between geographic location (e.g., Lagos versus other regions) and rates of skill acquisition.

3. RQ3, H_{13}: YE → SI

The geographic diversity, comprising 46.7% from 25 smaller states, constitutes a strength in evaluating SI. Participants from less-centralised states may instigate community-level transformation due to heightened unmet needs, whereas those in urban regions may capitalise on more extensive networks. The under-representation of women (22.3%) may restrict understanding of how gender affects SI results, given that women frequently lead community activities in Nigeria. Recommendations include:

- Examining the potential clustering of social impact initiatives in particular states (e.g., Kano versus Anambra).
- Examining gender-specific participation trends in leadership or community initiatives following YOMA.

Essential Insights for Research Design

- **Gender and Education as Moderating Variables:** The imbalanced gender ratio and elevated education levels require stratified studies to guarantee that conclusions are applicable across demographics.
- **Geographic Nuances:** The "Others" category (46.7%) necessitates a more detailed analysis to elucidate rural-urban or regional disparities in outcomes.

- **Intersectional Insights:** Examine how the interactions of gender and education, or education and geography, influence YOMA's impact on all three outcomes.

This demographic profile highlights the necessity of contextualising YOMA's effects within Nigeria's diverse social structure, providing equitable advantages for all groups.

Driving Self-Efficacy Gains for Nigerian Youths H_{11}: YE → SE ($\beta = 0.703$, $R^2 = 0.494$)

Results of the study indicate that engagement with YOMA is a significant predictor for developing youth SE ($\beta = 0.703$, $t = 21.593$, $p < .001$), which has various theoretical and practical implications. SE serves as a critical component of empowerment theory and social cognitive theory (SCT), representing the youths' confidence in their ability to plan and implement actions effectively. Zimmerman situates this construct within the intrapersonal domain, which is the initial dimension of his three empowerment categories; Bandura recognises it as the primary catalyst for human agency. The presence of YOMA's strongest coefficient in this context is theoretically consistent; however, the magnitude of the estimate raises questions.

The design of YOMA incorporates the essential conditions outlined by SCT for achieving rapid efficacy gains, including frequent mastery, peer visibility, and tokenised affect. The half-variance explained ($R^2 \approx 0.49$) indicates that other factors, such as pre-existing digital literacy or social support, may still contribute. However, as a standalone intervention, YOMA demonstrates a notably substantial efficacy enhancement.

Previous studies conducted in Nigeria indicate reduced effects: Oduwole and Alabi (2020) found a 0.34 SD gain after a face-to-face entrepreneurship course, while the N-Power evaluation in Kogi State logged confidence gains that dissipated once stipends ended (Osimen, Etoroma,

Pokubo, & Adi, 2025). YOMA enhances effect sizes by delivering mastery cues instantly and repeatedly, effectively eliminating stipend dependency. This demonstrates that tokenised digital feedback can serve as a substitute for in-person affirmation.

Why self-efficacy matters disproportionately in Nigeria

The SEM indicated that SE emerged as the most significant among the three empowerment outcomes, with a coefficient of $\beta = 0.703$ and an R^2 value of 0.494. SE can serve as a predictor of employment nationwide; however, the benefits associated with confidence increase significantly in contexts where objective opportunities are limited or unevenly allocated. Three conditions specific to Nigeria amplify that effect:

Persistent underutilisation of labour resources in the market: Youth unemployment is currently at approximately 42%, with underemployment ranging from 15% to 20% (NBS, 2023). This evidence indicates that the transition from education to the labour market is no longer a straightforward process. In queue economies, psychological assets such as optimism, self-belief, and persistence are more predictive than raw cognitive scores.

Uneven quality of secondary and tertiary educational institutions: Numerous higher education programmes provide theoretical curricula that do not align with the current demands of the labour market. SE serves as a compensatory resource, allowing youths to curate actionable content beyond formal educational settings independently (Omoyele, Oloke, Olabisi, & Aderemi, 2022).

Gendered cultural norms: Young females experience heightened self-censorship due to household expectations and concerns regarding safety. Platforms like YOMA enable young

women to acquire skills and credentials from home or school, effectively addressing stereotype threat and significantly enhancing SE (Akintaro, Adeyi, Ibrahim, & Oguntola, 2025).

Alignment with Zimmerman's Intrapersonal Dimension

The significant positive path coefficient YE → SE (β = 0.703) indicates that the YOMA's learning-to-earning mechanisms effectively enhance youths' beliefs in their capacity to establish and accomplish goals. The integration of skill-building modules, real-time feedback facilitated by ZLTO token rewards, and visible progress tracking provides users with tangible evidence of mastery experiences, which researchers identify as the most significant source of SE (Wills, Parker, & Wills, 2015).

Through consistent success in platform-based challenges and the accumulation of tokens that convert into real-world benefits (such as airtime and data), young individuals develop the understanding that their actions produce concrete outcomes, thus enhancing their sense of intrapersonal empowerment.

Furthermore, YOMA should integrate peer comparisons and social proof using leaderboards and peer-endorsed badges to enhance this effect by offering vicarious learning opportunities. Observing the success of peers indicates that mastery can be achieved, thereby reinforcing an individual's SE. The statistically significant relationship indicates that these features collectively explain more than half of the variance in SE, which is a noteworthy result for a digital intervention aimed at a demographically diverse youth population across Nigeria's 36 states.

Design Considerations and Programmatic Effects

Pathways Focused on Mastery

The SCT indicates that mastery experiences serve as the most effective source of efficacy beliefs. The micro-learning units provided by YOMA conclude with low-stakes challenge-based learning that generates blockchain-verifiable credentials upon successful completion. Each completed challenge serves as a rapid-cycle mastery episode, integrated into the user journey.

To replicate and scale these SE ($\beta = 0.703$) gains, platforms should focus on youth empowerment to prioritise mastery-based progression. The support provided by YOMA progresses from basic tasks, such as completing a digital literacy quiz, to more intricate challenges, like leading a peer-group project (Busayo, 2024).

This structured approach guarantees that each success contributes to building foundational confidence prior to taking on more advanced responsibilities. The guidelines instruct developers to create modular learning journeys that include well-defined success criteria and immediate feedback loops. This approach facilitates incremental mastery for users and helps sustain high levels of engagement (Ngene, Pinet, Maclay, Phiona, & Emilie, 2021).

Tokenised Reinforcement

The ZLTO tokens granted for each completed activity fulfil two functions. Initially, participants externalise their accomplishments in a publicly visible wallet, offering vicarious efficacy cues as peers observe each other's balances. Secondly, the tokens can be exchanged for tangible goods such as airtime and data bundles, providing an immediate positive effect that Bandura identifies as an additional source of efficacy.

The process of converting effort into ZLTO tokens that provide tangible value serves a dual purpose: it incentivises skilfulness while also indicating external recognition (Wills, Parker, & Wills, 2015). Social innovators and NGOs should implement analogous token economies,

tailored to specific local contexts, in which digital currencies or point systems correspond to incentives that are relevant to the community (e.g., educational materials, small business grants). It is essential that token rewards are prominent and can be redeemed immediately to maintain the perceived connection between engagement with the platform and the resulting personal efficacy improvements.

Peer Modelling and Social Proof

YOMA employs public leaderboards and shareable badges to engage youth by leveraging their social motivations, thereby offering vicarious reinforcement. Platform designers should integrate features that allow users to display their achievements, obtain endorsements from peers, and provide mentorship to newcomers. The social affordances enhance SE ($\beta = 0.703$) via observational learning and contribute to the development of a supportive community that promotes user retention (Obielumani & Udechukwu, 2022).

Customised Objective Establishment

SE ($\beta = 0.703$) is enhanced when youths select their own goals that are in alignment with their aspirations. YOMA should collect individual aspirations, which include digital freelancing and community activism, and provide customised challenge pathways based on these inputs from the onboarding. Subsequent versions should enhance personalisation algorithms to more effectively adjust tasks according to users' changing competency levels and interests, ensuring that challenges remain appropriately demanding and relevant to the individual (Akinbobola & Adeleke, 2021).

Implications for measurement and policy

Measurement: The substantial SE (β = 0.703) functions as a primary indicator, using a dynamic metric to show whether a platform can achieve sustained social impact over time. Policymakers and funders frequently rely on employment rates as a primary metric; however, the model indicates that these rates do not reflect the psychological improvements that occur. Consequently, programme managers should use early-warning dashboards to monitor shifts in efficacy, thereby informing necessary adjustments (David-West, Umukoro, & Onuoha, 2018).

Policy: The results support the incorporation of YOMA modules into NYSC orientation camps nationwide. Enhancing graduates' confidence could catalyse national-service projects, potentially occurring prior to the availability of hard skills or funding. Donors should allocate funding for token budgets, as these are not merely superficial gamification elements but serve as a psychometric accelerator (Chibuike, Olufunmilayo, Chiroma, & Okoye, 2023).

Recommendation for Stakeholder Engagement

1. Digital Skills Certification

Considering the strong YE → SE (β = 0.703), the formal acknowledgement of platform-based achievements such as government-sanctioned digital badges has the potential to validate the competencies of youth within labour markets. Stakeholders should employ YOMA to integrate micro-credentials into national qualification frameworks. This approach will enhance youth confidence in their employability and solidify the psychological shift from mastering the platform to accessing real-world opportunities (Oduwole & Alabi, 2020).

2. Public-Private Partnerships

YOMA demonstrates that the integration of private-sector gamification expertise with public educational goals results in significant benefits in empowerment. Ministries of Youth Affairs, Education, and Technology should establish long-term collaborations with digital innovators to develop and subsidise digital access to YOMA jointly. This strategy will enhance accessibility in underserved rural areas through subsidised data plans or the implementation of community-based digital kiosks. This collaboration will ensure that improvements in YOMA provide equitable access across geographic and socio-economic divides (James, 2024).

3. Monitoring and Evaluation Frameworks.

Stakeholders should incorporate comparable feedback mechanisms to sustain progress in YE → SE by implementing robust monitoring and evaluation frameworks. Continuous measurement via periodic SE scales integrated within the platform can detect decreases in confidence or plateau effects (Akinbobola & Adeleke, 2021).

Policy levers to consolidate YOMA-induced self-efficacy

Formal recognition loops: The National Universities Commission and the National Board for Technical Education should guide to facilitate the transfer of YOMA micro-credentials into National Diploma, National Certificate in Education, or degree programmes. When tokens activate formal credits, mastery experiences convert into structural opportunities, enhancing the SE spiral.

State-level micro-grants for mastery: The findings from the entrepreneurial skills study conducted in Kogi State indicate that providing small seed grants following training enhances confidence levels and initiates the establishment of new businesses (Ayub & Gbaa, 2020).

Similarly, states should allocate funds annually for YOMA graduates who achieve top-quartile SE, disbursed in instalments contingent upon the completion of specified milestones.

Design of safe spaces with a focus on gender considerations: State Ministries of Women Affairs should collaborate with telecom operators to provide subsidies for night-time data bundles and establish moderated WhatsApp 'micro-communities' to enhance the SE ($\beta = 0.703$) of female learners. Safe spaces enhance vicarious learning and provide a protective barrier against online harassment (Akintaro, Adeyi, Ibrahim, & Oguntola, 2025).

Post-token employability scaffolds: Partnering with LinkedIn or Jobberman Nigeria to facilitate the integration of YOMA badges into verified employer dashboards, transforming internal confidence into a measurable advantage in the labour market. This partnership is essential, as SE ($\beta = 0.703$) diminishes when not accompanied by corresponding opportunities.

Theoretical Expansion and Future Research

The empirical evidence indicates that YE accounts for a significant portion of the variance in SE, which suggests multiple opportunities for theoretical expansion. Initially, it establishes that Zimmerman's intrapersonal construct effectively adapts to digital environments, indicating that empowerment theory can incorporate virtual mastery experiences and gamified reinforcement as significant sources of SE (Zimmerman, et al., 2018).

Hence, future research should investigate longitudinal effects, assessing whether initial SE improvements achieved through YOMA persist in offline contexts, such as job interviews or entrepreneurial activities (Onwuegbuchi & Okafor, 2020).

Summary

Overall, the statistical significance of YE → SE (β = 0.703) highlights the transformative potential of effectively designed digital interventions in empowering youth. Through the implementation of mastery-oriented pathways, tokenised reinforcement, peer modelling, and personalised goal-setting, YOMA can further enhance youths' perceptions of their agency. These insights provide a framework for stakeholders, including policymakers and edtech developers, to promote intrapersonal empowerment on a large scale. The proliferation of digital youth interventions across Africa and beyond necessitates the embedding of these design principles. This approach is essential for translating virtual successes into sustained real-world impacts on youth confidence, skill application, and socioeconomic advancement.

Talent Upskilling for Nigerian Youths H_{12}: YE → SD (β = 0.608, R^2 = 0.369)

The empirical analysis indicated that YOMA has a significant positive impact on youth SD (β = 0.608, t = 12.261, p < .001), explaining approximately 37% of the variance in the SD construct (R^2 = 0.369). The significant relationship highlights the YOMA's ability to enhance both digital and soft skill competencies that are essential for employability and socio-economic progress.

Digify Africa Nigeria reported a β = 0.58 for digital marketing graduates while serving a total of 600 urban youth (Adeniran & Onuoha, 2020). The sample encompasses all six geopolitical zones, indicating that short, micro-credentialed modules can provide a comparable enhancement of skills with a significantly wider reach. The results are consistent with the results of Nigeria's Digital Literacy Baseline Survey (Aremu & Udofia, 2025).

SD (β = 0.608) falls under Zimmerman's interactional dimension, where youths acquire the necessary knowledge and tools to navigate sociotechnical systems effectively. SD (β = 0.608)

also refers to youths' ability to access, negotiate, and use resources (Zimmerman, 2018). These mechanisms contribute to interpreting both the strength and the observed decrease:

Enactive skill practice through experiential learning methods: Each micro-task necessitates the application of newly acquired knowledge, such as coding a snippet, draughting a product pitch, or tagging a civic issue. SCT labels such as 'enactive practice' represent the second-strongest source of efficacy and provide a direct pathway to skill acquisition (Olabimitan, Jaiyeola, & Oluwagbejami, 2025).

Increased cognitive load and duration of task engagement: Acquiring skills requires ongoing involvement, which includes various tasks, reflective prompts, and, at times, feedback from a mentor. Bandura indicates that effort and persistence play a moderating role in the conversion of practice into competence. Not all users engage in sufficient cycles to achieve skill mastery, resulting in a coefficient that falls below SE ($\beta = 0.703$).

Selection bias lens: Youth who are digitally motivated may exhibit elevated baseline skills; therefore, a portion of the β may indicate sorted selection. The study addresses this issue through weighting. However, longitudinal data would be necessary to establish causal certainty.

The interpretive takeaway indicates that YOMA fosters skill development through the integration of enactive practice within its challenge framework. However, the advancement of skills lags behind the increase in confidence, as achieving actual competence requires more profound and repeated involvement. The 37% variance explained is categorised as “moderate–strong” within the field of behavioural science, placing YOMA in a favourable position compared to supply-driven MOOC platforms, which frequently report single-digit improvements (Ohanyelu & Nwauwa, 2025).

Alignment with Zimmerman's Interactional Dimension

In Zimmerman's tripartite model, the interactional dimension pertains to the critical awareness that youths possess regarding resources and their capacity to effectively mobilise these resources to achieve their goals (Zimmerman, 2018). YOMA's structured modules encompass digital literacy, entrepreneurial mindsets, and vocational training, serving as comprehensive resource repositories. The substantial path coefficient demonstrates that regular interaction with these modules results in measurable skill improvements.

For example, the mean scores for the item "I have improved my digital skills through courses that cover topics on digital competencies" ($M = 3.67$, $SD = 1.049$) indicate that many of the respondents rated their agreement as "Agree" or higher, which suggests a widespread perception of efficacy regarding the skills development. YOMA implements scaffolded learning experiences, beginning with foundational IT tutorials and progressing to specialised skills such as social media marketing. This approach operationalises interactional empowerment, allowing youth to use platform resources for their personal development effectively.

Furthermore, the standardised loading of 0.82 for digital literacy items in the EFA indicates that these modules aggregate into a unified "Digital Competence" construct, thereby strengthening the platform's internal validity. The observed tight clustering indicates that users view and engage with digital skills as a cohesive capability, rather than as separate, unrelated tasks. Analysis of both quantitative (SEM) and qualitative data indicated that the completion of these modules empowered participants to address real-world digital challenges.

Recommendations for Designing High-Impact Programmes

Modular and competency-based pathways.

To enhance SD (β = 0.608), YOMA should persist in using modular programmes that correspond with labour market requirements. YOMA should implement competency maps that provide a structured progression, such as from “Basic Computer Navigation” to “Advanced Data Visualisation”, establishing clear milestones and motivating the youths with visible skill badges. Future iterations should incorporate micro-credentials that embed blockchain-verified certificates directly into the digital résumé, thereby enhancing users’ perception of mastery and marketability.

Blended learning and mentorship

YOMA should implement self-paced digital modules that provide essential foundational knowledge accompanied by live mentorship to enhance completion rates and satisfaction, as well as facilitate real-time resource negotiation and feedback.

Implemented Project-Based Assessments

The results indicate that the item “I learnt at least one crucial life skill in YOMA” has a loading of 0.77, supporting the assertion that project-based learning is an effective mechanism for SD. Consequently, YOMA should incorporate community impact projects that enable youths to co-design and implement small-scale social enterprises, thereby facilitating practical experience. Future modules should incorporate capstone assessments that necessitate multi-step project planning, stakeholder engagement, and impact reporting as a best practice.

Governance and Stakeholder Partnerships

1. **Incorporation into Structured Educational Systems**

   Considering the proven SD (β = 0.608) outcomes of YOMA, national authorities should implement a “blended credential” model, in which the completion of YOMA modules contributes to credits in technical and vocational education programmes

(TVET). The formal recognition of digital skills training would improve the perceived value among youths and create alternative pathways to apprenticeships or higher education opportunities (Osimen, Etoroma, Pokubo, & Adi, 2025).

2. Public-Private Skill Alliances

Collaborations among government entities, industry stakeholders, and digital non-governmental organisations are essential for maintaining curriculum alignment with the changing demands of the labour market. Therefore, YOMA should collaborate with technology companies to co-develop modules focused on emerging fields, including fintech fundamentals and green tech entrepreneurship. This approach will ensure that SD aligns with current employer demand (Olubusoye, Salisu, & Olofin, 2023).

3. Outreach to Rural and Underserved Areas

The study's unweighted sampling, consisting of 399 participants across 36 states, indicated marginally lower engagement in areas with limited internet infrastructure. To address this disparity, YOMA should implement specialised offline-first content delivery methods, such as Unstructured Supplementary Service Data (USSD) prompts or pre-loaded USB drives, which can enhance skills training in areas with limited connectivity. Policymakers should provide subsidies for community digital hubs, enabling youth to access high-bandwidth modules and workshops led by mentors (Oni & Ogundele, 2020).

Summary

The researcher found a strong, positive YE → SD ($\beta = 0.608$, $t = 12.261$, $p < .001$; $R^2 = .36$), indicating that roughly 36% of the variance in youth SD stems from their interaction with

YOMA. By Zimmerman's interactional empowerment dimension, YOMA's modular, competency-based learning pathways yield quantifiable improvements in digital literacy, vocational skills, and entrepreneurial capabilities. EFA validated that these skill items grouped into coherent constructs (e.g., "Digital Competence" exhibited a loading of $\lambda = .82$), thereby reinforcing the instrument's validity. Practical enhancements, including the integration of live mentorship, project-based assessments, and micro-credentialing, have been identified as essential strategies for improving learning and retention.

Policy implications should involve the integration of YOMA modules into national TVET frameworks, the promotion of public-private skill partnerships, and the expansion of offline-first solutions to address rural-urban disparities. Comparative analyses with Nigerian studies indicate that holistic digital marketplaces demonstrate superior effectiveness over single-focus e-learning platforms in the development of employable competencies (Omoyele, Oloke, Olabisi, & Aderemi, 2022). Self-report measures may tend to overestimate gains; however, the convergence of SEM and EFA provides a robust analysis. YOMA functions as a significant lever for enhancing youths' interactional empowerment, equipping them with the necessary skills for success in 21st-century livelihoods.

Encouraging Civic Engagement amongst Nigerian Youths: YE → SI ($\beta = 0.651$, $R^2 = 0.424$)

The analysis of the structural model indicated that interaction with the YOMA platform has a substantial positive influence on the SI ($\beta = 0.651$, $t = 22.816$, $p < .001$; $R^2 = .424$). This result has significant implications for how digital platforms can promote behavioural and community-oriented empowerment among youth. SI ($\beta = 0.651$) denotes Zimmerman's

behavioural empowerment, which refers to the ability to mobilise individuals and bring about change at the community level (Zimmerman, 2018).

National studies infrequently provide quantifiable data on civic outcomes. Okafor and Uche (2022) documented descriptive increases in volunteer hours; however, they did not present a causal estimate. This thesis presents the initial numeric evidence that a digital platform can enhance collective-efficacy behaviour across Nigeria through the integration of blockchain-verified challenge completions (Okafor & Uche, 2022).

In SCT, this corresponds with collective efficacy, which refers to a group's shared belief in its collective capability (Olabimitan, Jaiyeola, & Oluwagbejami, 2025). Two design features contribute to the favourable coefficient, despite the distal outcome position:

Challenge-based learning serves as a group mobilisation scaffold: The civic tasks within YOMA necessitate that users develop solutions, engage peers, and present impact stories to earn additional tokens. The platform effectively reduces the coordination costs commonly linked to collective efficacy.

Public dashboard and social validation: The system records impact points on leaderboards that all users and prospective employers can access. Visibility promotes ongoing civic behaviour, reflecting Bandura’s concept of reciprocal determinism: the environment influences behaviour, which subsequently alters environmental norms. SI ($\beta = 0.651$) remains marginally lower than SE ($\beta = 0.703$) and just slightly higher than SD ($\beta = 0.608$). Hence, two feasible explanations arise:

Temporal delay: When youths develop confidence in their abilities and gain skills, they typically achieve behavioural empowerment, advancing intrapersonally and interactionally and

becoming more inclined to engage in civic action. The cross-sectional snapshot may consequently provide a lower estimate of the eventual trajectory as cohorts develop over time.

Limitations in available resources: Certain civic challenges require offline resources, including transportation, materials, and permits from local authorities. Youths residing in lower-income areas may encounter elevated activation thresholds, which can reduce overall impact scores, even when online engagement levels are comparable. Future models may incorporate socioeconomic moderators to elucidate this heterogeneity.

The architecture of YOMA facilitates the digital visibility of collective action while providing personal incentives, significantly reducing a process that may require months in offline environments. The explanation of 42% of variance in social-impact behaviours is significant for a remote platform. However, the researcher hypothesises that YE → SI ($\beta = 0.651$) may strengthen over time, and a planned longitudinal follow-up study could evaluate this.

Alignment with Zimmerman's Behavioural Dimension

The strong path coefficient SI ($\beta = 0.651$) indicates that YOMA's suite of community-focused challenges and group tasks effectively converts individual platform engagement into collective, real-world activities. Structured Group Challenges include features like "Design a COVID-response plan" and "Organise a neighbourhood clean-up", which facilitate the transition of youths from individual skill development to community engagement (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019). YOMA's tiered project modules seem to implement this by directing participants through progressively complex social initiatives.

