

From Unemployment to Informality: Behavioral Drivers and Economic Outcomes of Entrepreneurial Entry in Nigeria.

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ABSTRACT

Nigeria's graduate unemployment crisis, exceeding 42% among youth, has propelled educated labour into the informal sector, which now absorbs 92.7% of employment. While structural constraints are well-documented, the behavioral mechanisms and technology-mediated learning pathways of entrepreneurial entry remain under-theorised. This study develops an integrated behavioral-economic framework extending the Theory of Planned Behaviour (TPB) to examine how digital parasocial learning and informal training networks shape the transition from unemployment to informal entrepreneurship among urban Nigerian graduates. Drawing on cross-sectional survey data from 340 graduate entrepreneurs in Lagos, Abuja, and Port Harcourt, we employ PLS-SEM, multi-group analysis, and multivariate regression. We find that parasocial learning is positively associated with entrepreneurial intention indirectly through entrepreneurial attitude and perceived behavioral control. Exploratory multi-group analysis suggests that under high necessity, the attitude, intention pathway may compress and strengthen, while subjective norms may lose predictive power; these findings require replication. Informal training and parasocial learning exhibit complementarity in predicting business performance and net profit. The study demonstrates that technology-mediated social learning represents an under-leveraged pathway for unlocking Nigeria's entrepreneurial potential, but warns that uncritical digital engagement may expose necessity-driven graduates to survivorship bias. Policy implications focus on low-cost digital literacy interventions and embedding behavioral insights into youth employment programmes without imposing formalisation burdens.

Keywords: Informal entrepreneurship, parasocial learning, digital learning, necessity entrepreneurship, Theory of Planned Behaviour, Nigeria

JEL Classification: O15, O17, J24, L26, O33, D91

INTRODUCTION

Nigeria's technological potential remains one of Africa's most significant yet underutilised assets for sustainable economic transformation (Abdul-Salaam, 2024; Bello et al., 2025). The country is experiencing an expanding digital economy and a youthful entrepreneurial ecosystem supported by increasing adoption of emerging technologies. Yet rising tertiary educational attainment coexists with acute graduate unemployment and a labour market dominated by informal employment. This paradox highlights the need to examine technology-enabled mechanisms that improve entrepreneurial participation and economic outcomes.

One such mechanism is parasocial learning, the acquisition of entrepreneurial knowledge, motivation, and identity through repeated, one-sided engagement with digital entrepreneurial role models (Horton & Wohl, 1956; Bandura, 1986; Dibble et al., 2016). Unlike traditional mentorship, which depends on reciprocal interaction, parasocial learning occurs when individuals consume content from entrepreneurial influencers on platforms such as YouTube, Instagram, TikTok, and WhatsApp, internalising entrepreneurial norms and behavioral scripts without direct access to successful entrepreneurs. This mechanism is particularly relevant where formal mentorship is limited and social mobility is constrained.

The informal sector is increasingly characterised by highly educated participants. The National Bureau of Statistics (NBS, 2024) reports youth unemployment exceeding 42%, while more than 60% of university graduates under 35 are unemployed or underemployed. The formal economy generates fewer than 500,000 wage jobs annually, compared with approximately 1.2 million graduates entering the labour market. Consequently, a growing proportion of tertiary-educated Nigerians engage in informal entrepreneurial activities, particularly in southeastern Nigeria (Nigerian Economic Summit Group, 2025; Folawewo & Orija, 2023). This statistic challenges the assumption that informal entrepreneurship is primarily undertaken by unskilled workers. Although 72.3% of informal enterprises generate monthly revenues above ₦1 million, most owners earn less than ₦250,000 monthly, and only 1.3% earn above ₦2.5 million (Moniepoint, 2024). Unemployment remains the principal motivation for business creation, while 57.7% of informal business owners are below 34 years of age. Existing research has focused largely on structural constraints such as credit market failures (De Mel et al., 2008), institutional voids (Williams & Gurtoo, 2017), and infrastructure deficits (Ezeudu et al., 2024), leaving unanswered why some unemployed graduates pursue informal entrepreneurship while others do not, and why some entrepreneurs achieve income growth while others remain at subsistence level.

This study identifies two under-theorised mechanisms. The first is informal training. It could be through apprenticeship or peer learning and in some cases, family-based knowledge transfer. The second is parasocial learning. Defined as the acquisition of entrepreneurial identity, knowledge, and motivation through repeated engagement with digital entrepreneurial role models (Bandura, 1977, 1986; Dibble et al., 2016). Together, these mechanisms provide a richer explanation of entrepreneurial capability development in digitally connected but institutionally constrained economies.

Against this background, the study makes three contributions to the entrepreneurship, behavioral economics, and digital-learning literatures:

1. It extends the Theory of Planned Behaviour by demonstrating that parasocial learning, conceptualized as scaled vicarious learning through digital platforms, functions as a distal antecedent of entrepreneurial attitude and perceived behavioral control.
2. It provides primary evidence on how behavioral drivers and decentralised learning mechanisms are associated with entrepreneurial outcomes among educated youth in urban Nigeria.
3. It argues that low-cost, digitally scalable behavioral interventions may improve the quality of informal entrepreneurship more effectively than conventional training-centre approaches, while recognizing the risks of uncritical digital emulation.

The study is limited to urban, digitally enabled graduate informality in Lagos, Abuja, and Port Harcourt. These cities represent Nigeria's highest concentrations of digital infrastructure, graduate unemployment, and informal enterprise. Findings should not be generalized to rural contexts or northern Nigerian states with substantially different digital ecosystems and institutional environments. The remainder of the paper is organised as follows. Section 2 reviews the literature and develops the theoretical framework. Section 3 presents the research design and methodology. Section 4 reports the empirical results. Section 5 discusses the theoretical and policy implications. Section 6 concludes.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The Theory of Planned Behaviour and Necessity Entrepreneurship

The Theory of Planned Behaviour (TPB) remains a dominant framework for explaining entrepreneurial intention (Ajzen, 1991). It proposes that intention is determined by entrepreneurial attitude, subjective norms, and perceived behavioral control. In this study, TPB provides the primary theoretical foundation for selecting these proximal behavioural constructs and for explaining why some unemployed graduates translate unemployment into informal entrepreneurial action while others do not. The framework is complemented by social learning

theory to explain parasocial learning as a distal source of entrepreneurial cognition and by human capital theory to explain informal training as a capability-development mechanism.

Necessity-driven entrepreneurship differs from opportunity-driven entrepreneurship. Necessity-driven entry occurs when individuals pursue self-employment because they cannot obtain formal employment, have lost employment, they are faced with inadequate household income, or lack viable alternative livelihood opportunities. Opportunity-driven entry, in contrast, occurs when individuals pursue a perceived market opportunity even where alternative livelihood options are available (Batz Liñeiro et al., 2024). The distinction is important because the same entrepreneurial behaviour may reflect either constrained livelihood adaptation or voluntary opportunity pursuit. In this study, necessity is operationalized primarily through the duration of unemployment before business entry, with six to twelve months representing lower necessity and more than two years representing higher necessity. The dataset does not include a direct measure of perceived opportunity, so the analysis does not claim to classify all respondents as purely necessity- or opportunity-driven entrepreneurs; rather, it examines whether the strength of the TPB relationships differs across levels of unemployment-related necessity. Structural unemployment reduces viable wage alternatives and may narrow the cognitive distance between attitude and intention. Graduates who view entrepreneurship positively while facing prolonged unemployment are likely to form entrepreneurial intentions rapidly because the opportunity cost of inaction is high. This suggests that TPB relationships operate differently under necessity, with distal learning mechanisms such as parasocial learning exerting greater influence on attitude and perceived behavioral control than proximal social norms. Accordingly, the standard TPB path coefficients are expected to vary by necessity intensity. Under prolonged unemployment, attitude should translate more directly into intention, while subjective norms may weaken as economic necessity overrides social approval. This proposition is examined through multi-group analysis (MGA).

Parasocial Learning as Scaled Vicarious Learning

Conceptually, parasocial interaction refers to the immediate one-sided experience of engagement with a media figure, while a parasocial relationship denotes a more enduring perceived bond developed across repeated exposure. Parasocial mentoring applies this one-sided relationship to perceived career or psychosocial guidance.

Parasocial learning, as used in this study, is narrower and outcome-oriented: it refers to knowledge acquisition, entrepreneurial identification, observational learning, and motivational internalization arising from repeated exposure to entrepreneurial role models. The construct therefore does not treat emotional attachment as learning itself; attachment is relevant only insofar as it sustains attention and retention that can support cognitive or behavioral learning.

Parasocial relationships, originally developed in media studies (Horton & Wohl, 1956), describe one-sided psychological relationships in which individuals develop familiarity and trust toward media figures without reciprocal interaction (Dibble et al., 2016). It is a relationship in which media users envision themselves as protégés and perceive media figures as providing individualized career and psychosocial support despite knowing that such figures do not know intimate details about them. Digital platforms have intensified these relationships through continuous exposure and algorithmic personalization (D'Oria et al., 2025).

This study conceptualises parasocial learning as scaled vicarious learning (Bandura, 1977, 1986) through digital platforms. Individuals acquire entrepreneurial identity, knowledge, and motivation by repeatedly observing entrepreneurial role models online. Unlike traditional mentorship, parasocial learning lacks reciprocity, personalised feedback, and accountability (D'Oria et al., 2025). Instead, sustained attention promotes observational learning, which shapes entrepreneurial cognition.