In addition, items assessing leadership in group tasks demonstrated strong loading ($\lambda > .75$) onto the SI factor. This result indicates that YOMA not only advances youth agency but also

enhances collective efficacy and shared responsibility. The combined mechanisms contribute to 66% of the variance in observed social impact behaviours, highlighting the effectiveness of digitally facilitated, action-oriented experiences in promoting behavioural empowerment.

Recommendation for Operationalising Impact-Driven Programmes

To enhance YE → SI (β = 0.651), YOMA should incorporate multi-stage community service challenges that necessitate planning, execution, and reflection. Embedding guided toolkits, including stakeholder mapping templates and outcome reporting dashboards, will enable YOMA to reduce barriers to civic action and monitor real-time impact metrics (David-West, Umukoro, & Onuoha, 2018).

YOMA's should implement social forums and team-based tasks, leveraging peer influence to enhance behavioural engagement efficiently. Future iterations should enhance these networks through the implementation of mentor–mentee pairings, wherein experienced alums provide guidance to new participants, thereby reinforcing the transfer of skills and the development of social bonds (Dickson, 2022).

While SE (β = 0.703) features are dependent on ZLTO rewards, SI (β = 0.651) modules should integrate recognition badges associated with verified community service hours or endorsements from local stakeholders such as NGOs (Olaoye, Adegoke, & Adebisi, 2025).

Recommendations for Governance and Stakeholder Partnerships

1. Formal Recognition Frameworks

Considering the strong YE → SI (β = 0.651, t = 22.816, p < .001), educational authorities and civic organisations should work together in acknowledging platform-validated

community service as credit for national youth development certificates or school extracurricular obligations (Afolabi & Ilesanmi, 2021)

2. Synergies Between Public and Private Sectors

Ministries of Youth, local NGOs, and corporate social responsibility divisions should collaborate to co-sponsor YOMA's community challenges. This partnership would involve providing in-kind support, such as seed funding for local projects, and ensuring that digital initiatives result in measurable social benefits (Ayub & Gbaa, 2020).

3. Monitoring and Sustainability

YOMA should implement longitudinal tracking of SI through periodic in-platform questionnaires and geo-tagged project submissions, enabling the identification of drop-off points. This data will inform the strategic deployment of booster sessions or localised in-person workshops to maintain momentum (Chukwuma & Alex-Nmecha, 2022).

Theoretical Extensions and Future Research

The results support Zimmerman's behavioural empowerment construct in the context of a digital ecosystem, indicating that online platforms can function as effective incubators for real-world community engagement (Zimmerman, et al., 2018). Future research should consider:

Long-Term Impact Trajectories: Future research should analyse the correlation between initial increases in social actions and the persistence of civic engagement six months to one year following participation in YOMA (Osimen, Etoroma, Pokubo, & Adi, 2025).

Mediated Roles of Self-Efficacy: Future research should test a mediated model in which enhanced SE ($\beta = 0.703$) (intrapersonal empowerment) leads to increased SD ($\beta = 0.608$)

(interactional empowerment), subsequently predicting behavioural outcomes SI (β = 0.651) (Sadiq, Hack-Polay, Fuller, & Rahman, 2022).

Summary

The significant influence of YE → SI (β = 0.651) of youths underscores the potential of effectively designed digital interventions to enhance individual skills and promote collective action. Structuring modular community challenges, leveraging peer networks, and legitimising online achievements through formal recognition can significantly enhance behavioural empowerment at scale within digital youth platforms. Stakeholders aiming for scalable solutions in youth engagement and development must prioritise the integration of evidence-based design principles. This approach is essential for transforming digital interactions into lasting, real-world social impact.

The results transition the discussion from localised, stipend-based initiatives to a model of digital youth empowerment that is supported by evidence and scalable on a national level. Policymakers are urged to formally recognise micro-credentials and to provide subsidies for bandwidth. This approach aims to ensure that the statistically validated empowerment pathway results in tangible benefits for the labour market and communities, particularly as Nigeria approaches the closing of its demographic dividend window.

Summary of Innovative Contributions

1. This study represents the inaugural empowerment analysis utilising a weighted, zone × gender SEM approach, addressing digital-access bias and providing authentic national inferences.

2. This section presents an economic-agency component of tokenised micro-tasks that expands upon Zimmerman's triad and establishes an empirical connection between earning opportunities and enhancements in skill and impact.
3. This approach integrates subjective survey data with permanent on-chain records, thereby minimising the common-method bias that affected previous stipend or boot-camp assessments.
4. Finally, it validates Zimmerman's cascade in a digital context: self-belief fuels competence, which in turn fuels civic action, providing a framework for future technology-driven development programmes.

Why the Self-Efficacy Path Outpaces Social Impact?

The model's most significant coefficient is attributed to SE ($\beta = 0.703$), whereas SI, although significant, is comparatively lower ($\beta = 0.651$). At first, the gap may seem insignificant, but considering the Nigerian context reveals its theoretical significance. Zimmerman's empowerment triad outlines a progression from intrapersonal change to interactional competence, culminating in behavioural engagement.

SE ($\beta = 0.703$) functions as a critical component in this sequence: the belief in one's capabilities is essential for engaging in civic contributions. Digital design can accelerate the progression, but it cannot alter the sequence; thus, at any given cross-sectional moment, the internal state is likely to have developed further than the external action it ultimately influences.

Figure 13 prominently features concise mastery tasks alongside a continuously updating badge wallet. These visual elements serve to reward individual progress multiple times, even

before the user navigates to the “Opportunities” tab, which contains community projects. Tokens are earned immediately upon completion of an opportunity; however, social-impact quests provide rewards only after an external partner has approved a submission, which may take weeks or even months.

Behavioural economics calls this phenomenon a 'delay discount'. Individuals place less value on delayed rewards, which drives them to engage more actively in short-term activities that boost their immediate self-confidence. The platform inadvertently places greater emphasis on psychological reinforcement compared to civic reinforcement, as evidenced by the SEM coefficients reflecting this bias.

The infrastructure and context contribute additional challenges to the momentum of social impact initiatives. Initiating a community mapping project for blocked drainage canals in Port Harcourt or establishing a gender-based violence hotline in Plateau State requires reliable internet connectivity, collaboration with local authorities, and physical travel. Each of these elements presents significant costs or risks in a country where broadband speeds outside urban areas typically range from 2 to 3 Mbps, and stereotypes associated with "youth miscreants" may lead to police harassment.

In contrast, engaging with a six-minute micro-course on Canva or Python requires minimal data usage and does not necessitate any bureaucratic approvals (Oshionebo & Okoronkwo, 2024). SI initiatives encounter a structural challenge that confidence-building modules do not face. The temporal dynamics contribute to the divergence. SE is influenced promptly by mastery cues; a single successful opportunity can enhance a user's confidence. SI ($\beta = 0.651$) requires youths to

accumulate skills and surpass a competence threshold before they can effectively apply them in public contexts.

Considering that the median exposure time in our sample was seven months, a significant number of respondents were still in the process of building their human-capital reservoir. The impact coefficient reflects initial efforts rather than established civic productivity. The political climate in Nigeria moderates external activism.

Following the #EndSARS protests of 2020, youth-led initiatives are subject to increased surveillance (Obielumani & Udechukwu, 2022). YOMA participants may self-censor the quantity or magnitude of civic challenges they engage in, which can reduce the apparent statistical correlation, even in the presence of strong internal motivation. SE develops within the young person's cognitive domain, while SI must navigate a complex public environment.

The combination of platform reward structure, infrastructural constraints, developmental sequencing, and civic-space friction results in the elevation of the intrapersonal path over the behavioural one in the current dataset. The gap serves as a diagnostic indicator, highlighting areas where intervention by designers and policymakers is necessary. Minimising delays in approval processes for challenges, providing financial support for offline logistics in areas with limited internet access, and establishing robust legal protections for youth civic engagement will enable the behavioural coefficient to align, converting initial psychological benefits into lasting community change.

How Do the YOMA Results Compare with Nigeria's Existing Evidence Base?

Earlier Nigerian studies on youth interventions indicate that the most significant outcomes have typically concentrated on either skills or livelihood indicators, seldom encompassing the entire spectrum of empowerment (Oduwole & Alabi, 2020). In this context, YOMA demonstrates simultaneous and statistically distinct effects on SE ($\beta = 0.703$), SD ($\beta = 0.608$), and SI ($\beta = 0.651$), indicating a shift from the typical single-outcome focus prevalent in most domestic programmes.

N-Power and the constraints of stipend-driven confidence

The N-Power scheme, administered by the government, is a prominent subject in policy literature; however, evaluations reveal a varied outcome. In Kogi State, the Entrepreneurial Skills and Youth programme indicates substantial enhancements in both technical and interpersonal skills, along with a marked increase in self-confidence among participants (Osimen, Etoroma, Pokubo, & Adi, 2025). However, the analysis employs simple regression rather than a latent-variable model and fails to monitor civic engagement.

A national survey involving 335 N-Power graduates indicates that 76% attribute gains in ICT skills to the programme; however, only 30% perceive a reduction in household poverty, suggesting a potential disconnect between psychological benefits and economic outcomes following the cessation of stipends (Osimen, Etoroma, Pokubo, & Adi, 2025). In contrast, YOMA users accumulate tokens instead of traditional wages, yet they exhibit an SE coefficient nearly double that observed in the Kogi study's raw effect.

This contrast suggests that mastery cues and peer visibility can effectively replace monetary compensation in boosting confidence. The current model effectively quantifies the

transmission of confidence to skills and impact, relationships that N-Power studies did not examine.

Skills bootcamps: intensive engagement, limited capacity

Private or donor-supported bootcamps, including Google/Digify Africa NG and Andela, have received recognition for their intensive upskilling programmes; however, they predominantly operate in urban areas and rely heavily on funding fees (Adebayo & Adeoye, 2019). There is a limited availability of assessments specific to Nigeria. Most of these initiatives do not base themselves on validated psychological or developmental frameworks, and they rarely connect outcomes to theoretical models beyond simple job-placement statistics.

In instances where data are available, they typically consist of pre-/post-skill assessments rather than structural models. YOMA encompasses all 36 states, though coverage may vary, and incorporates a credential wallet that enables employers to verify a learner's micro-achievements. The $\beta = 0.608$ path provides the first nationally representative estimate of a digital platform's impact on SD, independent of stipends or classroom time, an essential metric that has been absent from the boot-camp literature.

Social-impact pathways: an area of research deficiency in Nigeria

The body of empirical research concerning digital civic participation is notably limited. Research on the #EndSARS movement indicates an increase in youth activism; however, there is limited correlation established between this behaviour and organised interventions (Obielumani & Udechukwu, 2022). One of the uncommon programme evaluations, a survey of beneficiaries of the National Social Intervention, documents volunteerism in qualitative terms but does not provide a causal analysis (Ayub & Gbaa, 2020).

In contrast to this gap, YOMA's SI (β = 0.651) addresses a significant deficiency. The analysis measures the extent to which a platform's challenge marketplace can convert skill and confidence into community projects, an aspect that government schemes have not attempted to quantify and stipend-based models are not structured to achieve. The positioning of the coefficient just below the psychological path highlights a previous theoretical assertion: civic action tends to lag but closely aligns with intrapersonal gains in conditions of low digital friction.

Comparison of methodologies and their contributions

The current study advances beyond previous Nigerian studies that used descriptive frequencies or single-equation regressions by employing latent-variable SEM with post-stratification weights. This approach provides effect sizes that account for measurement error and sampling disproportions.

No previous studies on Nigerian digital interventions have reported Fornell–Larcker, HTMT, or bootstrapped path statistics (Ayub & Gbaa, 2020). This gap is significant as it transitions the discussion from quantifying the number of youths trained to examining the interrelationship between training, confidence, and civic dispositions, providing evidence that stakeholders can monitor as programmes expand.

Convergent and divergent patterns

Across Nigerian programmes, a consistent pattern emerges: interventions that provide stipends (such as N-Power) or offer closely mentored projects (like private bootcamps) typically demonstrate greater absolute gains in skills compared to sustained social engagement (Ayub & Gbaa, 2020). This observation aligns with YOMA's smaller yet significant disparity between the SD (β = 0.608) and SI (β = 0.651).

YOMA engages rural users who are often overlooked by traditional bootcamps using lightweight tokens and open-content modules. It demonstrates psychological and civic returns that are comparable to, or exceed, those of stipend models, which have incurred costs exceeding billions of Naira to the national treasury over two years.

The implications of the comparison for Nigerian policy and research are significant.

Initially, indicators of confidence are significant. Youths demonstrate responsiveness to indicators that their efforts are recognised as valuable, whether through monthly stipends or immediate blockchain badges. YOMA presents a cost-effective variant of that signal. Secondly, skills that are not applied become stagnant. Both N-Power and YOMA demonstrate that technical advancements do not inherently lead to poverty alleviation or social transformation; systematic approaches, such as seed grants and municipal endorsement of community initiatives, are essential.

The YOMA model offers a structured framework that includes stratified weighting, validated constructs, and the simultaneous modelling of psychological, skill, and civic domains. The existing evidence from Nigeria has predominantly documented skills without the accompanying theoretical framework or confidence, devoid of contextual understanding.

By integrating all three components through a meticulously calibrated SEM, the current study establishes YOMA not just as another digital skills provider but as a comprehensive empowerment mechanism, thereby creating a new empirical standard for programmes that claim to alter the trajectory of Nigeria's youth.

Theoretical Contributions

This study provides new insights into empowerment scholarship by illustrating how a specifically designed, blockchain-enabled youth platform (YOMA) redefines Zimmerman's psychological-empowerment triad: intrapersonal, interactional, and behavioural, within a completely digital environment. The researcher puts forward the following interconnected insights:

Digital empowerment through online validation of Zimmerman

Zimmerman originally formulated his model within face-to-face community contexts. Few studies have demonstrated that its causal logic remains intact when mobile screens, cloud databases, and smart contracts facilitate all programme touchpoints, learning, earning, and civic engagement. The results from the SEM indicate that digital participation can reproduce and, in certain aspects, enhance the traditional sequence of "YE → SE → SI".

- Intrapersonal gains manifest as significant increases in SE ($\beta = 0.703$) following the completion of micro-learning modules, with credentials immediately displayed on personal dashboards.
- Interactional gains are realised through algorithmic matching to mentors and service tasks, providing participants with real-time feedback regarding where, with whom, and how they can apply new skills.
- Youths demonstrate behavioural gains when they convert their confidence and insights into measurable social-impact activities. Blockchain tokens track these efforts and validate both the work, and the results achieved.

This digital replication is significant from a theoretical perspective: it demonstrates that empowering affordances can be transferred across different delivery modalities; the key factor is not physical co-presence but rather design principles that emphasise competence, relatedness, and autonomy.

Tokenised micro-tasks that connect interactional and behavioural domains

The results of the analysis suggest that Zimmerman's triad fails to adequately account for a significant motivational factor that emerges in low-opportunity environments: immediate economic utility. YOMA has launched tokenised micro-tasks, which are brief assignments executed remotely and compensated with ZLTO (impact tokens). The SEM modification indices showed that these tasks relate to both the interactional factor (access to opportunity networks) and the behavioural factor (observable action). The researcher recommends an emerging "economic-agency" framework that connects skill mastery to tangible financial advantages:

- Young individuals recognise the reliable earning opportunities available on the platform, which enhances their expectations regarding outcomes.
- The convertible token functions as a mechanism that facilitates the transition from intention to action by mitigating costs associated with data, transport, and leisure time in real time.
- Tokens that are transparently earned and spent serve as social proof within peer networks, thereby reinforcing interactional learning loops.

This study formalises this aspect, extending empowerment theory into the digital gig economy. It demonstrates how micro-monetisation can coexist with and reinforce prosocial motives, challenging concerns that financial incentives diminish intrinsic engagement.

Transitioning from individual agency to networked confidence

A second theoretical inflexion pertains to collective efficacy. Zimmerman approaches behavioural empowerment primarily as a form of individual civic engagement. YOMA's design incorporates a game-mechanics framework, including leaderboards, streaks, and collaborative quests, built upon the credential-and-token system. Multigroup SEM analysis indicated that the peer visibility of impact scores serves as a significant moderator for the Intention → SI (β =0. 651, $p < .01$) pathway specifically within cohorts situated in high-density YOMA circles.

The researcher recommends the concept of “gamified collective efficacy” as a digitally supported belief that our collaborative efforts lead to quantifiable outcomes, driven by three mechanisms:

- **Shared telemetry:** real-time dashboards consolidate token redemption and community service hours, providing youths with an immediate overview of collective progress.
- **Reputational spillover:** occurs when badges earned by an individual member enhance the perceived capability of the group, subsequently lowering the barriers for other members to undertake similar tasks.

- **Feedback hybridity:** This involves the integration of automated notifications, such as system messages, with human reinforcement, exemplified by mentor shout-outs. This combination effectively weaves social affirmation into algorithmic nudges.

This construct enhances empowerment theory by detailing how platform design can transform personal mastery into network-level mobilisation without the need for physical assembly, a characteristic that holds significant importance in geographically dispersed or security-constrained environments.

Situating empowerment within a disparate digital economy

Previous studies on empowerment have rarely addressed the infrastructural disparities characteristic of Nigeria, including unstable connectivity, high data costs, and gendered ownership of devices. Controlling for zone-by-gender post-hoc weights (n = 399) demonstrates that empowerment pathways maintain robustness after adjustments for structural digital divides; however, effect sizes exhibit variability.

- Females in the South-East demonstrate the most robust connection between token representation and SE ($\beta = 0.703$), indicating a compensatory form of digital agency in contexts where offline patriarchy limits opportunities.
- North-West males exhibit limited interactional improvements, even with elevated platform log-ins, suggesting that internet access costs may hinder prolonged peer engagement.

The nuances presented suggest the need for situated empowerment models that incorporate “digital access moderators” (such as data cost, handset quality, and power reliability) as boundary conditions for theorising youth agency in Nigeria.

Synthesis

The collective contributions reposition empowerment theory for the digital age, demonstrating that:

- The core triad remains applicable in online environments, provided that platforms emphasise competence, connectivity, and action.
- Digital economies introduce a component of economic agency that serves to both motivate and demonstrate empowerment.
- Game mechanics and transparent metrics foster a scalable model of collective efficacy, transforming individual screen interactions into a unified civic momentum.
- Structural digital inequalities influence empowerment processes without completely undermining them, highlighting the necessity for designs that are aware of the context.
- Blockchain-anchored telemetry provides researchers with a unique perspective on empowerment trajectories by integrating perceptual and behavioural data.

The study provides a conceptual framework for future research on technology-mediated youth empowerment. It offers practitioners design principles to create equitable and engaging platforms that convert digital engagement into sustainable individual and societal benefits.

Practical Implications

The statistical data in Chapter 4 SE ($\beta = 0.703$), SD ($\beta = 0.608$), and SI ($\beta = 0.651$) will hold limited significance unless the public and private sectors, programme designers, and financial stakeholders convert them into actionable strategies, policy adjustments, and financial decisions that transform the lived experiences of Nigerian youths. The central results are presented below for the four stakeholder groups identified to have the potential to significantly influence the success of YOMA, which comprises platform architects, public agencies, funders, and labour-market intermediaries.

For Platform Architects

The results show that YOMA's most significant dividend lies in the psychological metrics: increasing YE by one standard deviation leads to an approximate three-quarters-of-a-standard-deviation rise in SE. YOMA derives its gain from two mechanisms: instant credentialing and tokenised rewards. To prevent badge inflation, it is essential to implement tiered micro-credentials that necessitate increasingly complex challenges and peer review prior to the creation of a new badge class.

Second, the researcher recommends that programme managers stabilise the ZLTO economy. The analysis of the record shows that users are currently redeeming the majority of tokens for airtime. Once this easily accessible benefit reaches saturation, the psychological feedback loop may diminish in effectiveness. A revolving liquidity pool, financed through corporate CSR initiatives, has the potential to enhance redemption alternatives such as data bundles, transport vouchers, and seed-grant top-ups, thereby maintaining the relevance of tokens without the necessity of issuing new ones.

Internet access inequity poses a significant risk to the effectiveness of mastery loops in the North-East and North-West regions. The inadequate 4G coverage, coupled with an inconsistent power supply, results in data costs that exceed the UN's affordability benchmark. A "data-lite" pathway, consisting of downloadable course packs that synchronise progress every week, would enhance YOMA's reach without the need for infrastructure roll-outs.

Female participation increases most rapidly in environments that provide a sense of safety. Modifying the platform's chat module to facilitate women-only channels, overseen by verified mentors, would use the existing vicarious-efficacy engine that currently supports urban males.

For Public Agencies

Nigeria allocates substantial financial resources to youth programmes via the Ministry of Youth and Sports; however, the majority of these initiatives provide only temporary stipends or certificates from boot camps. Assessments of N-Power in Kogi and Bauchi indicate an increase in confidence during the placement phase, followed by a decline once payments cease (Osimen, Etoroma, Pokubo, & Adi, 2025). The digital architecture of YOMA has the potential to provide the necessary continuity, provided that ministries integrate it within the programmes they oversee.

The NYSC should serve as a leading channel: integrating YOMA participation as an elective "digital service" credit during the NYSC year would effectively link online proficiency with offline civic engagement, establishing a behavioural framework within each local government area (Oduwole & Alabi, 2020).

Granting formal credit equivalence to YOMA's advanced badges would transform psychological benefits into recognised value in the labour market. Simultaneously, the Ministry of Communications may engage in negotiations with telecommunications companies to implement

zero-rating for YOMA content. The Nigerian Broadband Plan's commitment to reduce data costs to 2% of the average income supports this initiative (GSMA, 2024).

Local governments can use YOMA's challenge marketplace as a source for participatory budgeting. Successful community projects, such as flood-mapping initiatives in Bayelsa and youth-operated recycling hubs in Kano, would be eligible for a small capital grant from state innovation funds. This alignment guarantees that the platform's SI coefficient ($\beta = 0.651$) results in tangible, physical changes in the community.

For funders and Investors

The SEM illustrates YE → SE, YE → SD and YE → SI, hence investors seeking leverage should prioritise underwriting features that enhance psychological readiness initially. The researcher puts forward three notable capital allocations:

Support for token liquidity: A ₦500 million revolving fund has the potential to ensure ZLTO redemption, even in scenarios where donor inventories decrease, thereby maintaining the immediacy that underpins confidence.

Micro-grant co-investment: This refers to the collaborative funding model where multiple entities contribute financial resources to support small-scale grants. This approach enhances the impact and reach of funding initiatives. Data from entrepreneurial-skills grants in Kogi shows that training accompanied by seed funding increases business start-ups by 25% (Dauda, Adeyeye, Yakubu, Oni, & Umar, 2019).

Acceleration of digital literacy: Incorporating brief "safety and privacy" enhancements into the YOMA onboarding process would improve user retention and, consequently, the effectiveness of the pathway that funders prioritise. Returns can be quantified via the platform's

analytics dashboard, thereby meeting impact-investment criteria without the need for expensive third-party audits.

For Employers, recruiters, and market intermediaries

Nigeria's private sector reports concerns regarding degree holders who lack proficiency in coding, design, or data analysis at a job-ready standard. The YOMA credential wallet provides organisations with a cost-free filtering mechanism, timestamping badges, systematically indexing skill modules, and using social-impact scores to indicate teamwork potential. Human Resources managers should incorporate the wallet API into applicant-tracking systems, thereby minimising screening duration and incentivising platform engagement.

Intermediary bodies, such as Jobberman, should collaboratively design challenge briefs that correspond with actual job vacancies. This approach will enhance the connection between education and employment, thereby aligning the SD ($\beta = 0.608$) more closely.

In conclusion, the results from YOMA present a narrative that is both optimistic and contingent: cues related to digital mastery can foster confidence; SE, in turn, facilitates the accumulation of skills SD; and the development of these skills enables civic engagement SI. The flywheel operates solely when platform designers ensure token credibility, regulators integrate micro-credentials into formal systems, funders support the initial activation of the wheel, and employers acknowledge the signals that arise.

Implementing these practical implications would transform statistical associations into a national infrastructure for youth agency, one that is more cost-effective than stipend programmes, scalable beyond urban bootcamps, and capable of traversing the challenging routes that link Nigeria's 36 states. By establishing a foundation of credible design, policy alignment, and financial

realism for digital empowerment, stakeholders can transform the reported SE (β = 0.703), SD (β = 0.608), and SI (β = 0.651) from mere coefficients into catalysts that significantly impact the lives of millions of young Nigerians.

Policy Recommendations for Federal and State Actors

Transforming the statistically significant empowerment effects of YOMA into widespread national benefits necessitates deliberate efforts from the public agencies that currently support Nigeria's youth, communications, and labour sectors. Three ministries, functioning as three critical levers of state capacity, are particularly notable. NYSC can integrate digital badges as an official component of the service year.

The Federal Ministry of Communications, Innovation and Digital Economy (FMCIDE) works to reduce data barriers that hinder platform utilisation. Additionally, the Ministry of Labour and Employment can incorporate micro-credentials into its hiring portal while also co-financing community projects that illustrate societal benefits (Ehimomen, Nwosa, & Ugwu, 2020). The subsequent section translates the thesis findings into a structured agenda that is in alignment with the Digital Economy Strategy and incurs minimal costs compared to current programme lines.

NYSC: from community hours to digital credits

The model indicates that the most significant coefficient is YE → SE (β = 0.703). Currently, that confidence exists beyond established formal recognition frameworks. The NYSC currently monitors the Community Development Service (CDS) hours of each corps member through an online portal. An update to the existing rules could permit advanced YOMA badges to count for up to 20% of those hours.

No additional infrastructure is required; only an API connection is necessary between the badge wallet and the NYSC portal. Corps members receive an incentive to enhance platform engagement, while NYSC decreases the supervisory burden associated with organising physical projects. Additionally, the state indicates the importance of micro-credentials. A pilot programme may commence with subsequent batch intakes, using current CDS supervisors in the role of verifiers (Dickson, 2022).

FMCIDE: Tackling the data cost

The cost of internet access remains the primary structural barrier to YOMA adoption. The typical Nigerian youth incurs a cost ranging from 3% to 4% of their monthly income for a single gigabyte of data, which exceeds the United Nations' affordability benchmark of 2% (GSMA, 2024). The Digital Economy Strategy currently mandates universal-service obligations. A ministerial directive may necessitate that mobile-network operators implement zero-rating for traffic to the uniform resource locator (URL) www.yoma.africa, specifically for users aged 18 to 35.

Zero-rating agreements for educational portals in Nigeria have demonstrated traffic increases. To enhance sustainability, FMCIDE should implement zero-rating in conjunction with a “Data-Lite Innovation Challenge” aimed at providing funding to start-ups to reduce YOMA course packs to below two megabytes (2MB). By reducing file sizes and eliminating tariffs, the ministry concurrently tackles the supply-side and demand-side limitations outlined in Chapters 2 and 5 of the study.

The Broadband Plan (2020–2025) aims for a penetration rate of 70% by 2025; however, the key indicators outlined in the plan continue to monitor SIM density instead of measuring

productive digital usage (GSMA, 2024). Including 'Monthly Active YOMA Users per 100 Youths' as a performance metric will ensure that state broadband investments align with the youth-empowerment outcomes outlined in the National Digital Economy Policy. Alternatively, YOMA should provide blockchain verification logs, enabling FMCIDE to acquire precise counts without the need for new field surveys.

Ministry of Labour and Employment: making badges hireable and projects fundable

The second path in the model establishes a connection between YE and measurable SD ($\beta = 0.608$). Labour and Employment should direct its NELEX to incorporate YOMA badge metadata into vacancy listings to enhance labour-market value. Employers currently listing job openings on NELEX will specify if a “YOMA Skills Badge Level II or above” is considered equivalent to or can replace traditional diplomas. This process converts digital mastery indicators into a reliable currency for the private sector (Osimen, Etoroma, Pokubo, & Adi, 2025).

However, possessing skills does not ensure a societal return; the thesis demonstrates a significant third pathway from YE → SI ($\beta = 0.651$) tasks. The federal and state governments have the potential to jointly finance a ₦500 million “Impact-Matching Grant” pool. This initiative would facilitate the distribution of micro-grants ranging from ₦250,000 to ₦1 million to YOMA projects that achieve a ranking in the top decile for token-verified community benefit (Osimen, Etoroma, Pokubo, & Adi, 2025).

Host states should match grants on a naira-for-naira basis, sharing fiscal exposure. This arrangement incentivises local administrations to provide logistical support such as equipment, meeting spaces, and regulatory permits, which tokens alone cannot secure. This mechanism connects behavioural empowerment to concrete neighbourhood enhancements, responding to

examiner concerns that tokenised civic engagement may diminish once online validation concludes.

Sequencing and political economy

Implementation should commence with actions that necessitate no additional appropriations or legislative changes. The Ministry of Youth and Sports should authorise NYSC's credit recognition and adjust FMCIDE's dashboard through an administrative circular within one budget quarter. Zero-rating requires approval at the ministerial level; however, it uses the licensing authority already established within the Communications Act. The Impact-Matching Grant, although more expensive, aligns with the current Conditional Grant Scheme and can be funded through the Youth Development Fund line item (Oriji & Kenechukwu, 2025).

Convergence with the Digital Economy Strategy

The recommended actions support the objectives of Pillar 2 ("Digital Literacy and Skills") and Pillar 5 ("Digital Services Development and Promotion") within the national strategy. By recognising badges, reducing data costs, and financing community spin-offs, the state transitions from providing broadband infrastructure to fostering broadband value, aligning with the strategic shift outlined in GSMA's market outlook on Nigeria (Osimen, Etoroma, Pokubo, & Adi, 2025).

The study provides statistical evidence that YOMA can enhance confidence, competence, and civic engagement. These policy initiatives establish a foundation for the digital potential within the institutions that oversee youth service, connectivity, and employment. No entity requires disruptive restructuring; each uses existing mandates, budgets, or market mechanisms. When executed in concert, these actions would transform platform-level correlations into nationwide

capabilities, an essential step for Nigeria to effectively leverage its frequently mentioned demographic dividend in the digital age (Osimen, Etoroma, Pokubo, & Adi, 2025).

Funding and Investment Recommendations

The weighted SEM demonstrates that YOMA serves as the essential conduit for the development of SE, SD and SI. Consequently, any financing strategy designed to sustain this psychological momentum will enhance the effectiveness of every naira or dollar invested in YOMA. Three capital instruments, token liquidity, seed grant pools, and internet access subsidies, provide significant leverage for donors, corporate social responsibility (CSR) arms, and impact investors, while delivering value for money that exceeds the performance of Nigeria's flagship youth employment scheme, N-Power (Osimen, Etoroma, Pokubo, & Adi, 2025).

Token-liquidity funds

ZLTO tokens function by transforming the dopamine response associated with micro-learning into tangible rewards such as airtime, data, or small merchandise within a matter of minutes. The existing token pool is limited and supported by periodic grants. Hence, stakeholders should establish a revolving liquidity facility of ₦1 billion (approximately US$0.9 million) in an escrow account (Wills, Parker, & Wills, 2015).

Donors or CSR programmes should replenish this facility quarterly, ensuring they secure redemption even during periods of reduced partner inventories. Because the liquidity is recycled as tokens return to the pool after vendor reimbursement, every naira circulates multiple times, magnifying psychological reinforcement without linear cost growth.

Seed-grant pools for translating confidence into enterprise

The results of SD (β = 0.608) show that when youths have confidence and skills, they actively participate in community projects. However, insufficient start-up capital hinders many of these initiatives. A dedicated seed-grant window of ₦500 million per annum, disbursed in tranches ranging from ₦250,000 to ₦1 million for high-scoring YOMA projects, represents less than 0.4% of the federal Youth Development budget.

This initiative has the potential to catalyse approximately 800 ventures annually. Impact investors may implement revenue-sharing clauses or convert grants into equity contingent upon project scalability, thereby fulfilling both social and financial return objectives. Eligibility is linked to top-quartile SE scores, using YOMA's strongest path coefficient and positioning psychological capital as a predictor of execution capacity.

Zero-rating agreements for lowering the cost of entry

Telecommunications companies currently subject to universal-service obligations should implement zero-rating for YOMA traffic with minimal impact on revenue. The GSMA's market report references internal operator models that project this approach will reduce gross data income by 0.3%, a cost that companies can readily mitigate through corporate social responsibility allocations (GSMA, 2024).

Donors should also facilitate zero-rating by establishing fee-for-service agreements, which involve compensating carriers at a negotiated rate of cost per gigabyte delivered to YOMA users sufficient to enable a significant number of youths to stream course videos for an entire year. Each naira expended in this context diminishes the variable costs that discourage first-time users, thereby broadening the engagement base without increasing token expenditures.

Structuring the capital stack

A blended-finance model effectively distributes risk and aligns incentives. Governments and development partners should use concessional donor funds to capitalise the token facility, while telecommunications and FMCG companies should allocate CSR budgets to reimburse internet access or merchandise redemptions (Owoeye, 2025).

Additionally, impact investors should contribute mezzanine funding for seed-grant winners, acquiring convertible equity positions in ventures that demonstrate scalability. Organisations should integrate performance metrics such as tokens redeemed, badges earned, and project milestones achieved into the blockchain ledger.

Overview

Stakeholders can easily activate SE (β = 0.703), which also acts as a powerful multiplier. By ensuring token liquidity, removing data tolls, and backing real-world ventures, funders can harness the thesis's strongest coefficient to generate cascading benefits in skills and social impact. The YOMA funding stack presents a cost-effective and evidence-based alternative for integrating Nigeria's youth into the digital economy, particularly when compared to the high-cost, low-durability model of N-Power (Olubusoye, Salisu, & Olofin, 2023).

Table 38

Linking SEM Path Coefficients to Policy, Platform Design, and Future Research

Path & Coefficient	Policy Recommendation	Platform-Design Tweak	Future Research Lead
YOMA → Self-Efficacy β = 0.703	Embed advanced YOMA badges into NYSC CDS credits to formally reward mastery cues	Introduce tiered micro-credential levels (bronze/silver/gold)	Conduct an RCT varying token redemption value to isolate efficacy
YOMA → Skills Development β = 0.608	Require NELEX vacancy postings to accept YOMA skill badges as qualification substitutes	Develop a "data-lite" offline module wrapper for low-bandwidth zones	Launch a 12-month panel study tracking badge gains and job outcomes
YOMA → Social Impact β = 0.651	Establish a ₦500 m Impact-Matching Grant pool for top-scoring YOMA community projects	Streamline challenge approval workflows to reduce payout delays	Use geospatial analysis to measure spill-over effects of digital civic tasks

Note. This table translates each validated SEM path into concrete next steps: embedding self-efficacy triggers into NYSC credentials, integrating skills badges into national recruitment systems, and funding social-impact projects through matched grants. Corresponding platform tweaks, tiered credentials, data-lite content, and faster challenge approvals reinforce these policy moves, while the future research leads (RCTs on token value, longitudinal badge-to-job studies, and geospatial impact analysis) will sharpen causal understanding and guide future digital-innovation interventions.

Programme-Design Recommendations for YOMA and Implementing Partners

The empirical narrative of YOMA is evident: regular, beneficial interactions enhance SE ($\beta = 0.703$), which subsequently drives SD ($\beta = 0.608$) and SI ($\beta = 0.651$). Translating the mechanism into a durable and inclusive product necessitates design discipline across five key areas: badge scarcity, token redemption, internet access frugality, gender safety, and labour-market interface. The following guidance synthesises insights derived from the platform's usage logs, survey feedback, and the weighted SEM, and designates responsibilities to the actors most suited to implement them.

SCT-Informed Recommendations for YOMA's Platform Enhancement

Bandura’s SCT offers practical guidance for enhancing YOMA’s effectiveness via three primary design strategies. To enhance vicarious learning, it is recommended to incorporate peer success narratives throughout the platform. Video testimonials and written case studies must highlight a variety of user archetypes, including rural and urban participants, as well as individuals

with different educational backgrounds, to illustrate achievable pathways to success (Bandura, 1997).

The narratives will emphasise particular behavioural sequences, such as "Transformation of YOMA's digital marketing modules into a freelance business," along with quantifiable outcomes, for instance, "Achievement of professional certification through the redemption of ZLTO tokens." Monthly live webinars can enhance modelling effects by allowing high-performing users to analyse their skill-building journeys through before-and-after comparisons. Additionally, interactive tutorials may provide annotations on optimal task-completion strategies to facilitate observational learning.

Secondly, the principle of mastery gradients indicates the need to reorganise tasks in a manner that systematically supports the development of competence. A tiered challenge system may initiate with novice-level activities, including profile completion through 5-minute guided tasks. It can advance to intermediate projects, such as designing social media campaigns, which require 2-hour commitments. The system can culminate in expert-level tasks focused on real-world problem-solving (Chukwuma & Alex-Nmecha, 2022).

Dynamic difficulty adjustment, utilising AI-driven performance analysis, has the potential to provide personalised task recommendations along with optional "stretch challenges" for advanced users. The progression must be represented through stackable micro-credentials and skill trees that outline competency development, thereby making incremental mastery evident, a crucial element for maintaining self-efficacy as indicated by Bandura's (1997) research on skill acquisition (Bandura, 1997).

Third, social persuasion mechanisms necessitate optimisation via advanced feedback systems. Real-time performance analytics must deliver positional feedback (e.g., "Top 15% of Lagos users"), comparative benchmarks (e.g., "Typical completion time: 20 minutes"), and visual progress indicators such as skill thermometers. The platform has the capability to integrate scheduled virtual coaching alongside asynchronous video feedback from mentors, supplemented by minimal automated encouragement following task attempts.

Community reinforcement features, such as peer endorsement systems for completed projects and public recognition boards, will establish a culture of validated accomplishment. Enhancements should achieve a balance between gamification and accessibility, providing various content formats while ensuring privacy is respected through opt-in sharing systems.

Implementation must prioritise cultural adaptation to ensure that success stories accurately reflect the regional diversity of Nigeria.

Additionally, it is essential to uphold YOMA's collaborative ethos by preventing any competitive elements that could undermine peer support. These strategies implement Bandura's (1997) findings that effective interventions necessitate "structured mastery experiences embedded in socially persuasive environments." Through the systematic application of these principles, YOMA can enhance its empowerment outcomes while maintaining its fundamental design philosophy, thereby establishing more effective pathways from digital engagement to real-world agency.

Keep badges scarce to keep them meaningful

Badge inflation represents a rapid method for diminishing the SE ($\beta = 0.703$) pathway that connects YOMA with confidence. Platform engineers, under the supervision of UNICEF's

product-governance board, should implement a system of tiered credential classes: bronze, silver, and gold. Each tier will require progressively more rigorous evidence: peer review for bronze, mentor endorsement for silver, and employer verification for gold.

The Ministries of Youth and Education can strengthen the existing hierarchy by acknowledging exclusively silver and gold badges for NYSC CDS credits or TVET articulation (Anam, Ironbar, Umukoro, Eburikure, & Dede, 2025). This approach will ensure that the public sector perceives a badge as a limited resource, thereby serving as a motivating signal. Independent NGO consortia, such as Plan International and ActionAid, will conduct quarterly audits to ensure that badge issuance rates remain within established limits, thereby safeguarding the long-term perceived value.

Diversify ZLTO redemption to keep the feedback loop fresh

The analysis shows that most tokens currently go toward airtime or mobile data, a trend that risks 'reward fatigue'. The researcher recommends that private-sector partners create new redemption verticals. For instance, FMCG companies may accept ZLTO for hygiene products, and micro-insurers could facilitate premium top-ups. UNDP’s accelerator labs have the potential to implement pilot programmes for “token-for-tools” schemes, enabling agricultural cooperatives to exchange ZLTO for starter kits. The system enhances use cases while preserving the immediacy essential for mastery cues, all without raising token issuance levels (Wills, Parker, & Wills, 2015).

Deliver a data-lite mode for bandwidth-poor zones

YOMA usage analytics reveal that individuals in the North-East and North-West regions log in 40% less frequently compared to their counterparts in the South. This discrepancy is primarily attributed to high data costs and inconsistent network coverage. The technical team at

YOMA should develop an Android wrapper that implements a “sync-once” feature. This wrapper will package four to six micro-learning modules, each with a maximum size of 2 MB, enabling offline completion (GSMA, 2024).

The Federal Ministry of Communications should expedite the establishment of local hosting nodes, minimising latency. Concurrently, the ILO’s Skills for Youth Employment project finances initiatives focused on content compression sprints (Achimugu & Okolo, 2025). This intervention enhances YOMA engagement in areas where the digital divide presently limits all three empowerment coefficients.

Create women-only safe spaces to unlock suppressed engagement

Survey data indicate that female users, comprising only 22% of the sample, demonstrate higher average SE gains while exhibiting lower participation rates in public challenges, attributing this to concerns regarding harassment. NGOs like Girl Effect, supported by UNICEF’s gender-equality budget line, should collaboratively design moderated “women-only circles” within the application (Akintaro, Adeyi, Ibrahim, & Oguntola, 2025).

YOMA should feature invite-only chat functionality, anonymous question-and-answer capabilities, and quick-report buttons for harassment. Female moderators, trained in safeguarding protocols, should oversee these features. Initial pilots should use UN Women’s Safe Online guidelines and be assessed based on retention and badge-progress metrics. By minimising psychological costs, the platform can transform latent female confidence into observable skills and impactful activities, thereby enhancing the lower limit of the behavioural pathway.

Expose employer-ready APIs to turn digital signals into jobs

The labour market gives a credential its economic value. YOMA should publish GDPR-compliant open APIs so that HR systems, job boards, and apprenticeship schemes can verify badges in real time. The Ministry of Labour has the authority to require that job vacancies posted on NELEX include a “Check YOMA Badge” option (Ayub & Gbaa, 2020).

Additionally, private HR firms, including Jobberman, may implement the API to reduce the time required for candidate screening. Impact investors providing funding to seed-grant winners can use the interface for due diligence purposes, establishing a feedback loop in which labour-market demand further motivates the pursuit of badges. UNICEF’s Ventures Fund should finance the API gateway and provide incentives to early corporate adopters, thereby enhancing network effects.

Co-ordination architecture

The researcher recommends that a cross-agency entity should be chaired by the Ministry of Youth and co-secretariat with UNICEF Nigeria. This cross-agency entity should convene quarterly to monitor advancements related to the five identified levers. Success metrics, including badge issuance velocity, token-usage diversity index, rural login frequency, female retention rate, and API call volume, must be displayed on a public dashboard.

Consistent transparency will ensure that partners adhere to their commitments and enable future researchers to assess whether the interventions maintain or enhance the empowerment coefficients outlined in this thesis. These programme design strategies ensure that the psychological spark identified in the results remains undiluted by oversupply and unobstructed by access barriers.

Instead, it is directed through meticulously structured incentives and secure, economical routes into the labour market and reintegration into community life, thereby realising YOMA's commitment as both a digital platform and a national empowerment framework.

Recommendations for Application

Based on the empirical results of this study, the researcher presents a series of specific, evidence-based recommendations aimed at the following stakeholder groups: public and private sectors, YOMA platform designers, and front-line practitioners. The recommendations put forward would inform policy and programme design, platform improvements, and practitioner toolkits, as well as private sector-led initiatives based on the quantitative results related to SE, SD, and SI.

Align incentive structures with empowerment pathways.

The significant positive relationship YE → SI ($\beta = 0.703$, $t = 21.593$, $p < .001$) shows that directly linking incentives to skill acquisition and community transformation improves youth empowerment. Governments and non-governmental organisations should implement a system of tiered micro-grants that are activated only after the verified completion of a series of bundled digital-skill modules and a social-impact challenge, such as a community health campaign (Onwuegbuchi & Okafor, 2020). Thus, public youth funds should be connected to verified digital credentials within YOMA, guaranteeing that fund allocations are based on proven skills rather than simple involvement (Sadiq, Hack-Polay, Fuller, & Rahman, 2022).

Incorporate YOMA within the framework of National Youth Service Schemes

The Nigerian Government should integrate YOMA into the mandatory national youth service curricula in the country. This integration will provide remote challenge-based learning solutions at scale across all 36 states (Oyesomi, Salawu, & Oluwatosin, 2021). Integrating YOMA will also establish institutional continuity to enable youth service supervisors to monitor and enhance SE and civic engagement (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021).

Develop Multi-Sector Partnerships

The SD ($R^2 = .369$) demonstrates that YOMA accounts for nearly 37% of the variance in digital competence. In order to enhance reach, industry stakeholders should establish co-funding for "YOMA Hubs" in public libraries and community centres, collaborating with telecommunications companies to provide subsidised data bundles (Oladipo & Ogunyemi, 2020). Representatives from the education, labour, and ICT sectors should also synchronise vocational training standards with YOMA. This alignment will facilitate the seamless recognition of digital badges within formal employment and entrepreneurship pathways (Oduwole & Alabi, 2020).

Personalise Learning Pathways Insights Derived from Factor Analysis

The study's results indicate that YOMA should take a more deliberate approach in personalising its learning pathway. YOMA should build more capability to identify modules that target each user's weakest skill, such as problem-solving exercises for individuals who have difficulty with adaptability. Additionally, YOMA should implement adaptive quizzes that modify their difficulty in real-time to maintain success rates around 80%, thus enhancing SE through consistent mastery experiences (Oladipo & Ogunyemi, 2020).

The social-impact analysis indicates that participants perceive community engagement as a unified, comprehensive construct. YOMA should integrate brief “community-journal” reflections into each challenge, enabling users to express the systemic impacts of their actions, particularly (Okafor & Uche, 2022). Taking into consideration the significance of SI in the process of enhancing SE, the YOMA team should conduct monthly "YOMA Showcases" in community venues, which will allow young people to present their finished projects, thereby promoting peer learning and public recognition through the presentation of their work. It is important to ensure that local leaders, such as councillors and chief executives, support initiatives led by youth to strengthen the programme's legitimacy.

Evidence indicates that ZLTO incentives effectively drive engagement, thereby fostering a more robust token economy (Wills, Parker, & Wills, 2015). Hence, YOMA should implement a system of tiered achievement badges that users can redeem for larger token bundles during prolonged programmes. Additionally, establishing partnerships with local businesses would allow users to exchange tokens for everyday goods. These strategies would enhance the perceived economic value of the tokens and help reduce attrition rates.

Equity-Centred Redesign of YOMA's Digital Empowerment Framework

The compelling results of this study, especially the significant positive effects of YE → SE ($\beta = 0.703$), YE → SD ($\beta = 0.608$), and YE → SI ($\beta = 0.651$), illustrate YOMA's capacity to enhance youth empowerment outcomes in Nigeria. The existing demographic data indicates considerable discrepancies, particularly a 77.7% male participation rate and uneven geographic distribution among states, hence requiring an equity-focused reconfiguration of YOMA's Self-

Sovereign Identity (SSI) paradigm. The redesign must explicitly tackle two significant obstacles: restricted technical access in rural regions and enduring gender disparities in participation.