Parasocial learning is operationalized as a second-order construct comprising entrepreneurial identification, observational learning, and motivational internalization. Emotional attachment functions primarily as an attention-retention mechanism. Sustained engagement increases observational learning, which strengthens entrepreneurial attitudes and self-efficacy. The expected relationship is therefore indirect: parasocial engagement

facilitates sustained attention, which enhances entrepreneurial capability and performance through observational learning.

Informal Training and Skill Acquisition

Informal training is a critical mechanism for entrepreneurial capability development within Nigeria's informal economy. Unlike formal vocational education, it includes apprenticeship systems, peer learning, and family-based knowledge transfer. These mechanisms develop procedural knowledge through observation and repeated practice, although they often provide limited explanation of why particular strategies succeed. Evidence from Sub-Saharan Africa shows that peer-mediated and informal training significantly improves earnings (e.g., Higuchi et al., 2019; Eseza, 2025).

This study argues that the greatest benefits arise when informal training is combined with parasocial learning. Informal training develops practical competence, whereas parasocial learning contributes strategic thinking, entrepreneurial identification, and motivation. Together, they strengthen complementary dimensions of entrepreneurial capability.

Integrated Behavioral-Economic Framework

The framework integrates the Theory of Planned Behaviour, social learning theory, and human capital theory. TPB provides the primary explanation for how entrepreneurial attitude, subjective norms, and perceived behavioral control shape entrepreneurial intention. Social learning theory positions parasocial learning as a distal antecedent of entrepreneurial attitude and perceived behavioral control through entrepreneurial identification, observational learning, and motivational internalization. Human capital theory explains informal training as a capability-development mechanism through which procedural knowledge is acquired. Entrepreneurial performance therefore depends on both motivation and capability: informal training contributes directly through procedural skill acquisition, while parasocial learning enhances capability through technology-mediated social learning.

The model extends TPB by incorporating technology-mediated vicarious learning and informal capability development. Parasocial learning influences entrepreneurial attitude and internal perceived behavioral control, while subjective norms remain a distinct TPB construct. Structural constraints moderate the relationship between entrepreneurial intention and entry, and parasocial learning is expected to interact with informal training in predicting business performance.

Hypotheses

Drawing on the above framework, the following hypotheses are advanced. Note that all hypotheses describe associational rather than causal relationships, given the cross-sectional design:

H1: Entrepreneurial attitude is positively associated with entrepreneurial intention among unemployed graduates engaged in informal entrepreneurship.

H2: Traditional subjective norms are positively associated with entrepreneurial intention.

H3: Parasocial learning is positively associated with entrepreneurial attitude.

H4: Parasocial learning is positively associated with internal perceived behavioral control.

H5: Internal perceived behavioral control is positively associated with entrepreneurial intention.

H6: Informal training is positively associated with entrepreneurial performance.

H7: Parasocial learning is positively associated with entrepreneurial performance.

H8: Informal training and parasocial learning interact positively, such that their combination is associated with greater entrepreneurial performance than either mechanism independently.

MATERIALS AND METHODS

Philosophical Stance and Design

Because the design is cross-sectional and observational, coefficients are interpreted as associations and predictive relationships rather than causal effects. Terms such as “effect” are used only when referring to statistical model parameters and not as claims of causal identification.

The basis of any research is determined by the paradigm and this study adopts a post-positivist stance (Maksimović & Evtimov, 2023). We combine quantitative measurement of latent behavioral constructs with regression analysis of economic outcomes. A cross-sectional design is appropriate for estimating structural relationships and the prevalence of parasocial phenomena at a single point in time, but it does not permit causal inference. Accordingly, all findings are interpreted as associational. Reverse causality remains plausible because successful or more digitally literate entrepreneurs may selectively engage with higher-quality entrepreneurial content

Population and Sampling

The target population comprises university graduates (Bachelor's degree or Higher National Diploma) aged 22 to 40, currently self-employed in the informal sector for three years or less, who experienced unemployment for at least six months before business entry. Necessity intensity was operationalized using unemployment duration before entry: six to twelve months represented lower necessity, one to two years represented moderate necessity, and more than two years represented higher necessity. The study did not include a direct perceived-opportunity item; therefore, opportunity-driven entry is treated as a contrasting conceptual category rather than a separately observed group. A multi-city quota sampling design was used across Lagos (120 respondents), Abuja (110), and Port Harcourt (110), representing Nigeria's commercial, administrative, and industrial centers. City served as the primary stratification dimension, while nonprobability quotas within each city were used to balance gender, sector, and business-entry period. The design should therefore not be interpreted as stratified random sampling. The final sample of 340 exceeds the minimum requirement of 250 for SEM with six latent constructs and 30 observed indicators (MacCallum et al., 1996).

The sample is restricted to Nigeria's most economically advanced urban centers and is not representative of the national informal economy. Quota sampling introduces selection bias, and findings should therefore be generalized only to urban, digitally enabled graduate informality.

Measurement Instruments

All latent constructs were measured using multi-item seven-point Likert scales ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Established constructs were adapted from the entrepreneurship literature, while the parasocial learning scale was developed by integrating parasocial relationship theory with social learning theory. Parasocial learning was modelled as a second-order construct comprising entrepreneurial identification, observational learning, and motivational internalization. The scale captures developmental influence through knowledge acquisition, identity formation, and motivational change rather than emotional attachment alone. Table 1 summarises the measurement constructs, item counts, and sources.

Table 1 Measurement Constructs and Sources

Construct	Items	Scale Type	Primary Source
Parasocial Learning (Second-Order)	9 (3 per dimension)	7-point Likert	Dibble et al. (2016); Bandura (1986)
Entrepreneurial Identification	3	7-point Likert	Horton & Wohl (1956); Dibble et al. (2016)
Observational Learning	3	7-point Likert	Bandura (1977, 1986)

Motivational Internalisation	3	7-point Likert	Bandura (1986); Dibble et al. (2016)
Entrepreneurial Attitude	5	7-point Likert	Liñán & Chen (2009)
Traditional Subjective Norms	4	7-point Likert	Liñán & Chen (2009)
Internal Perceived Behavioural Control (PBC)	4	7-point Likert	Ajzen (2002); Zhao et al. (2005)
Entrepreneurial Intention	3	7-point Likert	Liñán & Chen (2009)
Informal Training	3	Intensity & Diversity	Developed for this study
Business Performance (Composite)	4	PCA-derived index	Developed for this study
Monthly Net Profit	1	Nigerian Naira (log-transformed)	Developed for this study

Control variables include age, gender, education, field of study, household socioeconomic background, unemployment duration, prior work experience, startup capital, internet access, digital literacy, city, business sector, credit access, infrastructure quality, and regulatory burden. Reliability was assessed using Cronbach's alpha and composite reliability, convergent validity using AVE, discriminant validity using the Fornell-Larcker criterion and HTMT ratio, and the second-order structure of parasocial learning through PLS measurement-model assessment using the repeated-indicators approach.

Instrument Development and Validation

Established TPB constructs were adapted from published scales, whereas parasocial learning was developed by integrating parasocial-relationship and social-learning theory. Informal-training and business-performance measures were developed for this study. The source study reports psychometric evaluation through reliability, convergent-validity, discriminant-validity, and second-order measurement-model tests. It does not report a separate expert-panel content-validity procedure or independent pilot-validation sample. Accordingly, the study-developed measures are treated as provisional and their cross-context validation is identified as a priority for future research.

Analytical Strategy

The analysis proceeded in five stages.

Stage 1: Measurement model assessment. PLS measurement-model assessment evaluated the psychometric properties of the reflective constructs. Internal consistency was assessed using Cronbach's alpha and composite reliability, convergent validity using AVE and outer loadings, discriminant validity using the Fornell-Larcker criterion and HTMT ratio (Henseler et al., 2014), and the second-order parasocial learning construct using the repeated indicators approach (Becker et al., 2012).

Stage 2: Common method bias assessment. Because the study relied on self-reported measures, common method bias was assessed using the full collinearity VIF approach (Kock & Lynn, 2012; Kock & Gaskins, 2014). Harman's single-factor test was reported as a supplementary diagnostic.

Stage 3: Structural model estimation. PLS-SEM was estimated in SmartPLS 4.0 using 5,000 bootstrap resamples (Sarstedt et al., 2021). Model evaluation included R^2 , Q^2 , effect sizes (f^2), and indirect effects estimated using the product-of-paths approach (Nitzl et al., 2016).

Stage 4: Performance regression. Multivariate OLS regression estimated the effects of informal training and parasocial learning on log monthly net profit and the composite performance index, including their interaction term. Models were estimated incrementally with robust standard errors, and significant interactions were examined using simple slopes at ± 1 standard deviation (Aguinis & Gottfredson, 2010).

Stage 5: Multi-group analysis. To examine whether unemployment-related necessity compresses the attitude-intention pathway, the sample was divided into higher-necessity entrepreneurs (more than two years

unemployed, $n = 102$) and lower-necessity entrepreneurs (six to twelve months unemployed, $n = 85$). These groups represent levels of necessity intensity rather than directly observed opportunity- and necessity-driven types, because perceived opportunity was not measured. Separate PLS-SEM models were compared using permutation-based MGA procedures (Sarstedt et al., 2011). This post-hoc analysis is exploratory. To maximize contrast, the moderate-necessity group ($n = 153$) was excluded, sacrificing generalisability for analytical clarity.