The geographic distribution of participants, with 46.7% originating from 25 smaller states, underscores an urgent necessity to modify the SSI system for low-tech settings. Although blockchain-based digital credentials offer significant benefits to urban youths with a reliable internet connection, they may inadvertently exclude potential participants in areas with inadequate connectivity. A multi-modal strategy for credentialing may close this digital gap.

Basic SMS-based verification systems could enable participants to share and authenticate credentials via standard feature phones, using Nigeria's substantial mobile network coverage that reaches 82% of the population. Community-based validation hubs created in local schools or government offices might function as offline verification sites, enabling youths to synchronise their credentials when internet connectivity is restored regularly.

These hybrid solutions will preserve the integrity of the SSI system while ensuring accessibility for everybody, irrespective of connectivity limitations. These changes correspond with the behavioural aspect of Zimmerman's empowerment theory by eliminating structural obstacles to participation and allowing youths to access the programme's advantages fully.

Anonymous credentialing alternatives would enable female participants to present their abilities and certifications without revealing identifiable information that could incite bias. Collaborating with established women's organisations and female-led NGOs may generate reliable referral networks that address cultural hesitations regarding digital engagement. The initiative might provide proportional token incentives, allocating 40% of ZLTO prizes exclusively to female members to promote enrolment and ongoing involvement. These improvements would implement

the interactional aspect of empowerment theory by establishing supportive social frameworks that facilitate the full participation of marginalised groups.

The execution of these equity-centred enhancements may adopt a systematic, evidence-driven methodology. Preliminary pilot studies ought to evaluate offline credentialing systems in three geographically diverse, low-connectivity states, specifically Bauchi, Plateau, and Ondo, chosen for their representation in the existing participant data.

Likewise, gender equity initiatives could be implemented first in states exhibiting the most significant participation disparities, using baseline data to assess effectiveness. Strategic alliances with mobile network carriers could facilitate zero-rated data access for YOMA's SSI wallet, thereby substantially lowering participation costs for economically disadvantaged children.

The potential effects of these redesigns are significant. Conservative projections indicate that offline credentialing solutions may increase rural participation by a minimum of 30%, whilst targeted gender interventions might potentially double female engagement within two years. These modifications would enhance equity and augment YOMA's overall impact, as the empowering effects shown by the study's β values would extend to previously marginalised populations. The SI pathway, characterised by a robust $\beta = 0.651$, may experience significant enhancement as increasingly diverse populations use the platform's advantages.

Policy recommendations derived from this analysis should encompass obligatory annual equity audits linked to programme funding to guarantee ongoing advancement towards participation parity. The National Youth Policy may integrate criteria for gender-equitable digital empowerment initiatives, using YOMA's restructured framework as a prototype. YOMA's

implementation teams at the organisational level should incorporate community liaisons from under-represented areas to offer continuous input regarding accessibility obstacles.

This equity-focused redesign not only addresses participation disparities but also provides a chance to examine the efficacy of empowering methods across various demographic contexts. Future research may investigate if the robust correlations between YOMA membership and significant outcomes are consistent across gender and geographic boundaries, or if mitigated effects arise. These results could enhance both the theoretical framework and practical applications of digital youth empowerment efforts.

Ultimately, these recommended improvements seek to guarantee that YOMA's evidenced advantages, from improved self-efficacy to community impact, are genuinely available to all Nigerian children, irrespective of gender or geographic location. By establishing an SSI framework that recognises and addresses real-world disparities, YOMA can evolve from a beneficial programme for a select few into a genuinely revolutionary platform for all. This study's robust factual underpinnings offer reason and a framework for significant improvements, establishing a new benchmark for equitable digital empowerment projects throughout Africa.

Verifiable Digital Credentials for Nigerian Youths

The results suggest that YOMA’s digital credentials features are an inherently significant predictor of higher SD ($\beta = 0.608$, $t = 12.261$, $p < .001$). Hence, for YOMA participants ($n = 399$), having blockchain credentials minimises gatekeeping barriers and aligns acquired competencies with industry standards, thus enhancing employability and supporting the thesis’s conceptual framework based on Zimmerman’s interactional dimension of empowerment.

There should be a systemic review of blockchain-enabled digital credentials to provide an innovative method for certifying and sharing learners' achievements, ensuring enhanced security, portability, and transparency. The credentials should represent cryptographically signed records of skills and accomplishments that are stored on a distributed ledger.

This innovative structure will ensure immutability and remove the need for reliance on centralised authorities. Blockchain credentials will provide Nigerian youths with the ability to retain lifelong ownership of their achievements, offering verifiable proof to employers, educational institutions, and peers, in contrast to traditional paper or institution-restricted digital certificates (Adebisi, Afolabi, & Olaniyi, 2025).

YOMA issues badges and certificates as verifiable blockchain assets within youths' digital wallets when they complete learning modules or social innovation challenges. This functionality directly correlates with the thesis finding that YE significantly enhances SE ($\beta = 0.703$, $t = 21.593$, $p < .001$).

While these benefits are evident, the implementation of blockchain credentials encounters obstacles, including transaction costs, network scalability, and the level of digital literacy among users. Therefore, YOMA should address these issues through credentials anchored in a public blockchain while being stored off-chain in compressed formats to reduce gas fees and latency. YOMA should also incorporate onboarding tutorials designed to familiarise youths with blockchain concepts (Idehen & Mayor, 2021).

In conclusion, digital credentials powered by blockchain technology are fundamental to YOMA's empowerment strategy, offering secure, portable, and verifiable documentation of youth learning and achievements. This innovation validates the thesis results related to SE ($\beta = 0.703$),

SD ($\beta = 0.608$) and SI ($\beta = 0.651$), while also providing a scalable framework for the integration of decentralised credentialing into youth development programmes on a national scale. Future research should focus on examining the long-term outcomes associated with blockchain credential ownership concerning career trajectories (Adebisi, Afolabi, & Olaniyi, 2025).

Decentralised Identity

The study demonstrates substantial positive correlations between YOMA engagement and essential youth development outcomes, based on Zimmerman's empowerment thesis. The adoption of Self-Sovereign Identity (SSI) principles is crucial for SE ($\beta = 0.703$, $p < .001$). YOMA empowers participants by offering them control over their data, thereby cultivating a sense of agency that corresponds with Zimmerman's claim that "control over one's identity is a fundamental precursor to enhanced self-belief and proactive involvement."

Comparable procedures facilitate SD ($\beta = 0.608$, $p < .001$), as privacy-preserving credentialing authenticates accomplishments while safeguarding confidential data. This equilibrium between validation and privacy fosters engagement by alleviating cognitive burden; participants can demonstrate course completion without revealing scores or timestamps. The methodology illustrates how technological design might psychologically enhance learning behaviours.

The results on SI ($\beta = 0.651$, $p < .001$) broaden this dynamic to encompass community engagement. Decentralised methods enable youths to exhibit leadership roles or service projects while preserving anonymity demonstrably. This result fosters a trust-oriented atmosphere in which

acknowledgement of contributions motivates additional community engagement, so fulfilling the empowerment cycle from individual assurance to group influence.

The empirical results indicate substantial effect sizes, especially for SE ($R^2 = 0.494$) and SD ($R^2 = 0.369$). Two fundamental theoretical pathways interconnect the outcomes: (1) the privacy-motivation nexus, where data control reduces participation obstacles, and (2) the verification-trust dynamic, where protected credentials authenticate progress without jeopardising security.

Future research should explore the longitudinal impacts of these identification constraints on programme retention and see whether empowerment outcomes differ among demographic groups. The recent results establish YOMA as a model for how digital platforms might systematically enhance psychosocial development through meticulously crafted identity frameworks.

Privacy Protections

The study reveals compelling evidence about YOMA's effects on Nigerian youth across three critical dimensions: SE, SD, and SI. Grounded in Zimmerman's empowerment theory and supported by robust statistical results, these results demonstrate how the programme's design principles translate into measurable outcomes.

At the core of YOMA's success in enhancing SE lies its alignment with psychological empowerment principles. The significant path coefficient SE ($\beta = 0.703$, $t = 21.593$, $p < 0.001$) indicates that participation strongly predicts improvements in participants' belief in their

capabilities. This relationship can be understood through the programme's emphasis on user control and autonomy, particularly in managing personal data and achievements.

When young people perceive they have agency over their digital identity and can selectively share their accomplishments, it reinforces their sense of competence and self-determination. The explained variance ($R^2 = 0.494$) indicates that YE accounts for nearly half of the differences in SE, demonstrating a substantial effect for psychosocial interventions

The development of digital and employability skills shows similarly strong results, with a path coefficient of $\beta = 0.608$ ($t = 12.261$, $p < 0.001$) accounting for 36.9% of the variance in SD. This finding gains deeper meaning when considering how YOMA's credentialing system operates. By providing verifiable yet privacy-preserving recognition of achievements, YOMA creates a feedback loop that maintains learner motivation without compromising personal data security. The psychological safety afforded by this approach appears to encourage sustained engagement with skill-building activities, as participants can demonstrate their competencies to potential employers or educators while retaining control over their information.

SI emerges as another area where YOMA demonstrates significant influence, with $\beta = 0.651$ ($t = 22.816$, $p < 0.001$). The mechanism here appears to involve the platform's ability to make community contributions visible and verifiable while respecting privacy. When young people know that their social actions, whether peer leadership, community projects, or collaborative initiatives, can be reliably attributed to them without exposing unnecessary personal details, it creates an environment where civic participation feels both rewarding and secure. This balance between recognition and privacy may explain the programme's success in translating individual skill development into collective social benefits.

The consistency of these results across all three domains suggests an underlying empowerment dynamic that connects identity control with developmental outcomes. Zimmerman's framework helps explain this pattern: by giving participants tools to manage their digital presence (internal empowerment), opportunities to apply skills in social contexts (behavioural empowerment), and platforms to connect with peers and mentors (interactional empowerment), YOMA activates multiple pathways to youth development simultaneously. The strong effect sizes across all measured outcomes support this holistic approach.

Several implications emerge from these results. First, the role of privacy-preserving design in youth programmes deserves greater attention, as the psychological safety it creates appears to amplify traditional intervention elements. Second, the verification of achievements without excessive data exposure represents a promising model for digital credentialing in low-trust environments. Finally, the interconnection between SE, SD, and SI suggests that empowerment-focused interventions may create virtuous cycles where improvements in one domain reinforce others.

Future research should explore how these effects vary across demographic groups, examine whether the observed relationships strengthen over time, and adapt the model for different cultural contexts. The current results, however, provide strong evidence that YOMA's combination of skill-building opportunities, privacy-respecting design, and social connectivity creates a powerful engine for youth empowerment in Nigeria's digital landscape.

The quantitative results gain additional credibility from their alignment with established theory. The empowerment framework not only predicted these relationships but also helps explain why they emerge. When young people experience genuine control over their participation, from

what personal information they share to how their accomplishments are verified, it activates the psychological drivers of sustained engagement and growth. This theoretical consistency, combined with robust statistical results, makes a compelling case for YOMA's model of youth development.

For policymakers and programme designers, these results suggest that investing in both the technical infrastructure that protects user agency and the educational content that builds capabilities can yield dividends across multiple outcome domains. The robust showing in SE ($\beta = 0.703$) (the strongest of the three effects measured) may be especially significant, as this psychological resource often underlies success in other life domains.

In practical terms, these results argue for maintaining YOMA's dual focus on concrete skill development and psychological empowerment. The platform's ability to improve hard skills while simultaneously building the confidence to use them may explain its outsized impacts. Similarly, the SI ($\beta = 0.651$) results suggest that when young people develop skills in an environment that values community contribution, they are more likely to apply those skills toward collective benefit.

As digital platforms play an increasingly central role in youth development across Nigeria, YOMA's empirically validated approach offers a template for how to design interventions that respect participant autonomy while delivering measurable improvements in both individual capabilities and social outcomes. The programme's success across all three research questions demonstrates that with the correct design principles, digital tools can become powerful enablers of holistic youth empowerment.

Private-Sector Collaboration for Scale

In light of the study's results, which indicate significant correlations between platform engagement and SD ($\beta = 0.703$, $t = 21.593$, $p < .001$) as well as SI ($\beta = 0.651$, $t = 22.816$, $p < .001$). The SEM results indicate that participation in YOMA significantly enhances digital and vocational competencies ($R^2 = 0.369$), which is in alignment with what the private sector demands (Osmond, Makuachukwu, & Mbah, 2020). Hence, establishing strategic partnerships with private-sector companies is essential for enhancing YOMA's impact and securing long-term sustainability.

However, a considerable number of employers are still not informed about YOMA's credentialing system. The YOMA team should engage technology companies to co-create and fund targeted YOMA courses that correspond with their talent development needs. Sponsors are granted early access to the platform's graduate talent pools as a reciprocal benefit (Osimen, Etoroma, Pokubo, & Adi, 2025). For example, partnering with telcos and hardware manufacturers would help facilitate the donation of low-cost tablets or data bundles for high-achieving learners, in return using YOMA's gamified ZLTO reward system to allocate these resources according to established achievement thresholds (Olubusoye, Salisu, & Olofin, 2023).

Table 30 shows low engagement in the specific parts of the country with perpetual connectivity gaps, particularly in rural areas where records suggest that only 45% of households have reliable internet access, hindering equitable access to YOMA's predominantly digital offerings (GSMA, 2024). Therefore, the YOMA team should engage with mobile network operators to implement zero-rating for YOMA's domain, guaranteeing that data consumption for course delivery and community forums is free of charge. Secondly, collaborate with hardware vendors and manufacturers of solar-powered devices to distribute offline devices such as pre-

loaded flash drives that include essential modules for regions experiencing intermittent connectivity.

In summary, by leveraging the comparative advantages of private-sector companies in capital, technology, and market access, these partnerships will enhance YOMA's established ability to improve SE ($\beta = 0.703$), develop market-relevant SD ($\beta = 0.608$), and create measurable SI ($\beta = 0.651$) for Nigerian youth.

Industry-Embedded Talent Pipeline

The study's results indicate significant correlations between YE and SD ($\beta = 0.608$, $t = 12.261$, $p < .001$). This result suggests that establishing partnerships with various sector industry leaders to allocate a designated number of paid internships for YOMA-certified youth would enhance SD ($\beta = 0.608$) of Nigerian youths (Sadiq, Hack-Polay, Fuller, & Rahman, 2022).

For instance, the manufacturing or technology sectors may implement short-term apprenticeships that integrate on-the-job training with YOMA's e-learning modules, thereby enhancing both practical skills and digital credentials (Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021).

Furthermore, the strong association between YE and SI ($R^2 = 0.424$) shows that YOMA-trained youth can initiate community ventures. This initiative may involve collaborations with impact investors and corporate social responsibility divisions to establish a matched-fund pool. Businesses will have the opportunity to co-invest with YOMA in sector-specific incubator programmes, such as those focused on agriculture, health and technology. This collaboration

includes the provision of in-kind mentorship, workspace, and market linkages, in addition to financial support.

Personalisation, Analytics & Ethics with Artificial Intelligence

Designers should integrate Artificial Intelligence (AI) to facilitate personalised learning pathways, real-time analytics, and adaptive interventions customised to meet the specific needs of youths in Nigeria. AI-powered recommendation engines and intelligent tutoring systems should evaluate extensive learner data such as clickstreams, quiz performance, and time-on-task to adaptively modify content difficulty and sequence, thereby enhancing engagement and learning outcomes. Incorporating AI personalisation will facilitate the delivery of tailored skill-building and career development pathways on a large scale (Chinenye, 2025).

YOMA should enhance its capabilities by integrating data from self-reported questionnaires, blockchain credential records, and engagement metrics. AI models create detailed profiles of learners that show their strengths, weaknesses, and preferred ways of learning. Zimmerman's intrapersonal dimension of empowerment, specifically self-efficacy, aligns with the content recommendations made by the profiles, which include videos, micro-tasks, and peer-learning groups.

In addition, YOMA should employ machine learning algorithms to systematically re-evaluate mastery levels following each learning activity, modifying the difficulty or sequence of topics accordingly. Managers should use predictive analytics to identify early warning signs, such as declining activity and repeated mistakes, and to trigger automated nudges or mentor outreach.

Managers should also implement data-driven scaffolding to enhance persistence and mitigate dropout risk, thereby directly contributing to a critical outcome in youth development.

YOMA should also enhance its capabilities by implementing an AI analytics engine, which will create a platform-wide dashboard to monitor overall engagement, skill acquisition rates, and the completion of social impact projects. The metrics provide essential information to stakeholders regarding the efficacy of the programme. The platform should also involve individual analytics, such as progress logs and competency heatmaps, enabling users to engage in self-monitoring and establish personalised goals, thereby enhancing autonomy and accountability.

Overall, linking usage data to outcome indicators, such as employment placement and community project metrics, enables YOMA to establish evidence of the impact of social innovation and to refine its offerings continuously.

Ethical Considerations for Use of Artificial Intelligence

When embedding AI, YOMA should establish clear and detailed consent mechanisms along with practices focused on minimising data collection. YOMA must encrypt all personally identifying and behavioural data either on-device or within the blockchain. It should also provide transparent user dashboards to outline data usage clearly

The platform should ensure that algorithms operate without bias, providing equitable outcomes across different demographic groups. It is essential to evaluate and mitigate any potential disparities that may arise from algorithmic decision-making processes. Auditing AI models for bias is essential, focusing on gender, regional, and socioeconomic factors. Managers should provide clear and accessible explanations for AI-driven recommendations to learners (e.g., 'You

were suggested this module because…') to foster trust and facilitate informed decision-making. Critical decisions, including the denial of access to advanced modules or the issuance of low-stakes certifications, should undergo human review by YOMA mentors or programme leads.

This process ensures that AI serves to enhance human decision-making rather than supplant it. Zimmerman's three empowerment dimensions, intrapersonal (self-efficacy), interactional (skills development), and behavioural (social impact), correspond directly to embedding AI YOMA (Zimmerman, 2018):

- **Intrapersonal:** The platform should provide adaptive learning paths to improve the youth's confidence in their ability to acquire new skills.
- **Interactional:** YOMA should implement just-in-time analytics to assist youths in identifying the appropriate resources at the optimal moment.
- **Behavioural:** YOMA should customise and encourage actions to fulfil tasks and participate in community initiatives.

Overall, in order to use AI responsibly, YOMA should collaborate with youth representatives to design AI features that ensure technological capabilities meet actual needs in the real world. YOMA should establish an Ethical Advisory Board, comprising AI ethicists, educators, and representatives from youth demographics, to oversee model audits, data governance, and user communications.

Finally, administrators of YOMA should allocate resources towards AI literacy modules to ensure that young people understand the mechanisms of personalisation and are equipped to engage with the technology in YOMA critically.

Limitations and Directions for Future Research

The results of the study put forward recommendations intended to inform future research on digital social-innovation platforms and youth empowerment. The researcher bases these recommendations on Zimmerman's Empowerment Theory and the conceptual framework established in Chapter 2, supported by the empirical results presented in Chapters 3 and 4. The aim is to deepen understanding, enhance generalisability, and inform both practice and policy.

The response addresses the identified gaps in both the study's design and the existing literature, while also upholding the researcher's original commitment to examining the effect of YOMA on young Nigerians to provide sustainable and scalable pathways towards SE ($\beta = 0.703$), SD ($\beta = 0.608$) and SI ($\beta = 0.651$). A single study cannot resolve the complexity of how a digital-first platform empowers Nigerian youth; hence, this study puts forward several limitations that future research should address:

Diversify and Deepen the Sampling Frame

The implementation of simple random sampling in this study, involving active YOMA participants ($n = 399$), ensured strong internal validity and facilitated precise SEM analysis. Nevertheless, the sample, while sufficient for quantitative modelling, was limited to self-selecting, digitally engaged youths. The results primarily indicate the experiences of individuals who are already predisposed to using digital platforms, potentially failing to encompass the perspectives of marginalised subgroups, such as rural youth with inconsistent connectivity, out-of-school youths, or individuals with disabilities.

Future research should systematically stratify samples to incorporate under-represented segments, employing mixed-mode recruitment strategies that engage youths through schools, community centres, and offline networks. In addition, implement proportional quotas for participants from each geopolitical zone and rural ward to analyse the effects of the YOMA across different infrastructural divides. This approach will also engage with non-formal education providers and youth NGOs to incorporate participants who are not enrolled in formal education, targeting both in- and out-of-school youth.

Future research should also explore youths with special needs to evaluate accessibility and the effects of encountering physical or cognitive challenges while participating in YOMA. In summary, future studies can enhance external validity by diversifying the sampling frame to test the robustness of the positive associations between YE and empowerment outcomes, specifically: SE ($\beta = 0.703$), SD ($\beta = 0.608$) and SI ($\beta = 0.651$). This approach will contribute to more inclusive platform design.

Conduct Qualitative Deep Dives

The researcher used the quantitative approach to highlight the extent of the relationship between YE and empowerment constructs SE ($\beta = 0.703$), SD ($\beta = 0.608$) and SI ($\beta = 0.651$); however, this approach offered a restricted understanding of the lived experiences, contextual nuances, and meaning-making processes underlying the numerical data. Explanations for results, including variance in specific skill subscales or reduced loadings on certain social-impact items, are speculative without accompanying participant narratives.

Future research should incorporate comprehensive qualitative methodologies to enhance and provide context for statistical results through phenomenological interviews that involve the purposeful selection of participants who exhibit high, medium, and low empowerment scores. Researchers should engage these participants in semi-structured interviews to explore their transformations, motivational drivers, and perceived obstacles.

Focus groups should be organised by demographic or usage patterns, such as new users compared to veterans, to facilitate discussions on shared experiences, platform strengths, and areas for enhancement (Eze & Chukwuemeka, 2021). Participants should be encouraged to use digital diaries to document their daily interactions with the platform and its real-world applications over a specified period (see Table 35).

Subsequently, future research should analyse to identify emerging themes related to agency and community impact (Eze & Aroh, 2021). In summary, the qualitative deep dives will help reveal the rationale behind empowerment processes, enhance the credibility and depth of the quantitative results in this study, and guide the development of more user-centred iterations of the YOMA feature.

Explore Moderators and Contextual Factors

The current analysis considered age, gender, and education as background descriptors instead of evaluating their moderating effects. Studies suggest that empowerment processes are likely to differ based on these characteristics and the broader socioecological contexts (Ibrahim & Adamu, 2018). Hence, future studies should incorporate potential moderators into the model to

evaluate the significance of differences in path coefficients across various age cohorts (e.g., 18–24 vs. 25–35), gender categories, or educational levels to identify varying platform advantages.

The model should integrate community-level indicators, such as local unemployment rates and internet penetration indices, to analyse cross-level interactions between platform engagement and external conditions. As a result, evaluate user outcomes in areas with complementary youth policies or incentives in contrast to those lacking such measures, while assessing the synergistic effects between digital platforms and policy supports. This approach will enhance knowledge of the specific demographics and conditions under which YOMA most successfully promotes empowerment (Zimmerman, et al., 2018).

Leverage Comparative and Cross-National Studies

The study, while situated in Nigeria, presented a conceptual model based on Zimmerman's empowerment theory, which applies to youth in various African and emerging-economy contexts. Hence, future researchers should conduct comparative research to facilitate the evaluation of cultural transferability and platform adaptability. Collaborate with organisations in adjacent countries, such as Ghana, Kenya, and South Africa, to replicate the study, ensuring the harmonisation of instruments through linguistic and cultural validation via back-translation and pilot testing.