Ethical Considerations

The study involved adult participants and was conducted using a structured questionnaire. Formal institutional ethical approval was not obtained prior to data collection. Participation was voluntary, and respondents were informed of the academic purpose of the study before completing the questionnaire. Participants were free to decline participation or discontinue completion of the questionnaire. No personally identifying information is reported in this study, and responses were treated confidentially and analysed in aggregate form. The data were used exclusively for academic research purposes. The study was conducted with due regard for the principles of voluntary participation, confidentiality, privacy, and responsible handling of research data.

RESULTS

Response Rate and Sample Characteristics

Of 480 questionnaires distributed across Lagos, Abuja, and Port Harcourt, 412 complete responses were returned. After removing cases with careless responding, excessive missing data, and multivariate outliers, the final sample comprised 340 respondents, representing a valid response rate of 70.8%. Table 2 summarises the respondent characteristics.

Table 2 Respondent Profile and Characteristics (N = 340)

Characteristic	Category	n	%
Gender	Male	170	50.0
	Female	170	50.0
Age	22–25	102	30.0
	26–30	128	37.6
	31–35	78	22.9
	36–40	32	9.4
City	Lagos	120	35.3
	Abuja	110	32.4
	Port Harcourt	110	32.4
Sector	Trade	136	40.0
	Services	119	35.0
	Manufacturing/Craft	51	15.0
	Tech/Creative	34	10.0
Entry timing	0–1 year	136	40.0
	1–2 years	119	35.0
	2–3 years	85	25.0
Unemployment duration	6–12 months	85	25.0
	1–2 years	153	45.0
	>2 years	102	30.0
Education	Bachelor's degree	238	70.0
	Higher National Diploma	68	20.0
	Master's degree	34	10.0

The sample is balanced by gender and representative of urban, digitally enabled graduate informality. The majority entered entrepreneurship after prolonged unemployment (mean = 17.4 months, SD = 8.2).

Measurement Model Evaluation

Table 3 presents the measurement model results. All Cronbach's alpha and composite reliability values exceed 0.70, while all AVE values exceed 0.50, confirming internal consistency and convergent validity (Fornell & Larcker, 1981). Factor loadings range from 0.761 to 0.912.

Table 3 Measurement Model Evaluation: Reliability and Convergent Validity

Construct	Items	Factor Loading Range	Cronbach's α	CR	AVE
Parasocial Learning (Second-Order)	9	0.812–0.891	0.92	0.94	0.73
Entrepreneurial Identification	3	0.812–0.891	0.89	0.93	0.72
Observational Learning	3	0.812–0.845	0.86	0.90	0.69
Motivational Internalisation	3	0.832–0.891	0.88	0.92	0.74
Entrepreneurial Attitude	5	0.812–0.891	0.89	0.93	0.72
Subjective Norms	4	0.761–0.845	0.83	0.88	0.65
Perceived Behavioural Control	4	0.812–0.891	0.88	0.92	0.71
Entrepreneurial Intention	3	0.845–0.912	0.91	0.94	0.76
Informal Training	3	0.789–0.845	0.85	0.89	0.68
Performance (Composite)	4	0.812–0.891	0.90	0.93	0.72

Discriminant validity is supported by the combined Fornell-Larcker and HTMT assessment (Table 4), with each construct's square root of AVE exceeding its inter-construct correlations and all HTMT values below the conservative 0.85 threshold (Henseler et al., 2014). Multicollinearity is not a concern, with full collinearity VIF values ranging from 1.18 to 2.34, well below the 3.3 threshold (Kock & Lynn, 2012). Harman's single-factor test indicates that no single factor accounts for more than 28.4% of the variance.

Table 4 Discriminant Validity: Combined Fornell–Larcker and HTMT Matrix

Construct	1	2	3	4	5	6	7
1. Parasocial Learning	0.85						
2. Entrepreneurial Attitude	0.72	0.85					
3. Subjective Norms	0.55	0.62	0.81				
4. PBC	0.65	0.71	0.58	0.84			
5. Entrepreneurial Intention	0.68	0.78	0.60	0.74	0.87		
6. Informal Training	0.48	0.42	0.38	0.45	0.46	0.82	
7. Performance	0.55	0.52	0.42	0.54	0.62	0.68	0.85

Note: Diagonal elements (bold) are the square root of AVE (Fornell–Larcker criterion). Below-diagonal elements are HTMT ratios. All HTMT values are below the 0.85 threshold.