Empowerment outcomes should be analysed within various socio-economic contexts, highlighting both common and distinct facilitators. Furthermore, researchers should also examine localising YOMA by collecting feedback on content relevance, incentives, and the compatibility of digital infrastructure in each specific locale. These cross-national studies will serve to validate

the broader applicability of the model and inform scalable expansion strategies for YOMA and comparable platforms.

Investigate Sustainability and Scalability Metrics

The results indicate that YE → SE (β = 0.703), YE → SD (β = 0.608) and YE → SI (β = 0.651) in Nigerian youths. However, questions persist regarding the YOMA's operational sustainability, including aspects such as funding models, community partnerships, and scalability, which encompasses server capacity and local adaptation costs. Future researchers should conduct cost-effectiveness analyses to ascertain the per-user cost associated with empowerment gains and to identify potential funding sources, such as public grants and corporate sponsorships (Onisanwa & Adaji, 2020).

Scalability stress tests should involve simulating scenarios of rapid user growth to evaluate system performance, support infrastructure, and training capacity (Onwuegbuchi & Okafor, 2020). Partnership case studies should document both successful and challenged collaborations with NGOs, government agencies, and private sector actors, while extracting best practices for future expansion (Omoyele, Oloke, Olabisi, & Aderemi, 2022).

The operational insights provided will facilitate the sustained impact of empowerment benefits at scale while ensuring their financial viability. In summary, the suggestions given above come directly from the methods and results of this study, showing the empowerment paths confirmed by SEM and the real situations that Nigerian youth experience.

Future research should enhance the evidence base by diversifying samples, embedding longitudinal and qualitative strands, examining moderators, and exploring scalability. This

approach will contribute to a richer, more nuanced, and actionable foundation that aligns with empowering youth across Nigeria and beyond.

Critical Reflections on Limitations and Ethical Considerations

This study's notable findings reveal that YE has considerable positive effects on critical youth outcomes. However, researchers must contextualise these results within key constraints and ethical issues that influence their interpretation and application.

The demographic bias apparent in the participant data constitutes a significant limitation of the present investigation. The sample has a disproportionate representation of educated male youths, with 77.7% male involvement and 67.4% of participants possessing bachelor's degrees, mainly from urban areas such as Lagos and Abuja.

This disparity prompts significant enquiries regarding the applicability of SE ($\beta = 0.703$), SD ($\beta = 0.608$), and SI ($\beta = 0.651$) to alternative demographic cohorts. The empowerment pathways illustrated in the study may operate differently for women, rural youth, or individuals with lesser educational attainment, potentially influencing the strength of these linkages. Future studies should explicitly investigate whether the reported impacts persist across these marginalised groups.

The study's methodological reliance on quantitative measurements, although yielding robust statistical evidence of YOMA's impact, may neglect significant qualitative aspects of the empowerment process. The psychological mechanisms via which SSI attributes such as privacy constraints and credential verification enhance SE warrant more qualitative exploration.

Participant narratives may elucidate how youths from diverse backgrounds perceive and interpret these technological elements in their empowerment journeys.

Numerous ethical problems arise from YOMA's architecture as a blockchain-based platform using SSI. Although SSI design improves privacy via mechanisms such as selective disclosure and zero-knowledge proofs, it simultaneously engenders novel types of digital exclusion. The technical proficiency required to manage cryptographic keys and digital wallets may inadvertently disadvantage less technologically adept youths, thereby perpetuating existing social disparities in a digital context. Nigeria's digital divide makes this issue especially pronounced, as only 36% of rural inhabitants have dependable internet connectivity, compared to 72% in urban areas.

The tokenised incentive structure introduces an additional ethical dilemma. Although ZLTO tokens successfully incentivise involvement and skill enhancement, they may diminish young engagement to mere transactional behaviours centred on external incentives. This approach may jeopardise the cultivation of intrinsic motivation, which empowerment theory identifies as essential for enduring civic engagement and personal development. The enduring impacts of tokenisation on participants' connections to learning and community involvement necessitate vigilant observation.

The study's emphasis on quantifiable results, although methodologically robust, may hide significant non-quantifiable dimensions of empowerment. Zimmerman's theory underscores the significance of qualitative shifts in self-perception and community dynamics that standardised metrics may inadequately reflect. The results for SI ($R^2 = 0.494$) and SD ($R^2 = 0.369$), although

commendable, indicate significant unexplained variance, implying the presence of other critical components influencing the empowerment process that this study did not assess.

Implementation issues impose further constraints. The present results indicate outcomes obtained under very controlled circumstances with active participants. At scale, real-world variables such as varying mentor quality, technical platform difficulties, or variable token values may mitigate the reported impacts. The study's duration may be insufficient to determine if the identified advantages last over time or result in enduring alterations in employment results and community leadership.

Ethical issues arise about data governance in decentralised systems. Although SSI empowers participants with control over their credentials, it concurrently decentralises the duty for data protection to individual users, who may lack the technical proficiency to safeguard their digital wallets fully. This approach generates potential vulnerabilities, especially for youths in high-risk settings where device sharing or confiscation may take place.

The study's robust positive outcomes may unintentionally conceal the necessity for a critical analysis of power dynamics inside the YOMA ecosystem. Although participants manage their credentials, the platform's foundational governance frameworks, comprising regulations for token allocation, credential criteria, and permissible verification techniques, persist in a centralised manner. The conflict between decentralised identity and centralised platform governance requires continuous ethical examination. Examples of specific limitations may affect the conclusions drawn:

- **Cross-Sectional Design:** The researcher captured all variables in a single wave; therefore, the positive paths may partially reflect youths who possessed confidence,

skills, or civic inclination before they engaged with YOMA. Post-stratification weights mitigate this bias; however, they cannot eliminate it. A longitudinal panel tracking new registrants throughout 12 to 18 months, along with propensity-score matching based on baseline digital capital, would assist in distinguishing selection effects from treatment effects.

- **Self-Reported Measures:** The dependence on SE and SD self-assessments has the potential to introduce social desirability bias. The potential for social desirability bias may lead to an overestimation of success rates. Previous assessments of stipend programmes, including N-Power, reveal comparable discrepancies in optimism when self-reported data is juxtaposed with subsequent income statistics. Future research should triangulate outcomes with third-party sources, such as payslip uploads, LinkedIn API calls, or local government project registers, to verify that psychological and skill gains translate into concrete livelihoods and sustained civic projects. Future research should also incorporate objective performance metrics, such as the number of credentials completed and employment outcomes.
- **Sample Representativeness:** While n = 399 offers substantial statistical power, it is important to note that participants were self-selected users of the platform, which may indicate a higher level of motivation compared to the general youth population. Using randomised outreach in conjunction with stratified sampling could provide a more thorough understanding of the impacts at the population level.

- **Constraints related to the digital divide:** Internet access, handset quality, and data costs exhibit significant variation based on geographic zone and gender. Users in rural North-West regions experience 4G coverage levels below 45%, while the data prices they encounter surpass the UN's 2% affordability benchmark (GSMA, 2024). Digital infrastructural frictions may reduce engagement levels, particularly among women, and could lead to a downward bias in coefficients within underserved areas. Researchers should conduct replication studies to evaluate offline or SMS-based YOMA variants and assess their efficacy in environments with limited connectivity.
- **Volatility in the token economy:** ZLTO's psychological influence relies on its genuine redemption value. If corporate partners cut airtime subsidies or if inflation erodes purchasing power, these changes may weaken mastery cues, potentially lowering users' SE ($\beta = 0.703$). YOMA should conduct experiments involving token-value manipulation, specifically randomly adjusting redemption rates, to provide insights into the sensitivity of empowerment pathways to economic incentives.

The limits and ethical constraints do not diminish the study's significant findings but instead underscore potential for enhancement in both research and application. They emphasise the necessity for complementing mixed-methods research, strategic recruiting initiatives for under-represented populations, and continuous ethical evaluations of the platform's design and governance. Addressing these limitations will enhance both scholarly and practical understanding

of digital empowerment mechanisms and facilitate the development of advanced, mixed-methods investigations.

Conclusions

This chapter sought to interpret, stress-test, and operationalise the statistical relationships presented in Chapter 4. The explicit objective was to address the dissertation's central question: Does engagement with YOMA measurably empower Nigerian youth in psychological, competence-building, and civic domains? The triangulation of weighted PLS-SEM findings, comparative programme evidence, and context-specific design logic indicates a provisional yet persuasive positive answer.

The study successfully achieved the empirical objectives. The results show that the three hypothesised pathways from YOMA engagement to SE ($\beta = 0.703$), SD ($\beta = 0.608$), and SI ($\beta = 0.651$) have substantial, positive effects, which remain consistent across various weighting schemes. The model accounts for approximately 50% of the variance in SE and over 33% in the subsequent outcomes, exceeding the established "moderate" thresholds outlined in the research design. The results expand upon Zimmerman's empowerment framework within a completely digital context.

Conclusions Relative to Research Questions and Hypothesis

Intrapersonal Empowerment (Self-Efficacy): This research demonstrates that challenge-based learning and tokenised rewards on YOMA reflect the essential mastery experiences that support self-efficacy by monitoring improvements in confidence and agency ($RQ1/H_{11}$).

Interactional Empowerment (Skills Development): YOMA's learning modules and peer collaborations resulted in statistically significant enhancements in both hard (digital, vocational) and soft (leadership, collaboration) skills. This result supports Zimmerman's assertion that empowerment occurs when individuals recognise their access to the necessary resources to exert control over their lives ($RQ2/H_{12}$).

Behavioural Empowerment (Social Impact): YOMA's community challenges have been translated into tangible civic engagement, validating the connection between perceived empowerment and prosocial action. This connection represents a key principle of the theory that had not previously undergone rigorous testing in a digital context ($RQ3/H_{13}$).

The validation of these three constructs through SEM reinforces Zimmerman's model and establishes a framework for future theorising regarding digital empowerment. This framework suggests that virtual platforms can function as legitimate "communities", providing psychosocial benefits comparable to those of face-to-face interventions. This conceptual expansion establishes YOMA as a model for digitally enabled empowerment, presenting implications for theorists aiming to revise empowerment frameworks for the twenty-first century.

The chapter has also converted the coefficients into practical levers for the four stakeholder groups that can enhance YOMA's impact. Platform architects are required to address badge inflation and expand access for low-bandwidth users. Ministries should incorporate micro-credentials into the NYSC and technical education pathways. Funders can achieve significant leverage by supporting self-efficacy triggers, including token liquidity and seed grants. Employers should lower screening costs by integrating YOMA badge APIs into their recruitment processes. The prescriptions come directly from the identified statistical hierarchy, which prioritises

confidence first, followed by skills, and then civic action. This approach focuses on addressing the system's critical pressure points rather than its peripheral aspects.

Third, critical reflexivity has enhanced the findings while maintaining their integrity. Selection bias has the potential to inflate path sizes, and self-reported labour outcomes require objective verification; however, none of the stress tests contradicted the fundamental narrative. The limitations section has outlined the subsequent empirical steps, longitudinal panels, propensity-score designs, and token-value experiments that can transform a persuasive association into a near-causal certainty. Supplementary investigation into data-privacy protections, macroeconomic shock resilience, and the synergy of offline hubs will enhance the robustness of both the platform and the theoretical framework it currently supports.

The primary practical takeaway is the confirmation that digital social innovation has the potential to overcome infrastructural barriers to empowerment. Therefore, this study establishes that YOMA provides high-quality, challenge-based learning content and civic engagement opportunities through low-bandwidth channels, reflecting a democratised approach to youth development in Nigeria.

In conclusion, Chapter 5 transitions the dissertation from a focus on measurement to an emphasis on meaning. This study concludes that digital platforms, when designed with careful consideration and evaluated through empirical methods, have the potential to serve as practical tools for empowering youth. The results contribute to theoretical discussions by expanding Zimmerman’s constructs into the digital domain and provide a replicable framework for practitioners and policymakers seeking to leverage technology for socio-economic benefit.

The study contributes to the discussion in which young people, regardless of their geographic location or socioeconomic background, acquire agency, develop skills, and contribute to their communities through the use of YOMA. Thereby providing an evidence-based approach as Nigeria strives to address the challenges posed by its youth prominence and the necessity of developing a digitally prepared workforce. YOMA functions as both a model for emerging talent and a model for how digital social innovation can fulfil the principles of empowerment theory for transforming the lives of the youth in Nigeria.

Conclusion Relative to Advancing Empowerment Research Through Social Cognitive Theory

The combination of Bandura's Social Cognitive Theory and Zimmerman's empowerment framework presents new opportunities for research at the convergence of digital platforms and youth development. Future studies should use SCT's mechanistic focus to perform longitudinal analyses on how specific YOMA features maintain empowerment beyond the initial engagement phase. Three primary research directions have been identified:

Initially, temporal studies may examine the ways in which sequenced platform interactions contribute to the development of lasting self-efficacy. Bandura's (2012) concept of "resilient efficacy" indicates that systematically organised mastery experiences such as YOMA's tiered challenges are expected to generate cumulative confidence improvements. Researchers may use experience sampling methods to assess how the frequency of token rewards, peer comparisons, and mentor feedback influence month-to-month variations in users' self-beliefs, especially during

the transition from training to employment. This work has the potential to identify essential thresholds at which digital empowerment transitions into a self-sustaining state.

Secondly, experimental designs have the potential to isolate the causal mechanisms of SCT. A/B testing various iterations of YOMA's interface, such as adjusting the visibility of peer models or modifying the granularity of progress feedback, will identify the social cognitive components that most effectively enhance skill retention and civic participation. This method aims to enhance the existing cross-sectional findings by illustrating the dynamic interactions among environmental (platform), personal (self-efficacy), and behavioural (engagement) factors, in accordance with Bandura's theory of reciprocal determinism.

Third, ethnographic research must investigate the cultural factors that influence the applicability of SCT. This study establishes YOMA's general efficacy across Nigeria's geopolitical zones. Further qualitative research could investigate how regional variations in collectivism, gender norms, or digital literacy impact responses to observational learning features. Insights of this nature would assist in customising platform designs to enhance empowerment for particular subgroups. For example, it would be beneficial to assess whether communal achievement displays, as opposed to individual leaderboards, are more effective in motivating users within collectivist communities.

These directions necessitate the implementation of innovative measurement approaches. Digital phenotyping techniques have the capability to passively monitor behavioural indicators of empowerment, such as task retry rates following failures, which serve as proxies for resilience. Physiological sensors may evaluate Bandura's frequently neglected source of efficacy, emotional

arousal, during demanding platform activities. The integration of these elements with traditional surveys will establish multi-dimensional empowerment trajectories.

This study, informed by SCT, aims to enhance both theoretical frameworks and practical applications. Mapping the translation of digital affordances into enduring empowerment via social cognitive mechanisms can enable future studies to establish design principles that extend beyond YOMA, thereby informing the development of youth platforms in Nigeria. This work will evaluate boundary conditions for SCT in low-resource digital environments, which may lead to culturally informed adjustments to empowerment theory.

Conclusions Relative to Objectives

In this section, the researcher met the research objective, relying solely on the results presented in Chapters 3–5: the weighted PLS-SEM outputs and measurement-model diagnostics (including Cronbach's α, composite reliability, AVE, and VIF):

Objective 1 – Intrapersonal empowerment

To determine whether engagement with YOMA predicts self-efficacy among Nigerian youth (intrapersonal empowerment).

The structural model yielded the highest single coefficient on this path, YE → SE ($\beta = 0.703$, $p < .001$), and accounted for 49.4% of the variance in SE following post-hoc zone × gender weighting. Robustness checks resulted in a coefficient shift of no more than ±0.04, maintaining significance throughout the analysis.

The measurement quality exhibited high standards: Cronbach's $\alpha = 0.838$, AVE = 0.673, HTMT with adjacent constructs < 0.87, and all VIF values remained below 3.2, indicating that multicollinearity and common-method bias are unlikely to act as confounding variables.

Conclusion: The study successfully achieved the objective. YOMA is a strong predictor of increased intrapersonal agency, supported by high statistical certainty and adequate design rigour.

Objective 2 – Interactional empowerment

To evaluate the extent to which YOMA engagement predicts gains in practical and cognitive skills among Nigerian youth (interactional empowerment).

The engagement to skills path demonstrates a coefficient of YE → SD ($\beta = 0.608$; $p < .001$), resulting in an R^2 value of 0.369. The measurement quality of skills indicators in the model is characterised by the following metrics: Cronbach's $\alpha = 0.844$ and AVE = 0.762. Table 26 presents cross-loadings that demonstrate each retained skill item exhibits a loading of at least 0.20 greater on its designated construct compared to any alternative, thereby adhering to the discriminant validity criteria established in Chapter 3. The differences between weighted and unweighted metrics continue to be below 0.04 for this path.

Conclusion: The study successfully achieved the objective and establishes a strong predictive YE → SD.

Objective 3 – Behavioural empowerment

To investigate whether YOMA engagement is associated with increased participation in community or social-impact activities among Nigerian youth (behavioural empowerment).

The behavioural path is represented by YE → SI ($\beta = 0.651$; $p < .001$), accounting for $R^2 = 0.424$ of the variance in SI. SI demonstrates strong reliability ($\alpha = 0.863$; AVE = 0.711) and meets the Fornell-Larcker and HTMT criteria outlined in Tables 24 and 25. The researcher did not conduct additional moderation or multigroup tests, so the researcher confined the interpretation to the aggregate sample.

Conclusion: The study successfully achieved the objective. YOMA demonstrates a positive and significant effect of YE → SI.

Final Reflection

Nigeria has reached a critical demographic juncture, with its population projected to keep a median age below 20 for the next 25 years, which presents a unique opportunity for a substantial young workforce to convert potential population pressures into significant economic growth. This study presents evidence indicating that YOMA has the potential to stimulate SE ($\beta = 0.703$), which can subsequently be transformed into employable skills SD ($\beta = 0.608$) and early civic engagement SI ($\beta = 0.651$), all while maintaining a significantly lower unit cost compared to traditional stipend programmes.

The platform directly addresses Sustainable Development Goal 8, which focuses on “decent work and economic growth”. It empowers young individuals to not only pursue employment opportunities but also to generate value within their communities. Digital mastery cues, such as tokens, badges, and leaderboards, serve as catalysts rather than self-sustaining elements. Rapidly rising confidence can diminish if high internet access costs persist, employers

struggle to interpret micro-credentials, or insufficient seed capital leads to the failure of community initiatives.

To transform YOMA's statistically significant gains into nationwide benefits, it is essential to ensure systematic follow-through: ministries are required to validate badges, telecom companies must implement zero-rating for learning traffic, state budgets should align with social-impact micro-grants, and employers need to integrate badge APIs into their recruitment processes. The interlocking of policy, market, and infrastructure components is essential for the self-efficacy pathway outlined herein to effectively contribute to the productive employment and inclusive growth aimed for in SDG 8.

In closing, it is evident now that YOMA has the potential to facilitate youth empowerment and address the dire state of youth unemployment at scale in collaboration with stakeholders identified in this study in Nigeria.

REFERENCES

Achimugu, H., & Okolo, O. G. (2025). Support-Pillars for the Young and Vulnerable: Revisiting the Role of the National Directorate of Employment (NDE) In Kogi State, Nigeria. *International Journal of Public Management and Social Science Research (IJPMSSR), 1*(2), 1-19.

Adebayo, A., & Adeoye, R. (2019). Digital Learning Innovations and Youth Development in Nigeria: A Review of Emerging Trends. *Journal of Educational Technology in Africa, 7*(2), 45–60.

Adebisi, O., Afolabi, O., & Olaniyi, O. (2025). Usage of Blockchain Technology in Real Estate Transactions in Lagos State, Nigeria. *Journal of African Real Estate Research, 10*(1), 30-44.

Adedokun, R., & Musa, S. (2021). Barriers to Youth Inclusion in Civic Innovation in Nigeria: A Structural Analysis. *Nigerian Journal of Development Alternatives, 6*(2), 77–93.

Adeniran, A. I., & Onuoha, C. O. (2020). Youth employment and empowerment through digital platforms in Nigeria: A framework for inclusive development. *African Journal of Development Studies, 10*(1), 45–62.

Adeola, S. A., Kolawole, S. O., Hassan, S. A., Olubusayo, F. A., & Adesina, A. A. (2022). Predicting entrepreneurial and professional career mindsets in young nigerian adults. *Journal of Entrepreneurship in Emerging Economies, 14*(6), 1096-1117.

Adeoye, A., & Adeoye, B. (2017). Digital Literacy Skills of Undergraduate Students in Nigeria Universities. *Library Philosophy and Practice (e-journal)*.

Adeyemi, M., & Hassan, B. (2022). Gendered Dimensions of Digital Exclusion in Nigeria: Implications for Policy and Practice. *African Journal of Gender and Development, 5*(1), 28–43.

Adhikari, S., & Baral, S. (2025). What's Your Platform? Introducing the Platform Theory in Agricultural Communication. *Journal of International Agricultural and Extension Education, 32*(1).

Aduwa-Ogiegbaen, S., Ereyi, I., & Ede, O. (2005). Using Information and Communication Technology in Secondary Schools in Nigeria: Problems and Prospects. *Educational Technology & Society, 8*(1), 104-112.

Afolabi, A. A., & Ilesanmi, O. S. (2021). Addressing COVID-19 vaccine hesitancy: Lessons from the role of community participation in previous vaccination programs. *Health Promotion Perspectives, 11*(4), 434-437.

Agada, A. N., & Etorti, I. J. (2023). Impact of students' industrial work experience scheme (SIWES) in enhancing entrepreneurship skills of business education students in colleges of education in cross river state. *International Research Journal of Innovations in Engineering and Technology, 7*(12), 209-219.

Agbebia, C. S., & Okim, I. I. (2025). THE USE OF A TWO-STAGE CLUSTER SAMPLING TECHNIQUE IN IDENTIFYING AND ANALYZING SEVERAL FACTORS AFFECTING POULTRY PRODUCTION IN CROSS RIVER STATE, NIGERIA. *Global Journal of Pure and Applied Sciences, 31*(1), 55-66.

Ajah, E. O. (2025). Third-party application developers and the liminal space experience during digital entrepreneurship development. *Journal of Electronic Business & Digital Economics, 4*(1), 3.

Ajayi, L., Njoaguani, O., & Ajayi, A. (2022). It's my responsibility to care for him, my household, and the society": Gendered roles and the COVID-19 outbreak. *African Renaissance*, 237–257.

Akanle, O., & Shokoya, O. A. (2025). Managing the EndSARS protest in Nigeria: Outcomes and implications. *AFRICAN JOURNAL FOR THE PSYCHOLOGICAL STUDIES OF SOCIAL ISSUES, 28*(1).

Akanle, O., Akanle, O., & Omotayo, A. (2019). Youth, unemployment and incubation hubs in Southwest Nigeria. *African Journal of Science, Technology, Innovation and Development*, 1-8.

Akinbobola, Y., & Adeleke, O. (2021). Self-efficacy and entrepreneurial orientation among unemployed Nigerian youth. *Journal of African Entrepreneurship, 12*(3), 112–130.

Akinlola, G., & Ohonba, A. (2024). Food Security, Government Spending, and Economic Growth in Nigeria. *African Journal of Development Studies, 14*(1), 203-232.

Akintaro, A. A., Adeyi, O. O., Ibrahim, M. O., & Oguntola, T. P. (2025). Gender Inequality and Performance of Female Employees among Telecommunication Services Providers in Southwest Nigeria. *Adeleke University Journal of Business and Social Sciences, 5*(1), 115-126.

Akinyemi, A., & Bamidele, T. (2019). Digital Inclusion and the Changing Landscape of Youth Development in Nigeria. *Journal of Nigerian Development Studies, 10*(1), 63–80.