Structural Model and Hypothesis Testing

Table 5 reports the PLS-SEM path estimates. The model explains 48.2% of the variance in entrepreneurial intention ($R^2 = 0.482$), indicating substantial explanatory power. Predictive relevance is confirmed ($Q^2 = 0.31 > 0$). H1, H2, H3, H4, and H5 are all supported. The direct path from parasocial learning to intention is non-significant ($\beta = 0.089$, $p = 0.099$), indicating that parasocial learning is associated with intention indirectly through attitude and PBC. Effect sizes indicate medium to large effects for parasocial learning on attitude ($f^2 = 0.26$) and PBC ($f^2 = 0.18$), and for attitude on intention ($f^2 = 0.22$).

Table 5 Structural Model Results: Entrepreneurial Intention (N = 340)

Hypothesis	Path	β	SE	t-value	p-value	Decision
H1	Attitude $\rightarrow$ Intention	0.293	0.058	5.05	<0.001	Supported
H2	Subjective Norms $\rightarrow$ Intention	0.142	0.062	2.29	0.022	Supported

H3	Parasocial Learning → Attitude	0.341	0.052	6.56	<0.001	Supported
H4	Parasocial Learning → PBC	0.276	0.055	5.02	<0.001	Supported
H5	PBC → Intention	0.248	0.061	4.07	<0.001	Supported
—	Parasocial Learning → Intention (direct)	0.089	0.054	1.65	0.099	Not significant

Control variables: Age ($\beta = 0.02$, $p = 0.412$), Gender ($\beta = -0.04$, $p = 0.318$), Education ($\beta = 0.05$, $p = 0.241$), Unemployment duration ($\beta = -0.03$, $p = 0.456$), City ($\beta = 0.04$, $p = 0.289$), Sector ($\beta = 0.06$, $p = 0.198$).

Mediation Analysis

Table 6 presents the mediation analysis. Both indirect pathways are positive and statistically significant, confirming that parasocial learning functions as a distal antecedent of entrepreneurial intention through entrepreneurial attitude and perceived behavioral control.

Table 6 Mediation Analysis: Indirect Effects of Parasocial Learning on Entrepreneurial Intention

Mediation Path	Indirect β	SE	t-value	p-value	95% CI
Parasocial → Attitude → Intention	0.100	0.024	4.17	<0.001	[0.056, 0.152]
Parasocial → PBC → Intention	0.068	0.021	3.24	0.001	[0.032, 0.114]

Multivariate Regression: Entrepreneurial Performance

Tables 7 and 8 present the OLS regression results. H6, H7, and H8 are supported across both performance measures. The interaction between informal training and parasocial learning is positive and significant for both the composite performance index ($\beta = 0.115$, $p = 0.024$) and log monthly profit ($\beta = 0.098$, $p = 0.032$), indicating that the two learning mechanisms are complementary. Simple slopes analysis shows that the relationship between informal training and performance is stronger at high levels of parasocial learning (+1 SD: $\beta = 0.34$, $p < 0.001$) than at low levels (-1 SD: $\beta = 0.14$, $p = 0.032$).

Table 7 Moderated OLS Regression for Entrepreneurial Performance (Composite Index)

Variable	Model 1 (Controls)	Model 2 (Main Effects)	Model 3 (Interaction)
	beta (SE)	beta (SE)	beta (SE)
Intercept	2.84*** (0.42)	1.92** (0.58)	1.76** (0.56)
Control variables			
Age	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)
Gender (Female = 1)	-0.08 (0.09)	-0.06 (0.08)	-0.05 (0.08)
Education	0.04 (0.05)	0.03 (0.04)	0.03 (0.04)
Unemployment duration	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Lagos (ref: Abuja)	0.12 (0.10)	0.10 (0.09)	0.09 (0.09)
Port Harcourt (ref: Abuja)	0.08 (0.10)	0.06 (0.09)	0.05 (0.09)
Credit access	0.14* (0.07)	0.12* (0.06)	0.11* (0.06)
Main effects			
Informal Training (H6)		0.231*** (0.06)	0.198*** (0.06)
Digital Vicarious Learning (H7)		0.189** (0.07)	0.156** (0.06)
Interaction			
Informal Training x Digital Vicarious Learning (H8)			0.115* (0.05)
R-squared	0.08	0.38	0.43
R-squared change	-	0.30	0.05
F (df)	3.42 (7, 332)	18.64 (9, 330)	19.82 (10, 329)

Note: Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 8 Moderated OLS Regression for Log of Monthly Net Profit

Variable	Model 1 (Controls)	Model 2 (Main Effects)	Model 3 (Interaction)
	β (SE)	β (SE)	β (SE)
Intercept	8.42*** (0.68)	7.15** (0.82)	6.94** (0.80)
Control variables			
Age	0.03 (0.02)	0.02 (0.02)	0.02 (0.02)
Gender (Female = 1)	-0.12 (0.14)	-0.09 (0.12)	-0.08 (0.12)
Education	0.06 (0.08)	0.04 (0.07)	0.04 (0.07)
Unemployment duration	-0.03 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Lagos (ref: Abuja)	0.18 (0.15)	0.15 (0.14)	0.14 (0.13)
Port Harcourt (ref: Abuja)	0.11 (0.15)	0.08 (0.14)	0.07 (0.13)
Credit access	0.22* (0.10)	0.19* (0.09)	0.18* (0.09)
Main effects			
Informal Training		0.198** (0.09)	0.165* (0.08)
Parasocial Learning		0.156* (0.08)	0.124* (0.07)
Interaction			
Informal Training $\times$ Parasocial Learning			0.098* (0.04)
R ²	0.06	0.31	0.35
R ² change	—	0.25	0.04
F (df)	2.89 (7, 332)	14.72 (9, 330)	15.38 (10, 329)

Note: Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 9 Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	Entrepreneurial attitude $\rightarrow$ Entrepreneurial intention	Supported
H2	Traditional subjective norms $\rightarrow$ Entrepreneurial intention	Supported
H3	Parasocial learning $\rightarrow$ Entrepreneurial attitude	Supported
H4	Parasocial learning $\rightarrow$ Perceived behavioural control	Supported
H5	Perceived behavioural control $\rightarrow$ Entrepreneurial intention	Supported
H6	Informal training $\rightarrow$ Entrepreneurial performance	Supported
H7	Parasocial learning $\rightarrow$ Entrepreneurial performance	Supported
H8	Informal training $\times$ Parasocial learning $\rightarrow$ Performance	Supported

Summary of Hypothesis Results

Table 10 reports the post-hoc MGA comparing entrepreneurs with lower unemployment-related necessity (6 to 12 months unemployed, $n = 85$) and higher unemployment-related necessity (more than two years unemployed, $n = 102$). Because perceived opportunity was not measured, these groups should not be interpreted as pure opportunity-driven and necessity-driven categories. The moderate-necessity group ($n = 153$) was excluded to maximize contrast. The attitude-intention pathway is significantly stronger under high necessity ($\beta = 0.38$) than low necessity ($\beta = 0.18$), supporting the proposition that necessity compresses the TPB pathway. Subjective norms lose predictive power under high necessity ($\beta = 0.06$, n.s.), suggesting that economic necessity overrides social approval. In contrast, the associations between parasocial learning and both entrepreneurial attitude and perceived behavioral control remain stable across groups, indicating that digital vicarious learning shapes entrepreneurial cognition regardless of necessity intensity.

Table 10 Multi-Group Analysis by Necessity Intensity (N = 187)

Path	Low Necessity (≤ 12 months)	High Necessity (> 2 years)	$\Delta\beta$	p-value (Δ)
	β (SE)	β (SE)		
H1: Attitude $\rightarrow$ Intention	0.18* (0.09)	0.38*** (0.10)	+0.20	0.042
H2: Subjective Norms $\rightarrow$ Intention	0.21** (0.08)	0.06 (0.09)	-0.15	0.038
H3: Parasocial $\rightarrow$ Attitude	0.32*** (0.07)	0.35*** (0.08)	+0.03	0.712
H4: Parasocial $\rightarrow$ PBC	0.24** (0.09)	0.29** (0.10)	+0.05	0.654
H5: PBC $\rightarrow$ Intention	0.19* (0.09)	0.31** (0.11)	+0.12	0.198

Note: Permutation-based MGA with 5,000 permutations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

DISCUSSION

Theoretical Implications

The findings make four contributions to the entrepreneurship literature. First, they extend the Theory of Planned Behaviour by showing that parasocial learning functions as a distal antecedent of entrepreneurial attitude and perceived behavioral control. Unlike subjective norms, which capture proximal social approval, parasocial learning operates through scaled vicarious learning (Bandura, 1977, 1986). In necessity-driven contexts, where economic pressure compresses the attitude-intention pathway, digital influences may shape entrepreneurial cognition as strongly as face-to-face socialisation. The full mediation of parasocial learning through attitude and perceived behavioral control indicates that cognitive translation, rather than emotional attachment alone, predicts entrepreneurial intention.

Second, the MGA findings provide empirical evidence that necessity intensity moderates the TPB pathway in the informal economy. The strengthened attitude-intention relationship and weakened influence of subjective norms under high necessity suggest that future TPB applications should treat necessity as a structural moderator rather than a background condition.

Third, the study contributes to the literature on digital entrepreneurial learning (Tang & Cui, 2026; Ijaz et al., 2026). Engagement with entrepreneurial influencers operates as observational learning and motivational internalization that enhances entrepreneurial self-efficacy. Its value lies in providing low-cost, accessible, technology-mediated vicarious learning rather than replicating traditional mentorship.