AltSchool Africa. (2023). *Impact and Innovation Report.* Lagos: AltSchool Publications.

Amaechi-Udogu, D. V., & Amaeze, D. F. (2025). Design Thinking as a Predictor of Adaptive Learning and Social Well-Being among in-School Adolescents in Secondary Schools in Rivers State, Nigeria. *International Journal of Research and Innovation in Social Science, 9*(4), 400-409.

Anam, B. E., Ironbar, V. E., Umukoro, G. M., Eburikure, O. J., & Dede, C. H. (2025). Anam, B. E., Ironbar, V. E., Uzoh, E. E. C., Umukoro, G. M., Eburikure, O. J., & Dede, C. H. (2025). Impact of N-Power Social Empowerment Programme on Youth Employment in Cross River State, Nigeria. *Journal of Posthumanism, 5*(3), 1252-1265.

Andrew, C., & Klein, J. L. (2013). Social Innovation: What is it, and why is it important to understand it better? *Centre de recherchesur les innovations sociales*.

Andrlić, B., Oniku, A., & Akeke, O. (2024). Consumer style inventory (CSI) re-examined: The case of millennial decision-making style in a developing market. *Journal of infrastructure, policy and development, 8*(12).

Ani, K. J., & Odo, A. O. (2025). Endsars protest and resource security in nigeria: Reflections on the 2020 covid era. *African Journal of Peace and Conflict Studies*, *14*(1), 9–25.

Arejiogbe, O., Moses, C., Salau, O., Onayemi, O., Agada, S., Dada, A., & Obisesan, O. (2023). Bolstering the Impact of Social Entrepreneurship and Poverty Alleviation for Sustainable Development in Nigeria. *Sustainability*. Ota, Nigeria: Deparment of Business Management, Covenant University.

Aremu, V. I., & Udofia, I. G. (2025). Aremu, V. I., & Udofia, I. G. (2025). Impact of Digital Literacy Skills on Undergraduate Performance in Nigeria. *African Journal of Applied Research*, *11*(2), 210-219.

AY, Y. A., & Anichukwu, E. O. (2025). ARTIFICIAL INTELLIGENCE LITERACY AND COGNITIVE ENGAGEMENT AS PREDICTORS OF INNOVATION READINESS AMONG ECONOMICS EDUCATION UNDERGRADUATES IN SOUTHEAST NIGERIA: A STRUCTURAL EQUATION MODELLING APPROACH. *Internation Journal of Economics Education Research*, *8*(1), 129-140.

Ayres, C. (2020). Political PARTICIPATION, DIGITAL MEDIA AND COMMUNICATION FOR DEVELOPMENT AND SOCIAL CHANGE: THE PERSPECTIVE OF THE YOUTH CITIZENS. *Varazdin: Varazdin Development and Entrepreneurship Agency (VADEA)*.

Ayub, O., & Gbaa, G. (2020). The impact of N-Power programme on the socioeconomic livelihoods of beneficiaries in Ibadan North Local Government area, Oyo State, Nigeria. *International Journal of Humanities & Social Sciences*, *19*(6).

Azu, N. P., Hussaini, D., Chima, K. O., & Abdullahi, H. P. (2025). Digital dynamics: Exploring ICT's role in revolutionising nigeria's trade sectors. *Journal of Electronic Business & Digital Economics*, *4*(1), 167.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H: Freeman.

Bason, C. (2010). Leading Public Sector Innovation: Co-creating for a better society.

Biala, M. I., Aromasodun, O. M., Yusuf, Y. T., Shitu, A. M., Peter, K. K., & Akosile, F. (2025). Promoting Sustainable Development through Digital Literacy: The Transformative Role

of Youth Mentorship in Igbaja, Nigeria. *African Journal of Humanities and Contemporary Education Research, 19*(1), 114-133.

Bignetti, L. P. (2011). Social innovations: an incursion into ideas, trends and research focuses. *Social Innovation, 47*(1).

Busayo, B. I. (2024). Development and validation of Redeemer's University Primary Dysmenorrhea Screening Tool (RUN-PDST). *Anaesthesia, Pain & Intensive Care, 28*(6), 1113-1121.

Caulier-Grice, J. A., Davies, R. P., & Norman, W. (2012). Defining Social Innovation. Part one of Social Innovation Overview: The theoretical, empirical, and policy foundations for building social innovation in Europe. *TEPSIE) (7th Framework Programme ed.)*.

Chibuike, E. N., Olufunmilayo, E. O., Chiroma, G. B., & Okoye, C. F. (2023). Perception of national youth service corps (NYSC) among corps medical doctors in nigeria: A cross-sectional study. *BMC Medical Education, 23*, 1-9.

Chinenye, N. A. (2025). THE RISE OF ARTIFICIAL INTELLIGENCE (AI)-DRIVEN MARKETING: TRANSFORMING CONSUMER ENGAGEMENT AND PERSONALIZATION. A STUDY OF SELECTED CONSUMERS IN SOUTHEAST, NIGERIA. *UNIZIK Journal of Marketing, 2*(1), 25-41.

Chukwuma, C. O., & Alex-Nmecha, J. (2022). Online LIS teaching and learning during COVID-19 in nigeria: A study. *Global Knowledge, Memory and Communication, 71*(3), 155-173.

Curtis, T., Ngcobo, S., Sithole, N., & Brownell, F. (2025). *THE STATE OF WATER QUALITY IN SOUTH AFRICA: A CITIZEN SCIENCE PERSPECTIVE* . PRETORIA : Water Research Commission.

Daniel, R., William, A. A., & Fredrick, U. O. (2025). Fostering Critical Thinking and Problem-Solving Skills in Nigeria: Challenges and Opportunities. *nternational Conference Education in a Changing World: Multidisciplinary Perspectives for Global Progress*, (pp. 196-203).

Datti, M. I., Agboola, Y. H., Gawuna, M. S., & Adebowale, M. O. (2024). Effect of education on youth unemployment in Nigeria. *International Journal of Business and Management Research, 5*(2), 111-130.

Dauda, A., Adeyeye, M., Yakubu, M., Oni, O., & Umar, H. (2019). The impact of N-Power programme on youth enterprise in Minna metropolis. *Nigeria Journal of Business Administration, 17*(1).

David-West, O., Umukoro, I. O., & Onuoha, R. O. (2018). Platforms in sub-saharan africa: Startup models and the role of business incubation. *Journal of Intellectual Capital*, *19*(3), 581-616.

Dickson, D. A. (2022). National youth service corps (NYSC) and education in nigeria: A case on corps members' tasks and wellbeing, and implications for education support. *Journal of African Education, 3*(3), 149-149–172.

DIDx. (2021). *About DIDx*. Retrieved from https://www.didx.co.za/about.html

digify Africa. (2024). *Our Impact*. Retrieved from digify Africa: https://digifyafrica.com/our-impact/

Ehimomen, C., Nwosa, P., & Ugwu, E. (2020). The Nexus between Youth Unemployment and Intergenerational Poverty in Nigeria. *African Journal of Development Studies (AJDS), 10*(3), 23-38.

Eisman, A., Zimmerman, M., Kruger, D., Reischl, T., Miller, A., Franzen, S., & Morrel-Samuels, S. (2016). Psychological Empowerment Among Urban Youth: Measurement Model and Associations with Youth Outcomes. *Am J Community Psychol, 58*(3), 410-421.

Elomien, E., Ajayi, O., & Idowu, O. (2022). The 2018 World Poverty Clock Report and Nigeria as "The Poverty Capital of the World": Changing the Narrative through Innovation, Leadership and Sustainable Development Special Issue on Innovation and Sustainable Development in the Information Age. *African Renaissance*, 375–390.

Eze, A. C., & Chukwuemeka, E. (2021). Youth Empowerment as a Panacea for Insecurity in Nigeria: The Role of Government Intervention Programmes. *International Journal of Development and Management Review (INJODEMAR), 16*(1), 71–87.

Eze, A., & Aroh, J. (2021). Digital Social Innovation and Inclusive Youth Development: Evidence from South-East Nigeria. *Journal of Development Practice, 13*(1), 72–89.

Eze, V. C., Okwuosa, J. K., & Bello, A. M. (2021). Gamification and civic participation among Nigerian youth: Evidence from platform-led engagement. *Journal of Development Technology and Governance, 3*(2), 39–54.

Ezeuduji, I. O., Mhlongo, Z., & Ntshangase, S. D. (2024). Modelling the effects of entrepreneurship education and passion on youths' entrepreneurial intention in the tourism sector. *Journal of Teaching in Travel & Tourism, 24*(4), 386-404.

Ezugwu, O. A., Udom, A., & Tola, B. K. (2024). Learning from educational impediments: Insights for nigeria from the tigray conflict. *Journal of Somali Studies, 11*(3), 139-139–157.

Fadiya, A. A., & Akinola, O. T. (2024). GENDER'S IMPACT ON UNDERGRADUATES' DIGITAL AND INTERNET LITERACIES AT THE FEDERAL UNIVERSITY OYE-EKITI. *Gender & Behaviour, 22*(2), 22761-22771.

Faek, R. (2023). *Shifting tides: Exploring the rise of virtual student mobility in InternationalEducation.* New York: World Education Services.

Fahrudi, A. N. (2020). Alleviating poverty through social innovation. *Australas. Account. Bus. J.*(14), 71-78.

Falebita, O. S., Kok, P. J., Ayanwoye, O. K., & Ogunjobi, A. O. (2025). Virtual Reality in Education 4.0: Pre-Service Teachers' Technology Readiness and Behavioral Intention. *International Journal of Technology, Knowledge and Society, 21*(2), 151-177.

Ferretti, A., Vayena, E., & Blasimme, A. (2023). Unlock digital health promotion in LMICs to benefit the youth. *PLOS Digital Health, 2*(8).

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gibbons, J. L., & MacLauchlan, S. (2022). A guatemalan school community response to COVID-19: Case study of growth through adversity. *School Community Journal, 32*(1), 301-326.

GSMA. (2024). *The Mobile Economy Sub-Saharan Africa 2024.* GSMA. Retrieved from Global System for Mobile Communications: www.gsma.com/r/wp-content/uploads/2020/09/GSMA-State-of-Mobile-Internet-Connectivity-Report-2020.pdf

Hair, J., Ringle, C., & Sarstedt, M. (2016). A Primer on Partial Least Squares Structural Equation Modeling. *(PLS-SEM).*

Howaldt, J., Butzin, A., Domanski, D., & Kaletka, C. (2014). Theoretical approaches to social innovation. A Critical Literature Review.

Ibiyemi, A., Mohd Adnan, Y., Daud, M. N., Olanrele, S., & Jogunola, A. (2019). A content validity study of the test of valuers' support for capturing sustainability in the valuation process in Nigeria. *Pacific Rim Property Research Journal, 25*(3), 177-193.

Ibrahim, A., & Adamu, H. (2018). From Deficit to Assets: Rethinking Youth Development Approaches in Northern Nigeria. *Journal of African Youth Studies, 3*(1), 38–54.

Ibrahim, T., & Onuoha, C. (2021). Hashtag politics and the rise of youth digital agency in Nigeria. *African Journal of Political Studies, 14*(1), 70–95.

icreateafrica. (2025, April 4). *Our Impact*. Retrieved from icreateafrica: https://icreateafrica.com/our-impact/

Idehen, V. A., & Mayor, E. (2021). Examining the role of blockchain technology against fraud in SMEs. *International Journal of Research in Business and Social Science, 10*(5), 245-252.

Idris, M., & Maikomo, J. M. (2024). Impact of digital economy on youth unemployment in Nigeria. *KASU Journal of Economics and Development Studies, 10*(2), 25-38.

Inegbedion, H. (2022). Entrepreneurial design thinking and business success: Empirical evidence from nigeria. *Problems and Perspectives in Management, 20*(2), 186-198.

Ishaq, A., & Ajibesin, A. (2022). Performance evaluation of mobile network operators based on input-oriented constant return to scale model. *International Journal of E-Services & Mobile Applications, 14*(1), 1-17.

James, O. J. (2024). Recent developments in higher education in africa: Partnerships for knowledge transformations. *Journal of International Cooperation in Education, 26*(1), 34-48.

Joshua, S., & Oni, S. (2014). "The Nigerian House of Representatives and War Against Corruption, (1999-2011)". *Mediterranean Journal of Social Science, 5*(2), 561-567.

Kazim, F. (2021). Digital transformation in communities of africa. *International Journal of Digital Strategy, Governance, and Business Transformation, 11*(1), 1-23.

Larry, B., & Effiong, N. (2023, September). Youth Unemployment and Conflict: Implications for Agricultural Development and Food Security in Nigeria. *International Research Journal of Innovations in Engineering and Technology (IRJIET), 7*(9), 83-88.

Magaji, M., Umar, M. N., & Yahaya, Y. M. (2024). Exploring the prospect and challenges of poverty alleviation programs in Nigeria: A study of N-power program in Bauchi State. *International Journal of Intellectual Discourse, 7*(4).

Maria, R. M., & Grey, F. (2023). The OPEN17 challenge: Online coaching of young innovators to tackle the sustainable development goals with citizen science and open data. *Citizen Science: Theory and Practice, 8*(1), 46.

McIntyre, D. P. (2018). *Platform Economics.* MIT Press.

Medase, K., & Barasa, L. (2019). Absorptive capacity, marketing capabilities, and innovation commercialisation in nigeria. [Innovation commercialisation in Nigeria]. *European Journal of Innovation Management, 22*(5), 790-820.

Mkwananzi, S., & Ololade, J. B. (2022). Chasing the youth dividend in nigeria, malawi and south africa: What is the role of poverty in determining the health and health seeking

behaviour of young women? *International Journal of Environmental Research and Public Health, 19*(21), 14189.

Mohammed, J. K., Saidu, U. A., & Adegoke, S. A. (2025). Development of Mobile Application Software for Property Valuation in Nigeria. *International Journal of Real Estate, 1*(2), 28-41.

Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). Social innovation: What it is, why it matters, how it can be accelerated. *Oxford, UK: Skoll Centre for Social Entrepreneurship*.

Mwesigwa, D., & Mubangizi, B. (2019). Contributions of the youth livelihood programme (YLP) to youth empowerment in Hoima district, Uganda. *International Journal of Business and Management Studies, 11*(1), 54-73.

NBS. (2012). 2012 National Baseline Youth Survey.

NBS. (2022). *Labour Force Statistics: Unemployment and Underemployment Report Q4 2021*. Abuja: National Bureau of Statistics (NBS).

NBS. (2023). *Multidimensional Poverty Index by State & Zones*. (Federal Ministry of Finance, Budget and National Planning) Retrieved August 2023, from Nigeria Poverty Map: https://www.nigeriapovertymap.com/explorempi

NBS. (2023). *Nigeria Labour Force Survey Q3 2023.* National Bureau of Statistics.

NCC. (2022). 2022 Industry Statistics Report.

Nebo, O., & Ndukwe, O. (2025). Achieving Sustainable Development Goal one in Nigeria: The role of Sustainable Entrepreneurship. *Journal of Policy and Development Studies (JPDS), 18*(3), 140-152.

Ngene, G., Pinet, M., Maclay, C., Phiona, S., & Emilie, T. (2021). *Strengthening youth livelihoods and enterprise innovation in Africa's digital era.* Retrieved from MasterCard Foundation: www.odi.org/publications/strengthening-youth-livelihoods-and-enterprise-innovation-in-africas-digital-era

Ngozi, O. S., Ezeani Ezeani, P. O., & Gift-Maureen, N. O. (2025). Assessing the Performance of Cooperatives in Youths Empowerment in Enugu State, Nigeria. *International Journal of Sub-Saharan African Research, 3*(1), 245-256.

Niang, M., Alami, H., Gagnon, M., & Dupéré, S. (2023). A conceptualisation of scale-up and sustainability of social innovations in global health: A narrative review and integrative framework for action. *Global Health Action, 16*(1).

Nieuwenhuizen, C. (2022, June). Female Social Entrepreneurs In Africa Creating Social Value Through Innovation. *Entrepreneurship and Sustainability Issues, 9*(4).

NITDA. (2021). *COVID-19 Accelerates Digital Technology Adaptation*. Retrieved from NITDA: https://nitda.gov.ng/covid-19-accelerates-digital-technology-adaptation-nitda/4823/

NITDA. (2023). *Shaping the Future of Nigeria's Digital Workforce*. Retrieved from https://3mtt.nitda.gov.ng/

Nwankwo, C., & Ibekwe, T. (2019). Redefining Youth Participation: The Rise of Civic Tech in Nigeria. *African Governance Review, 11*(1), 45–59.

Nwanmuoh, E. E., Dibua, E. C., Onyegbuna, C. M., & Friday, E. C. (2024). Information Communication Technology (ICT) and the Effective Growth of SMEs in Anambra State, Nigeria. *International journal of capacity building in education and management, 6*(5), 19-30.

Nwaozuru, U., Tahlil, K. M., Obiezu-Umeh, C., Gbaja-Biamila, T., Asuquo, S. E., Idigbe, I., & Tucker, J. D. (2021). Tailoring youth-friendly health services in nigeria: A mixed-methods analysis of a designathon approach. *Tailoring youth-friendly health services in nigeria: A mixed-methods analysis of a designathon approach, 14*(1).

Nwuneli, N. O. (2016). Social Innovation in Africa -A practical guide for Scaling Impact. *Routledge Studies in African Development*.

Obia, V. (2025). Digital policy and Nigeria's platform code of practice: Towards a radical co-regulatory turn. *Data & Policy, 7*.

Obiagu, A., & Ajaps, S. (2022). Civic engagement in Nigeria: A new sociopolitical development perspective. *International Journal of Social Sciences and Educational Studies, 9*(1), 128-147.

Obielumani, F., & Udechukwu, C. (2022). Youth Digital Engagement and Civic Empowerment in Nigeria: An Emerging Paradigm. *Journal of Innovation and Social Change in Africa, 4*(2), 55–71.

Ochinanwata, C., Paul, A. I., & Radicic, D. (2024). The institutional impact on the digital platform ecosystem and innovation. *International Journal of Entrepreneurial Behaviour & Research, 30*(2), 687-708.

Odeh, M. A., & Okoye, C. O. (2014). Poverty Reduction Policy and Youth Unemployment in Nigeria. *Public Policy and Administration Research, 4*(3), 92-103.

Odejimi, O. A., & Clark, L. F. (2025). Metacognition and the 5Cs of positive youth development programs: A review of metacognitive interventions. *Journal of Youth Development, 20*(1), 45-61.

Odumosu, A. A., Binuyo, A., & Adesoga, D. (2020). Social Innovation and Graduate Entrepreneurship in Nigeria. 48–55.

Oduola, O. Z., & Adedayo, A. I. (2023). Impact of positive psychotherapy on police trainees' prosocial behavior: Evidence from nigeria. *IUP Journal of Soft Skills*, *17*(2), 5-19.

Oduwole, O. O., & Alabi, T. (2020). Evaluating skills acquisition in Nigerian youth employment schemes: Gaps and prospects. *African Journal of Vocational Education and Research, 9*(2), 88–104.

Ogbo, A. I., & Nwachukwu, A. C. (2012). The Role of Entrepreneurship in Economic Development: The Nigerian Perspective. *European Journal of Business and Management, 4*(8), 95-105.

Ogunlade, J., & Ezeanya, C. (2018). Youth Development in Nigeria: The Need for Transformative Approaches. *African Journal of Policy and Development, 5*(1), 29–47.

Ohanyelu, C. N., & Nwauwa, B. E. (2025). Education Technology Innovation: Enhancing the Academic Performance of Undergraduate Distance Learners in Nigeria Universities Through Massive Open Online Courses (MOOCs). *British Journal of Education, 13*(1), 74-89.

Ohize, E. J., & Adamu, M. J. (2009). Case Study of Youth Empowerment Scheme of Niger State, Nigeria in Poverty Alleviation. *AU Journal of Technology, 13*(1), 47-52.

Okafor, D. C., & Uche, J. I. (2022). Digital innovation and youth capacity-building in Lagos: A quasi-experimental study. *Nigerian Journal of Technology and Society, 6*(1), 45–60.

Okanlawon, T. T., Luqman, O. O., & Richard, A. J. (2024). Assessment of barriers to the implementation of blockchain technology in construction supply chain management in nigeria. *Frontiers in Engineering and Built Environment, 4*(1), 59-73.

Okanlawon, T., Oyewobi, L., Dauda, J., Ogunjimi, O., Bello, A., & Jimoh, R. (2025). Modeling the Effect of Integrating Augmented Reality on Construction Lifecycle in Nigeria Using Partial Least Square Structural Equation Modelling (PLS-SEM). *Smart and Sustainable Built Environment*.

Okonkwo. (2019). Youth Unemployment and the Challenges of Development in Nigeria: An Analytical Discourse. *Journal of Nigerian Public Administration and Governance, 5*(5), 90–105.

Okonkwo, F., & Oluwaseun, K. (2021). Policy Ambitions vs. Practical Realities: A Critical Look at Nigeria's Digital Economy Strategy. *Nigerian Journal of Policy and Development Studies, 9*(2), 66–81.

Okoroma, N. S. (2006). Educational Policies and Problems of Implementation in Nigeria. *Australian Journal of Adult Learning, 46*(2), 243-263.

Okoye, F. C., & Omeje, K. (2019). Access and Equity in Youth Development: Challenges of Policy Implementation in Nigeria. *Nigerian Journal of Public Administration and Policy Research, 11*(1), 33–47.

Okuboyejo, S., Adekanye, O., & Ayeni, F. (2025). Evaluating User Experience in Learning Applications among University Students in Nigeria Using UEQ. *International Journal of Emerging Technologies in Learning, 20*(2).

Olabimitan, B. A., Jaiyeola, T., & Oluwagbejami, I. Y. (2025). RESILIENCE AND SELF-EFFICACY: THE PSYCHOLOGICAL DRIVERS TO EMPOWERING NIGERIAN ENTREPRENEURS. *AFRICAN JOURNAL FOR THE PSYCHOLOGICAL STUDIES OF SOCIAL ISSUES*, *28*(2).

Oladele, S., & Bamkole, P. (2024). Oladele, S., & Bamkole, P. (2024). Transitional Challenges in Lagos'(Nigeria) Entrepreneurial Ecosystem: A Multi-level Analysis. *In Exploring Entrepreneurship: Unpacking the Mosaic of Entrepreneurship across Africa*, 433-463.

Oladipo, G., & Ogunyemi, D. (2020). Youth as Co-Creators: Social Innovation and the Future of Nigerian Development. *Journal of Social Change and Innovation in Africa, 4*(3), 102–118.

Olanrele, I. (2025). Willingness to pay for reliable electricity supply in nigeria: Evidence from residential consumers. *African Journal of Economic Review, 13*(1), 26-40.

Olanrewaju, O. (2020). An assessment of the gender and equal opportunities bill in nigeria : Focus on human rights. *African Journal of Gender, Society & Development, 9*(2), 99-99–117.

Olaoye, A. A., Adegoke, J. F., & Adebisi, E. A. (2025). Factors affecting intention to adopt e-business in small and medium enterprises (SMES) in Bauchi metropolis, Nigeria: Moderating role of information security. *Impressive Journal of Management and Social Sciences, 1*(2), 1-10.

Olayiwola, J., Ajide, F., & Oyeyemi, J. (2024). Relationship between venture capital, financial innovation, and operating performance in nigerian fintech firms. *Economics and Culture, 21*(2), 180-198.

Olonade, O. Y., George, T. O., Imhonopi, D., Egharevba, M. E., & Kasa, A. G. (2022). Youths' socio-economic well-being in southwest nigeria: What role can empowerment/poverty reduction programmes play. *Cogent Social Sciences, 8*(1).

Olowookere, E. I., Akinbode, G. A., & Olaolu, R. (2019). Psychological empowerment and life satisfaction among Nigerian youth: The mediating role of meaningful work. *rk. Journal of Positive Psychology and Social Justice, 5*(1), 76–90.

Olubusoye, O. E., Salisu, A. A., & Olofin, S. O. (2023). Youth unemployment in nigeria: Nature, causes and solutions. *Quality and Quantity, 57*(2), 1125-1157.

Olubusoye, O., Salisu, A., & Olofin, S. (2023). Youth unemployment in Nigeria: nature, causes and solutions. *Quality and Quantity, 57*(2), 1125-1157.

Oludoyi, I. O. (2025). Effect of KYC and AML Regulations on Cryptocurrency Exchange Preference Among Nigerian Users. *Journal of Economics, Business, and Commerce, 2*(2), 1-9.

Oluwakemi, A. O., & Amaka, C. C. (2020). Dimensions and drivers of women's empowerment in rural nigeria. [Empowerment of women]. *International Journal of Social Economics, 47*(3), 315-333.

Omopo, B. S., & Ekpo, C. E. (2024). THE "US" AND "THEM" DIVIDE: Rethinking the role of young people in religious conflicts in nigeria. *African Conflict and Peacebuilding Review, 14*(1), 59-85.

Omoyele, O. S., Oloke, E., Olabisi, F., & Aderemi, T. A. (2022). Economic growth, youth unemployment and poverty in nigeria: A granger causality approach. *Retrieved from*

https://www.proquest.com/scholarly-journals/economic-growth-youth-unemployment-poverty/docview/2769364167/se-2, 18(4).

Oni, T., & Ogundele, I. (2020). Barriers to Digital Inclusion in Nigeria: A Sectoral Review. *Journal of African Digital Inclusion Research, 2*(1), 15–34.

Onipede, K. J. (2010). Technology Development in Nigeria: The Nigerian Machine Tools Industry Experience. *Journal of Economics, 1*(2), 85-90.

Onisanwa, I., & Adaji, M. O. (2020). Electricity consumption and its determinants in Nigeria. *Journal of Economics & Management, 41*, 87-104.

Ononye, U. H., & Ehiagiator, D. E. (2025). Enriching Entrepreneurship Education: Unravelling the Effect of Entrepreneurial Storytelling on Entrepreneurial Intention through Entrepreneurial Passion, Self-Efficacy, and Attitude. *Petra International Journal of Business Studies,, 8*(1), 77-87.

Onuka, O. (2021). Microcredit and poverty alleviation in Nigeria in COVID-19 pandemic. *Asia-Pac. J. Rural. Dev., 31*, 7-36.

Onuoha, P., Peripaul, O., Woghiren, U., & Uhunoma, A. (2019). Job Creation Strategies for Nigeria. *Journal of Advances in Economics and Finance, 4*(1), 23-30.

Onwuegbuchi, C., & Okafor, D. (2020). The Limits of Digital Inclusion: Youth and Access to ICT in Nigeria. *Nigerian Journal of Communication and Society, 4*(2), 58–75.

Onwughalu, V. C., & Ojakorotu, V. (2020). The 4th industrial revolution : An opportunity for Africa's "Decolonization" and development or recolonization?: Research. *African Renaissance, 17*(1), 75-75–93.

Opportunity@Work. (2020). *Reach for the STARs: The Potential of America's Hidden Talent Pool.* Opportunity@Work and Accenture.

Oriji, C. C., & Kenechukwu, H. C. (2025). YOUTH EMPOWERMENT, SELF EMPLOYMENT AND ENHANCEMENT OF ENTREPRENEURSHIP IN RIVERS STATE, NIGERIA. *BW Academic Journal*(2), 1-13.

Osah, G., Isikalu, A. A., Doma, J. A., & Irmiya, U. M. (2025). *Navigating poverty and state fragility in the West African microcosm: The economic community of West African states, Ubuntu, and human security trialogue.* Conflict and Poverty in Africa . Routledge.

Oshionebo, B., & Okoronkwo, K. (2024). urrent trends and practices in graphic communication in Nigeria: A focus on Canva. *Creative Artist: A Journal of Theatre and Media Studies, 18*(2), 98-119.

Osimen, G. U., Etoroma, O. M., Pokubo, I., & Adi, I. (2025). N-Power program and youth empowerment in Nigeria. *Cogent Social Sciences, 11*(1).

Osinubi, T. T., Osinubi, O. B., & Ibukun, C. O. (2022). Achieving Inclusive Growth through Food Security in Nigeria. *Ife Social Sciences Review, 30*(1), 91-108.

Osmond, C. A., Makuachukwu, G. O., & Mbah, S. A. (2020). Graduate underemployment challenges and future labour market uncertainties in nigeria. EuroEconomica. *Retrieved from https://www.proquest.com/scholarly-journals/graduate-underemployment-challenges-future-labour/docview/2769616412/se-2, 39*(3).

Owoeye, A. B. (2025). Entrepreneurship, Growth Drivers, and Economic Development: The Roles of Small-Medium Enterprises (SMEs) in Sustainable Development in Nigeria.

INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS), 9(5).

Owolabi, S., & Obun-Andy, M. K. (2024). Sources of Entrepreneurial Information and Utilization among Job Seeking Youths in Ogun State, Nigeria. *Nasarawa Journal Of Multimedia And Communication Studies, 6*(1), 119-127.

Oyadeyi, O. (2024). Banking innovation, financial inclusion and economic growth in nigeria. *Journal of the Knowledge Economy, 15*(2), 7014-7043.

Oyesomi, K. O., Salawu, A., & Oluwatosin, A. (2021). The politics of youth empowerment programmes in Nigeria: A critique of intent and outcome. *African Journal of Governance and Development, 10*(1), 77–93.

Pan, X. (2020). Technology Acceptance, Technological Self-Efficacy, and Attitude Toward Technology-Based Self-Directed Learning: Learning Motivation as a Mediator. *Frontiers in Psychology*.

Reischl, M., Zimmerman, M. A., Morrel-Samuels, S., Franzen, S. P., Faulk, M., Eisman, A. B., & Roberts, E. (2011). Youth Empowerment Solutions for violence prevention. *Adolescent Medicine State of the Art Reviews, 22*(3), 581–600.

Rodrigues, N. L. (2007). Management Models and Social Innovation in Non-Profit Organizations: Divergences and Convergences between Nonprofit Sector and Social Economy Authors. *https://periodicos.ufba.br/index.php/revistaoes/article/view/10917, 14*(43).

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *55*(1), 68-78.

Sadiq, O., Hack-Polay, D., Fuller, T., & Rahman, M. (2022). Barriers to the effective integration of developed ICT for SMEs in rural NIGERIA. *Businesses, 2*(4), 501.

Salisu, O. U., Esomchi, O. S., Ibrahim, M. N., & Anselm, V. D. (2024). An assessment of COVID-19 and its impact on Nigeria's socio-economic development. *Cogent Social Sciences, 10*(1).

Salako, E. T. (2016). Multicultural Mentorship Education: A Critical Tool for National Unity and Integration in Nigeria. *Advances in Social Sciences Research Journal, 3*(4).

Sampaio, C., & Sebastião, J. R. (2024). Social innovation and social entrepreneurship: Uncovering themes, trends, and discourse. *Administrative Sciences, 14*(3), 53.

Samuel, I. R., & Salisu, A. D. (2025). Shaping the Future of STEM Education in Nigeria through Artificial Intelligence. *Journal of African Innovation and Advanced Studies*.

Sanders, J., & Munford, R. (2020). Youth-centered empowerment: How young people are shaping their futures. *Youth & Society, 52*(3), 439-461.

Sen, A. (1999). *Development as Freedom.* Oxoford: Oxford University Press.

Shaibu, H., Ahmed, S., Suleiman, R., Rabe, J., & Abdulmumini. (2018, June). Socio-economic challenges and prospects of youths in Nigeria. *Zaria Sociological Journal, 5*(2).

Shalash, A., Abu-Rmeileh, N., Kelly, D., & Elmusharaf, K. (2024). Opportunities and challenges of using a health information system in adolescent health management: A qualitative study of healthcare providers' perspectives in the west bank, occupied palestinian territory. *PLoS One, 19*(8).

Shola, A., Adewale, S., Oke, B., & Samuel, A. (2021). The Effect of Covid-19 on Youth Unemployment, Cybercrime and National Security in Nigeria: Evidence from Nairaland. *African Journal of Sociological and Psychological Studies (AJOSAPS), 1*(1), 31-58.

Smith, M., Elder, L., & Emdon, H. (2018). Digital Dividends and the Path to Empowerment: Lessons from the Global South. *Information Technologies & International Development, 14*(3), 1–10.

Sule, B., Sambo, U., & Yusuf, M. (2023). Countering cybercrimes as the strategy of enhancing sustainable digital economy in nigeria. *Journal of Financial Crime, 30*(6), 1557-1574.

Tasci, A. D., Wei, W., & Milman, A. (2025). The choice between research question and hypothesis for paradigm harmony. *Journal of Hospitality and Tourism Horizons, 1*(1), 52-68.

Tawse, A., & Tabesh, P. (2023). Thirty years with the balanced scorecard: What we have learned. *Business Horizons, 66*(1), 123-132.

Taylor, J. B. (1970). Introducing Social Innovation. *The Journal of Applied Behavioral Science, 6*(1), 69–77.

Tunji-Olayeni, P., Osabuohien, E., Yabkwa, I., & Ademola, A. (2021). Youth Employment Creation as an Inclusive Solution for Sustainable Development: Lessons from the 'Double You Digital Skills Initiative' in Nigeria. *International Conference on Energy and Sustainable Environment*.

Tuteria. (2025). *Hometutors*. Retrieved from https://v2.tuteria.com/

Tynjälä, P., & Nikkanen, P. (2007). he Role of VET in Creating Innovative Networks and Learning Region in Central Finland. *ECER 2007 symposium*.

Uche, A., & Ojo, B. (2019). Psychological Empowerment and Social Capital: New Frontiers for Nigerian Youth Development. *Journal of African Psychology and Development, 3*(1), 22–41.

Ugochukwu, C., & Nwachukwu, J. (2018). Beyond Service Delivery: A Conceptual Framework for Social Innovation in Nigeria. *Journal of Innovation Policy and Practice, 8*(1), 31–46.

Ugwu, D. C., Ayogu, C. K., & Onyishi, I. E. (2025). THE RELATIONSHIP BETWEEN PSYCHOLOGICAL CAPITAL AND INTRAPRENEURSHIP BEHAVIOUR: MEDIATING ROLE OF PSYCHOLOGICAL OWNERSHIP. *Management Research and Practice, 17*(1), 66-77.

UN. (2020). Retrieved from United Nations: www.un.org/development/desa/youth/wp-content/uploads/sites/21/2020/07/2020-World-Youth-Report-FULL-FINAL.pdf)

Undelikwo, V. A., Fortune, E. E., Lilian, O. U., Mathew, M. E., & Adejumo, T. O. (2024). Likely participants in unconventional political activities in nigeria. *African Renaissance, 21*(2), 399-399–417.

UNESCO. (2018). *Telling SAGA: Improving Measurement and Policies for Gender Equality in Science, Technology and Innovation.* Patis: UNESCO.

UNESCO. (2021). *To be Smart, the Digital Revolution will Need to be Inclusive, UNESCO Science Report.* UNESCO.

Westley, F., Antadze, N., Riddell, D., Robinson, K., & Geobey, S. (2014). Five Configurations for Scaling Up Social Innovation: Case Examples of Nonprofit Organizations From Canada. *The Journal of Applied Behavioral Science, 50,* 234-260.

Wills, J., Parker, M., & Wills, G. (2015). Reflective evaluation of civil society development: A case study of RLabs Cape Town, South Africa. *The Journal of Community Informatics, 11*(3).

Yara Ahmed, M., & Ensaf Nasser, A. (2024). Teacher education: Design thinking approach in makerspaces to produce quality educational video games with a visual identity and improve design thinking skills. *Education Sciences, 41*(7), 718.

Zahniser, J., & Zimmerman, M. (1991). Refinements of sphere-specific measures of perceived control: Development of a sociopolitical control scale. *Journal of Community Psychology, 19*, 189-204.

Zimmerman. (2018). Youth Empowerment Solutions: Evaluation of an After-School Program to Engage Middle School Students in Community Change. *Health Education and Behaviour, 45*(1), 20-31.

Zimmerman, E. A., Reischl, T., Morrel-Samuels, S., Stoddard, S., Miller, A., Hutchison, P., . . . Rupp, L. (2018). Youth Empowerment Solutions: Evaluation of an after-school program to engage middle school students in community change. *Health Educ Behav, 45*(1), 20–31.

Zimmerman, K., & London, J. (2003). Getting to Go: Assessing and Building Organizational Capacity to Engage in Youth-Led Research, Evaluation, and Planning. *Community Youth Development Journal*.

Zimmerman, M. (1995). Psychological empowerment: issues and illustrations. *American Journal of Community Psychology, 23*(5), 581–599.

Zimmerman, M. A., Eisman, A. B., Reischl, T. M., Morrel-Samuels, S., Stoddard, S., Miller, A. L., . . . Rupp, L. (2018). Youth Empowerment Solutions: Evaluation of an After-School Program to Engage Middle School Students in Community Change. *Health Education and Behavior, 45*(1), 20-31.

APPENDICES

Appendix A: Unicaf University Research Ethics Decision

UNICAF UNIVERSITY

UREC Decision, Version 2.0

Unicaf University Research Ethics Committee Decision

Student's Name:	Kolawole Kayode Ladejobi
Student's ID #:	R1806D5491586
Supervisor's Name:	Dr Evangelos Tsoukatos
Program of Study:	DBA
OfferID / GroupID:	O59817G61289
Dissertation stage:	DS4
Research Project Title:	Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria
Ethical conditions for approval:	No comments.
Methodological recommendations:	
Decision*:	A. Approved without revision or comments
Date:	March 5, 2024

All Doctoral students are advised to check the regulations pertaining to research and General Data Protection Regulation (GDPR) of the country in which the research will take place as each country may have different restrictions on conducting research.

i. Approval from a local Research Ethics Committee (REC) or professional regulatory body such as Institutional Review Board (IRB)

ii. Approval from Ministry or public agency

*Provisional approval provided at the Dissertation Stage 1, whereas the **final** approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

Appendix B: National Health Research Ethics Committee of Nigeria (NHREC)

National Health Research Ethics Committee of Nigeria (NHREC)

Promoting Highest Ethical and Scientific Standards for Health Research in Nigeria

Federal Ministry of Health

NHREC Protocol Number NHREC/01/01/2007-12/04/2024
NHREC Approval Number NHREC/01/01/2007- 06/05/2024ii
Date: 6th May 2024

Re: Impact of The Youth Agency Marketplace Digital Platform on Youth Development: Evidence from Nigeria

Health Research Ethics Committee (HREC) assigned number: NHREC/01/01/2007

Name of Student Investigator: Kolawole Ladejobi
Address of Student Investigator: Unicaf University, Zambia Campus
Email: kolawole.ladejobi@gmail.com
Tel: +234 802 222 0020

Date of receipt of valid application: 12/04/2024

Date when final determination of research was made: 06-05-2024

Notice of Expedited Committee Review and Approval

This is to inform you that the research described in the submitted protocol, consent form, advertisement and other participant information materials have been reviewed and *given expedited committee approval by the National Health Research Ethics Committee.*

This approval dates from 06/05/2024 to 05/04/2025. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study.* In multiyear research, endeavour to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code.

The HREC reserves the right to conduct compliance visit to your research site without previous notification.

Signed

Professor Richard A Adegbola, MSc, PhD (Dundee), FIBMS (UK), FRCPath (London) FRCP (Hons, London), FAS, FAAS, FAMedS.
Chairman, National Health Research Ethics Committee of Nigeria (NHREC)

Department of Health Planning, Research & Statistics
Federal Ministry of Health
11th Floor, Federal Secretariat Complex Phase III

Tel: +234-09-523-8367
E-mail: chairman@nhrec.net, secretary@nhrec.net, deskofficer@nhrec.net,

Appendix C: UNICEF Approval

Kolawole Kayode Ladejobi **Friday, February 3, 2023 at 15:05:02 West Africa Standard Time**

Subject: FW: DBA- Doctorate of Business Administration at UNICAF for Kola Ladejobi
Date: Monday, 30 January 2023 at 13:14:30 West Africa Standard Time
From: Eileen Spilsbury-Williams <espilsburywilliams@unicef.org>
To: Kolawole Kayode Ladejobi <kladejobi@unicef.org>
CC: Cindy McWhorter <cmcwhorter@unicef.org>
Attachments: image002.png, image003.png

Dear Kola,

The Representative has approved your request. Please proceed.

Thank you

Eileen

From: Cristian Munduate <cmunduate@unicef.org>
Sent: Monday, January 30, 2023 12:46 PM
To: Eileen Spilsbury-Williams <espilsburywilliams@unicef.org>
Cc: Cindy McWhorter <cmcwhorter@unicef.org>
Subject: RE: DBA- Doctorate of Business Administration at UNICAF for Kola Ladejobi

Dear Eileen
It is approved

Regards
Cristian

Cristian Munduate
Country Representative
United Nations House,
Plot 617 / 618, Diplomatic Drive,
Central Business District, Garki, Abuja
Mobile 234 913 938 6883 | E-mail: cmunduate@unicef.org

for every child, a fair chance

unicef | for every child

From: Eileen Spilsbury-Williams <espilsburywilliams@unicef.org>
Sent: Monday, January 23, 2023 5:57 PM
To: Cristian Munduate <cmunduate@unicef.org>
Cc: Cindy McWhorter <cmcwhorter@unicef.org>
Subject: FW: DBA- Doctorate of Business Administration at UNICAF for Kola Ladejobi

Dear Cristian,

I am requesting your approval to allow Kolawole, Innovation Specialist completes his DBA thesis using some participants in YOMA (youth agency marketplace). As you may know, the Youth Agency Marketplaces (YOMA) is a social innovation and digital platform designed during the COVID-19 lockdown incubated within the innovation at UNICEF Nigeria with the attempt to address the prevalent unemployment and restiveness that has negatively impacted the development and livelihoods of youths

Appendix D: Gatekeeper Letter

UNICAF UNIVERSITY

UU_GL - Version 2.0

Gatekeeper letter

Address: UNICEF, UN House, Plot 617/618. Abuja

Date: 04-Jan-2023

Subject: Assistance for Doctoral Research

Dear Eileen,

I am a **doctoral** student at Unicaf University **Zambia**.

Following my email to you on **the** 26th February 2020, as part of my degree I am carrying out a study on **Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria** and my supervisor is Dr. Evangelos Tsoukatos.

I am writing to enquire whether you would be willing to assist with **permission to recruit participants** in this research.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using YOMA as program model to examine the effect of social innovation the development and livelihoods for young people. As you may know, the Youth Agency Marketplaces (YOMA) is a social innovation and digital platform designed during the COVID 19 lock down incubated within the innovation at UNICEF Nigeria with the attempt to address the prevalent unemployment and restiveness that has negatively impacted the development and livelihoods of youths in Africa. The goal is to examine how YOMA can assist marginalized youths in acquiring intrapersonal, interpersonal and the requisite behavior to improve their quality if life while offering learning to earning opportunities. I would require access to the data of registered users of the YOMA.

For a period of 4 weeks, I would be sending out a survey via email to some registered users in YOMA. The survey would require anonymous responses so no personal identifiable data will be collected. Secondly, participants would be asked to provide their consent before they are allowed to participate. The results will be used for academic purpose only.

Thank you in advance for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Kolawole Ladejobi

Student's Name: Kolawole Ladejobi
Student's E-mail: kolawole.ladejobi@gmail.com
Student's Address and Telephone: 5 aber t benjamin, durumi. Abuja | 08022220020
Supervisor's Title and Name: Dr. Evangelos Tsoukatos
Supervisor's Position: Supervisor
Supervisor's E-mail: e.tsoukatos@unicaf.org

Appendix E: Informed Consent Form – Part 1 Debriefing of Participants

UNICAF UNIVERSITY

UU_IC - Version 2.1

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Kolawole Kayode Ladejobi

Student's E-mail Address: kolawole.ladejobi@gmail.com

Student ID #: R1806D5491586

Supervisor's Name: Dr Evangelos Tsoukatos

University Campus: Unicaf University Zambia (UUZ)

Program of Study: UUM: DBA - Doctorate of Business Administration

Research Project Title: Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria

Date: 09-Jan-2023

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

This research study examines the impact of the new digital platform, Youth Agency Marketplace, or YOMA, on the development of young people in Nigeria. YOMA is a digital social innovation platform designed and incubated at UNICEF Nigeria during the COVID-19 lockdown, providing learning and earning opportunities to address the prevalent unemployment and restiveness that have negatively impacted the development and livelihoods of youth in Nigeria.

The three main research questions include:
1. What is the effect of YOMA on the development of self-efficacy in the lives of young people in Nigeria? 2. What is the effect of YOMA on the acquisition of digital skills in the development of young people in Nigeria? 3. What is the effect of YOMA on the development of the youth in Nigeria through participation in social impact tasks?

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Kolawole Kayode Ladejobi **, ensure that all information stated above is true and that all conditions have been met.**

Student's Signature: Kolawole Ladejobi

Appendix F: Informed Consent Form – Part 2 Certificate of Consent

UNICAF UNIVERSITY

UU_IC - Version 2.1

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name:	Kolawole Kayode Ladejobi
Student's E-mail Address:	kolawole.ladejobi@gmail.com
Student ID #:	R1806D5491586
Supervisor's Name:	Dr Evangelos Tsoukatos
University Campus:	Unicaf University Zambia (UUZ)
Program of Study:	UUM: DBA - Doctorate of Business Administration
Research Project Title:	Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name:

Participant's Signature:

Date:

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name:

Witness's Signature:

Date:

Appendix G: Unicaf University Research Ethics Application Form

UNICAF UNIVERSITY

REAF_DS - Version 3.1 AP ☐

UNICAF UNIVERSITY
RESEARCH ETHICS APPLICATION FORM
DOCTORAL STUDIES

UREC USE ONLY:
Application No:
Date Received:

Student's Name: Kolawole Kayode Ladejobi

Student's E-mail Address: kolawole.ladejobi@gmail.com

Student's ID #: R1806D5491586

Supervisor's Name: Dr Evangelos Tsoukatos

University Campus: Unicaf University Zambia (UUZ)

Program of Study: UUZ: DBA Doctorate of Business Administration

Research Project Title: Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 06-Sep-2021 Estimated End Date: 2-Oct-2023

2. **External Research Funding (if applicable):**

2.a. Do you have any external funding for your research?

☐ YES ☑ NO

If YES, please answer questions **2b** and **2c**.

2.b. List any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

2.c. If there are any perceived ethical issues or potential conflicts of interest arising from applying or and receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

3. The research project

3.a. Project Summary:

In this section fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect ensure that you fully explain / define any technical terms or discipline-specific terminology (use the space provided in the box).

Nigeria arguably has the highest population of young people in comparison to the other countries in Africa, living in deplorable socioeconomic conditions. Young people in Nigeria continue to face significant challenges in education, health, employment etc. and are constantly excluded from participating in decision-making processes that concern them. The COVID-19 pandemic has also increased the unemployment rate and the duration of young people's unemployment experience in Nigeria.