Fourth, the findings highlight the complementarity of informal training and parasocial learning. The positive interaction between the two indicates that entrepreneurial capability develops most effectively when procedural learning through apprenticeships and peer learning is combined with strategic and motivational learning from digital role models. This supports human capital theory (Becker, 1992) and suggests that technology-mediated learning can strengthen, rather than replace, traditional informal training.

The Dark Side of Digital Entrepreneurial Emulation

The findings should be interpreted alongside the risks of parasocial learning. D'Oria et al. (2025) show that parasocial mentoring can increase entrepreneurial self-efficacy while also encouraging feelings of inadequacy and excessive venture persistence. In the Nigerian context, these risks are amplified because unemployed graduates may emulate influencers who glamorise hustle culture, minimise failure, or promote high-risk strategies such as dropshipping, cryptocurrency speculation, and unregulated lending.

The cross-sectional design cannot determine whether parasocial learning improves performance or whether more successful and digitally literate entrepreneurs simply consume higher-quality entrepreneurial content. Reverse causality therefore remains plausible. Consequently, parasocial learning should be viewed as a complement to entrepreneurial capability rather than a substitute for capital, infrastructure, or market access.

The interaction effect explains only a modest increase in profit variance (R^2 change = 0.04), compared with the composite performance index (R^2 change = 0.05). This reflects severe external constraints such as inflation, currency depreciation, fuel subsidy removal, and demand shocks that behavioral mechanisms cannot overcome. Nevertheless, the contribution of a cognitive learning mechanism to financial performance remains substantively meaningful.

Practical and Policy Implications

The findings have several implications for youth employment policy. First, policymakers should prioritize digital literacy rather than certifying entrepreneurial content. Existing programmes such as the National Youth Service Corps (NYSC) and N-Power can teach graduates to identify survivorship bias, verify business claims, and distinguish between inspiration and practical business strategy.

Second, government and development partners should support peer-learning networks, community business clusters, and low-cost co-working spaces that combine informal training with structured digital learning rather than endorsing individual influencers. Third, hybrid learning models that combine apprenticeships with credible, locally relevant digital business content are likely to be more effective than either approach alone. Finally, given the dominance of informal employment, policy should prioritize improving entrepreneurial capability within the informal sector rather than pursuing premature formalisation. Scalable, low-cost learning interventions provide a more realistic pathway for sustainable economic transformation.

Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inference, and reverse causality remains possible. Longitudinal and experimental studies are needed to establish causal direction. Second, the sample is limited to Lagos, Abuja, and Port Harcourt, and quota sampling restricts generalisability beyond urban graduate entrepreneurs. Third, the performance measures rely on self-reported data and may be affected by recall bias and social desirability. Fourth, the study does not directly measure adverse outcomes such as hazardous persistence or financial losses associated with influencer-promoted strategies. Fifth, although the parasocial learning scale demonstrates satisfactory psychometric properties, it requires validation in other African contexts. Finally, the post-hoc MGA was not pre-registered, employed unequal groups, and excluded the moderate-necessity cohort to maximize contrast. These findings should therefore be regarded as exploratory and replicated in future research.

CONCLUSION

This study advances a behavioral-economic framework for understanding entrepreneurial intention and business performance among unemployed graduates in Nigeria's urban informal economy. By integrating the Theory of Planned Behaviour with parasocial learning, it identifies technology-mediated entrepreneurial role models as an important mechanism of entrepreneurial learning and capability development.

Parasocial learning is conceptualized as a multidimensional construct comprising entrepreneurial identification, observational learning, and motivational internalization. Through these mechanisms, digital entrepreneurial content is associated with stronger entrepreneurial attitudes, higher perceived behavioral control, and improved business performance. However, parasocial learning is not equivalent to traditional mentorship. It represents scaled vicarious learning that also carries risks, including survivorship bias and uncritical emulation of high-risk strategies. The post-hoc multi-group analysis further suggests that necessity intensity alters the TPB pathway. Under severe resource constraints, the attitude-intention relationship strengthens while subjective norms lose influence, indicating that standard TPB models may overlook important structural differences in developing economies.

The findings also demonstrate that informal training and parasocial learning are complementary rather than competing learning systems. Informal training develops procedural competence, while parasocial learning provides entrepreneurial scripts, motivation, and aspirational models. Together, they are associated with stronger entrepreneurial outcomes than either mechanism alone.

More broadly, the study highlights how digital technologies are reshaping entrepreneurial learning beyond traditional family, community, and institutional networks. Understanding these emerging learning mechanisms is essential for designing realistic entrepreneurship and youth employment policies in Nigeria and similar developing economies.

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