This research study examines the impact of the new digital platform, Youth Agency Marketplace, or YOMA, on the development of young people in Nigeria. YOMA is a digital social innovation platform designed and incubated at UNICEF Nigeria during the COVID-19 lockdown, providing learning and earning opportunities to address the prevalent unemployment and restiveness that have negatively impacted the development and livelihoods of youth in Nigeria.

The three main research questions include:
1. What is the effect of YOMA on the development of self-efficacy in the lives of young people in Nigeria? 2. What is the effect of YOMA on the acquisition of digital skills in the development of young people in Nigeria? 3. What is the effect of YOMA on the development of the youth in Nigeria through participation in social impact tasks?

Hence testing the following hypothesis:
H1: YOMA is positively associated with the Self-Efficacy of young people in Nigeria
H2: YOMA is positively associated with the skills development of young people in Nigeria
H3: YOMA is positively associated with the social impact development of young people in Nigeria

3.b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (use the space provided in the box).

The socioeconomic state of young people has increasingly become a central political and security concern for governments and policymakers, particularly in Nigeria. This research will provide a new be relevant new knowledge for researchers, industry experts, donors, policymakers and stakeholders from the private and public sectors in Nigeria for using YOMA to:
i) Increase self-esteem in young people,
ii) Increase skills development and
iii) Decrease involvement in risky behaviours through participation in social impact tasks

4. Project execution:

4.a. The following study is an:

- [x] experimental study (primary research)
- [ ] desktop study (secondary research)
- [ ] desktop study using existing databases involving information of human/animal subjects
- [ ] Other

If you have chosen 'Other' please Explain:

4.b. Methods. The following study will involve the use of:

Method	Materials / Tools
Qualitative:	☐ Face to Face Interviews
	☐ Phone Interviews
	☐ Face to Face Focus Groups
	☐ Online Focus Groups
	☐ Other *
Quantitative:	☐ Face to Face Questionnaires
	☑ Online Questionnaires
	☐ Experiments
	☐ Tests
	☐ Other *

*If you have chosen 'Other' please Explain:

5. Participants:

5 a. Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?

☑ YES **If YES, please complete all following sections.**

☐ NO **If NO, please directly proceed to Question 7.**

5 b. Relevant Details of the Participants of the Proposed Research

State the number of participants you plan to recruit, and explain in the box below how the total number was calculated.

Number of participants: 399

n = [z2 x p x (1 - p) / e2] / [1 + (z2 x p x (1 - p) / (e2 x N))]
Where: z = 1.96 for a confidence level (α) of 95%,
p = proportion (expressed as a decimal), N = population size, e = margin of error.
n = (number of respondents needed/ expected % response rate) x 100

Describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Age range From 18 To 35

Gender
- ☑ Female
- ☑ Male

Eligibility Criteria:

- Inclusion criteria: Participants in the research will only be recruited if they are already enrolled on the YOMA digital platform.
- Exclusion criteria: The African youths charter recognises youths as people between the age of 15 and 35. Hence this study will exclude people less that 18yrs as well as those that are above 35yrs

Disabilities: Includes the participants who can provide informed consent for themselves, therefore, people with mental disabilities will not take part in the research.

Other relevant information (use the space provided in the box):

5 c. Participation & Research setting:

Clearly describe which group of participants is completing/participating in the material(s)/ tool(s) described in 5b above (use the space provided in the box).

The participants will comprise of young people registered in the YOMA and participated in the pilot covid-19 innovation challenge hosted in YOMA during the COVID-19 lockdown in 2020.

5 d. Recruitment Process for Human Research Participants:

Clearly describe how the potential participants will be identified, approached and recruited (use the space provided in the box).

YOMA is a social innovation developed and incubated within UNICEF. Hence, I would need to seek permission from the chief of human resources who is the Gatekeeper to have access to email addresses of users registered in the YOMA platform. Once the approval is obtained, an email will be sent to the recipient list with a message that is clear, concise and scannable with a brief purpose of the study soliciting for their participation. A URL link to an online mobile optimized survey will also be included, which users can conveniently click to open using their mobile phones. I will let the respondents know that the survey data collected will be anonymous and for academic purpose only.

5 e. Research Participants Informed Consent.

Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Categories of participants	Form to be completed
☑	☐	Typically Developing population(s) above the maturity age *	Informed Consent Form
☐	☑	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

5 f. Relationship between the principal investigator and participants.

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐ YES ☑ NO

If YES, specify (use the space provided in the box).

6. Potential Risks of the Proposed Research Study.

6 a. i. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events (such as the risk of an accident when travelling to a remote location for data collection)?

☐ YES ☑ NO

If YES, specify below and answer the question 6 a.ii.

6 a.ii Provide information on what measures will be taken in order to exclude or minimise risks described in 6.a.i.

6 b. Choose the appropriate option

		Yes	No
i.	Will you obtain written informed consent form from all participants?	✓	
ii.	Does the research involve as participants, people whose ability to give free and informed consent is in question?		✓
iii.	Does this research involve participants who are children under maturity age? **If you answered YES to question iii, complete all following questions.** **If you answered NO to question iii, do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.**		✓
iv.	Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?		✓
v.	Will informed consent be obtained from the legal guardians (i.e. parents) of children?		✓
vi.	Will verbal assent be obtained from children?		✓
vii.	Will all data be treated as confidential? If NO, explain why confidentiality of the collected data is not appropriate for this proposed research project, providing details of how all participants will be informed of the fact that any data which they will provide will not be confidential.	✓	
viii.	Will all participants /data collected be anonymous? If NO, explain why and describe the procedures to be used to ensure the anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	✓	

		Yes	No
ix.	Have you ensured that personal data and research data collected from participants will be securely stored for five years?	✓	☐
x.	Does this research involve the deception of participants? If YES, describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	☐	✓

6 c. i. Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?

☐ Yes ✓ No

If YES, specify (maximum 150 words).

6.c.ii Provide information on what measures will be taken in order to exclude or minimise ethical issues described in 6.c.i.

6 d. Indicate the Risk Rating.

☐ High ✓ Low

7. **Further Approvals**

Are there any other approvals required (in addition to ethics clearance from UREC) in order to carry out the proposed research study?

☐ YES ☑ NO

If YES, specify (maximum 100 words).

8. **Application Checklist**

Mark √ if the study involves any of the following:

☐ Children and young people under 18 years of age, vulnerable population such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged, pregnant women, elderly, malnourished people, and ill people.

☐ Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and / or has the potential to / will infringe on their human rights / fundamental rights.

☐ Risk to the well-being and personal safety of the researcher.

☐ Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.

☐ Results that may have an adverse impact on the natural or built environment.

9. **Further documents**

Check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	☐	☑
2	Informed Consent Form / Guardian Informed Consent Form	☑	☐
3	Research Tool(s)	☑	☐
4	Gatekeeper Letter	☑	☐
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	☑	☐

10. Final Declaration by Applicants:

(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

☑ **I agree with all points listed under Question 10**

Student's Name: Kolawole Kayode Ladejobi

Supervisor's Name: Dr Evangelos Tsoukatos

Date of Application: 03-Jan-2023

Important Note:
Save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). **In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor.** If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; **do not** hand fill and submit scanned paper copies of this application.

Appendix I: Data Collection tool

Introductory script

Dear respondent, I am Kola Ladejobi, a student of UNICAF University. I humbly request you to answer the questions on the Impact of the youth agency marketplace digital platform on youth development: Evidence from Nigeria. Your answers will be confidential and used only for academic purposes. This research aims to examine the impact of social innovation on the development of young people. The model program used for this research is the Youth Agency Marketplace, known as YOMA. YOMA is a social innovation and digital platform designed during the COVID-19 lockdown and incubated at UNICEF to address the prevalent unemployment and restiveness that has negatively impacted the development and livelihoods of the youths in Africa.

YOMA aims to assist marginalised youths in acquiring the intrapersonal, interactional skills and the requisite behaviour necessary to enhance their quality of life by offering learning to earning opportunities. The three main research questions include: 1. What is the effect of YOMA on the development of self-efficacy in the lives of young people in Nigeria? 2. What is the effect of YOMA on the acquisition of digital skills in the development of young people in Nigeria? 3. What is the effect of YOMA on the development of the youth in Nigeria through participation in social impact tasks?

I have read the foregoing information about this research, or it has been read to me. I have had the opportunity to ask questions and discuss it. I have received satisfactory answers to all my

questions and enough information about this research. I understand that I am free to withdraw from this research at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for my participation in this research. I understand that my data will remain anonymous and confidential unless stated otherwise.

I consent voluntarily to be a participant in this research. ☐

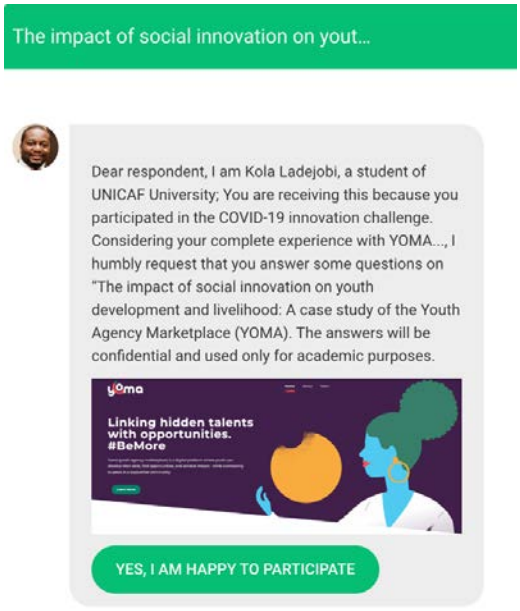
Questionnaire Design

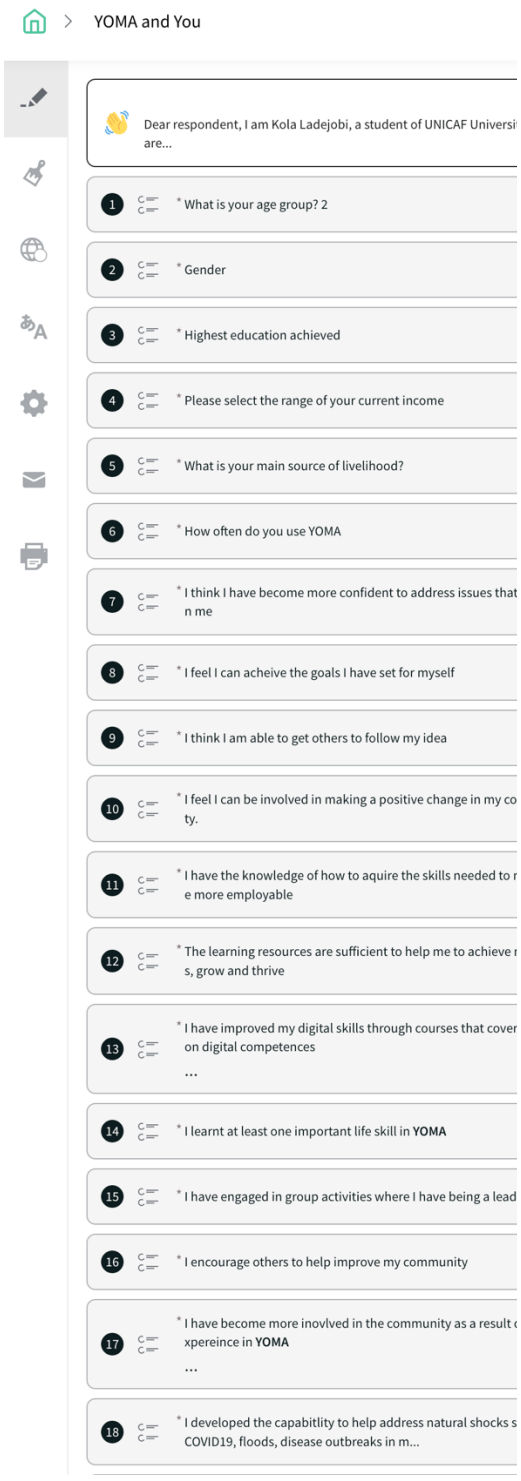
	Item	Measurement				
1	How often do you use YOMA in a month?	not any more	less than 3 times	about 5 times	more than 5 times	I am a heavy user
2	What State are you in?	Select State				
3	What is your age group?	18- 20 years	21-25 years	26-30 years	31-35 years	other
4	Gender	Male	Female	Prefer not to mention		
5	Highest education achieved	Primary	Secondary	Diploma	Bsc	Msc
6	Please select the range of your current income	Nothing has changed	From (N5k – N25k) to (N25k – N50k)	from (N26k – N50k) to (N50k - N75k)	from (N50k - N75k) to (N75k - N120k)	from (N75k - N120k) to (N120k and above)
7	What is your main source of livelihood?	allowances	agriculture	handcraft	trading	salaried job
8	Using YOMA contributed to my current income	Strongly disagree	disagree	neutral	Agree	Strongly agree
9	Through YOMA, I think I have become more confident to address issues that concern me	Strongly disagree	disagree	neutral	Agree	Strongly agree
10	Through YOMA, I feel I can achieve the goals I have set for myself	Strongly disagree	disagree	neutral	Agree	Strongly agree

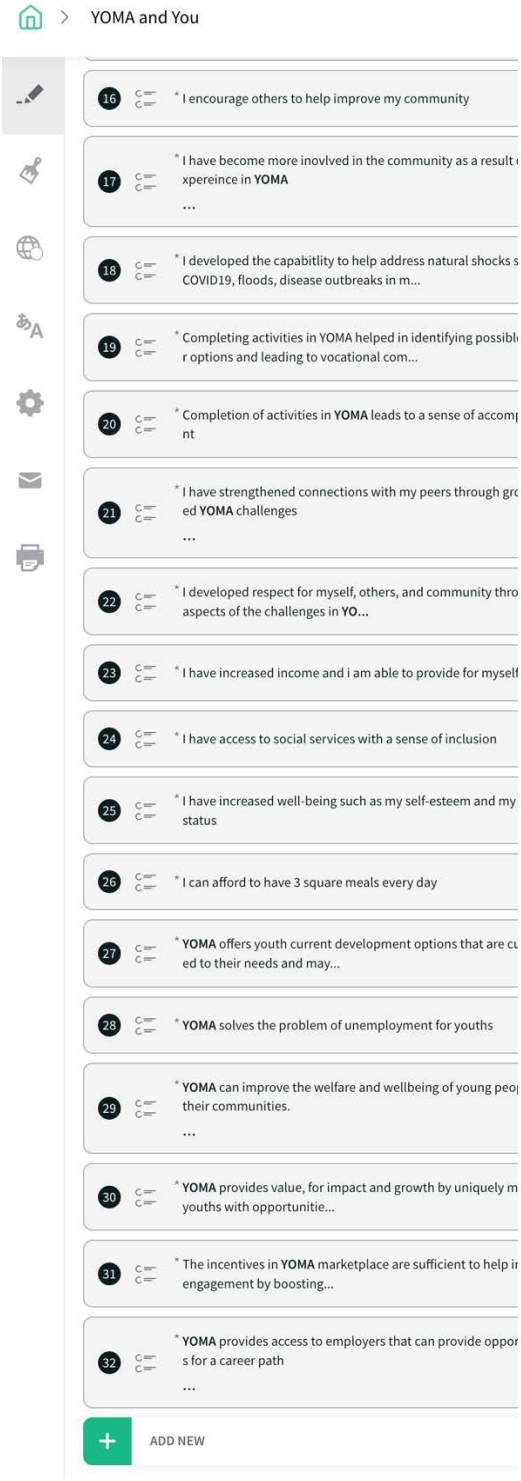
11	Through YOMA, I think I am able to get others to follow my idea	Strongly disagree	disagree	neutral	Agree	Strongly agree
12	Through YOMA, I feel I can be involved in making a positive change in my community.	Strongly disagree	disagree	neutral	Agree	Strongly agree
13	Through YOMA, I have the knowledge of how to acquire the skills needed to make me more employable	Strongly disagree	disagree	neutral	Agree	Strongly agree
14	In YOMA, the learning resources are sufficient to help me to achieve my goals, grow and thrive	Strongly disagree	disagree	neutral	Agree	Strongly agree
15	In YOMA, I have improved my digital skills through courses that cover topics on digital competences	Strongly disagree	disagree	neutral	Agree	Strongly agree
16	I learnt at least one important life skill in YOMA	Strongly disagree	disagree	neutral	Agree	Strongly agree
17	As a result of YOMA, I have engaged in group activities where I have been a leader	Strongly disagree	disagree	neutral	Agree	Strongly agree
18	Because of YOMA, I encourage others to help improve my community	Strongly disagree	disagree	neutral	Agree	Strongly agree
19	I have become more involved in the community as a result of my experience in YOMA	Strongly disagree	disagree	neutral	Agree	Strongly agree
20	Because of YOMA, I developed the capability to help address natural shocks such as COVID-19, floods, and disease outbreaks in my community	Strongly disagree	disagree	neutral	Agree	Strongly agree
21	Completing activities in YOMA helped me to identify possible career options and led to vocational competence	Strongly disagree	disagree	neutral	Agree	Strongly agree
22	Completion of activities in YOMA leads to a sense of accomplishment	Strongly disagree	disagree	neutral	Agree	Strongly agree
23	I have strengthened connections with my peers through group-based YOMA challenges	Strongly disagree	disagree	neutral	Agree	Strongly agree
24	I developed respect for myself, others, and community through	Strongly disagree	disagree	neutral	Agree	Strongly agree

	all aspects of the challenges in YOMA					
25	I have increased income, and I am able to provide for myself through YOMA	Strongly disagree	disagree	neutral	Agree	Strongly agree
26	I now have access to social services with a sense of inclusion through YOMA	Strongly disagree	disagree	neutral	Agree	Strongly agree
27	Because of YOMA, I have increased my well-being; my self-esteem and my health status	Strongly disagree	disagree	neutral	Agree	Strongly agree
28	Because of YOMA, I can now afford to have 3 square meals every day	Strongly disagree	disagree	neutral	Agree	Strongly agree
29	YOMA offers youth current development options that are customised to their needs and may point them in the direction of opportunities that will help them enhance their skills.	Strongly disagree	disagree	neutral	Agree	Strongly agree
30	YOMA solves the problem of unemployment for youths	Strongly disagree	disagree	neutral	Agree	Strongly agree
31	YOMA can improve the welfare and wellbeing of young people and their communities.	Strongly disagree	disagree	neutral	Agree	Strongly agree
32	YOMA provides value, for impact and growth by uniquely matching youths with opportunities relevant to them	Strongly disagree	disagree	neutral	Agree	Strongly agree
33	The incentives in YOMA marketplace are sufficient to help improve engagement by boosting youth morale and motivation	Strongly disagree	disagree	neutral	Agree	Strongly agree
34	YOMA provides access to employers that can provide opportunities for a career path	Strongly disagree	disagree	neutral	Agree	Strongly agree

Web/mobile Questionnaire online tool




YOMA and You
Dear respondent, I am Kola Ladejobi, a student of UNICAF Universi
are...
1 * What is your age group? 2
2 * Gender
3 * Highest education achieved
4 * Please select the range of your current income
5 * What is your main source of livelihood?
6 * How often do you use YOMA
7 * I think I have become more confident to address issues that
n me
8 * I feel I can acheive the goals I have set for myself
9 * I think I am able to get others to follow my idea
10 * I feel I can be involved in making a positive change in my co
ty.
11 * I have the knowledge of how to aquire the skills needed to r
e more employable
12 * The learning resources are sufficient to help me to achieve r
s, grow and thrive
13 * I have improved my digital skills through courses that cover
on digital competences
...
14 * I learnt at least one important life skill in YOMA
15 * I have engaged in group activities where I have being a lead
16 * I encourage others to help improve my community
17 * I have become more inovlved in the community as a result
xpereince in YOMA
...
18 * I developed the capabitlity to help address natural shocks s
COVID19, floods, disease outbreaks in m...


YOMA and You
16 * I encourage others to help improve my community
17 * I have become more inovlved in the community as a result
xpereince in YOMA
...
18 * I developed the capabitlity to help address natural shocks s
COVID19, floods, disease outbreaks in m...
19 * Completing activities in YOMA helped in identifying possibl
r options and leading to vocational com...
20 * Completion of activities in YOMA leads to a sense of accomp
nt
21 * I have strengthened connections with my peers through gro
ed YOMA challenges
...
22 * I developed respect for myself, others, and community thro
aspects of the challenges in YO...
23 * I have increased income and i am able to provide for myself
24 * I have access to social services with a sense of inclusion
25 * I have increased well-being such as my self-esteem and my
status
26 * I can afford to have 3 square meals every day
27 * YOMA offers youth current development options that are cu
ed to their needs and may...
28 * YOMA solves the problem of unemployment for youths
29 * YOMA can improve the welfare and wellbeing of young peop
their communities.
...
30 * YOMA provides value, for impact and growth by uniquely m
youths with opportunitie...
31 * The incentives in YOMA marketplace are sufficient to help ir
engagement by boosting...
32 * YOMA provides access to employers that can provide oppor
s for a career path
...
ADD NEW

Appendix J: Content Validity

items	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert Agreement	I-CVI	UA
item 1	1	1	1	1	1	5	1	1
item 2	1	1	1	1	1	5	1	1
item 3	1	1	1	1	1	5	1	1
item 4	1	1	1	1	1	5	1	1
item 5	1	1	1	1	1	5	1	1
item 6	1	1	1	1	1	5	1	1
item 7	1	1	1	1	1	5	1	1
item 8	1	1	1	1	1	5	1	1
item 9	1	1	1	1	1	5	1	1
item 10	1	1	1	1	1	5	1	1
item 11	1	1	1	1	1	5	1	1
item 12	1	1	1	1	1	5	1	1
item 13	1	1	1	1	1	5	1	1
item 14	1	1	1	1	1	5	1	1
item 15	1	1	1	1	1	5	1	1
item 16	1	1	1	1	1	5	1	1
item 17	1	1	1	1	1	5	1	1
item 18	1	1	1	1	1	5	1	1
item 19	1	1	1	1	1	5	1	1
item 20	1	1	1	1	1	5	1	1
item 21	1	1	1	1	1	5	1	1
item 22	1	1	1	1	1	5	1	1
item 23	1	1	1	1	1	5	1	1
item 24	1	1	1	1	1	5	1	1
item 25	1	1	1	1	1	5	1	1
item 26	1	1	1	1	1	5	1	1
item 27	1	1	1	1	1	5	1	1
item 28	1	1	1	1	1	5	1	1

item 29	1	1	1	1	1	5	1	1	
item 30	1	1	1	1	1	5	1	1	
item 31	1	1	1	1	1	5	1	1	
item 32	1	1	1	1	1	5	1	1	
item 33	1	1	1	1	1	5	1	1	
item 34	1	1	1	1	1	5	1	1	
	1.00	**1.00**	**1.00**	**1.00**	**1.00**	**sum of I-CVI**	**34**	**sum of S-CVI**	**34**
						I-CVI average	**1**	**S-CVI average**	**1**
						Accepted		**Accepted**	

Appendix K: Comparison of Weighted and Unweighted PLS-SEM Estimates

Path	β (Weighted model)	β (Unweighted model)*	Absolute Δβ
YOMA engagement → Self-Efficacy	0.70*	0.66***	0.04
YOMA engagement → Skills Development	0.61*	0.57***	0.04
YOMA engagement → Social Impact	0.65*	0.60***	0.05

Endogenous construct	R^2 (Weighted)	R^2 (Unweighted)
Self-Efficacy	.49	.45
Skills Development	.37	.33
Social Impact	.42	.38