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DOES ENTREPRENEURIAL LEARNING EXPLAIN THE GRIT–SURVIVAL RELATIONSHIP? EVIDENCE FROM SMES IN NORTH-CENTRAL NIGERIA

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ABSTRACT

The high mortality rate of small and medium enterprises (SMEs) in emerging economies has intensified scholarly interest in identifying entrepreneur-level factors that promote business survival. While entrepreneurial grit has been recognized as an important determinant of entrepreneurial outcomes, limited attention has been given to understanding the mechanisms through which it influences entrepreneurial survival. Drawing on Grit Theory and Entrepreneurial Learning Theory, this study examines the direct effect of entrepreneurial grit on entrepreneurial survival and investigates the mediating role of entrepreneurial learning among SMEs in North-Central Nigeria. A quantitative cross-sectional survey design was adopted. Data were collected from 435 SME owner-managers selected from the North-Central geopolitical zone of Nigeria using a structured questionnaire. The hypotheses were tested using Hayes' PROCESS Macro (Model 4) with 5,000 bootstrap samples. The results reveal that entrepreneurial grit significantly and positively influences entrepreneurial learning ($b = 0.329$, $p < .001$) and entrepreneurial survival ($b = 0.491$, $p < .001$). Entrepreneurial learning was also found to have a significant positive effect on entrepreneurial survival ($b = 0.659$, $p < .001$). Furthermore, bootstrap analysis confirmed a significant indirect effect of entrepreneurial grit on entrepreneurial survival through entrepreneurial learning (Effect = 0.217, 95% CI [0.152, 0.285]), indicating partial mediation. The findings suggest that entrepreneurial grit enhances entrepreneurial survival both directly and indirectly by fostering learning capabilities that improve entrepreneurs' ability to adapt and respond to environmental challenges. The study contributes to entrepreneurship literature by extending Grit Theory beyond direct performance outcomes and demonstrating entrepreneurial learning as an important explanatory mechanism linking entrepreneurial grit to entrepreneurial survival. The findings also provide practical insights for policymakers and entrepreneurship support institutions seeking to strengthen SME resilience and sustainability in resource-constrained environments.

Keywords: Entrepreneurial grit; entrepreneurial learning; entrepreneurial survival; North-Central Nigeria; emerging economies.

1.0 INTRODUCTION Small and medium-sized enterprises (SMEs) constitute the backbone of modern economies and are widely recognized as critical drivers of employment generation, innovation, poverty reduction, and economic growth. Globally, SMEs account for more than 90% of businesses, generate over half of total employment, and contribute substantially to national output across both developed and developing economies (World Bank, 2023; United Nations, 2024). In Nigeria, SMEs represent approximately 96.9% of all businesses, contribute about 46.32% to gross domestic product (GDP), and account for nearly 87.9% of employment (SMEDAN & NBS, 2021). Despite their overwhelming economic significance, the contribution

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of SMEs to sustainable development depends not merely on their establishment but, more importantly, on their ability to survive and remain operational over time.

However, entrepreneurial survival continues to represent a major challenge worldwide. Evidence indicates that a considerable proportion of new ventures fail within their early years of operation. Across Organisation for Economic Co-operation and Development (OECD) countries, only about half of newly established firms survive beyond five years (OECD, 2022), while in many developing economies survival rates are considerably lower due to institutional weaknesses, resource constraints, and environmental uncertainty (World Bank, 2023). The Nigerian situation is particularly concerning. Recent reports indicate widespread business closures, with millions of micro, small, and medium enterprises exiting the market in recent years as a result of economic instability, infrastructural deficiencies, financing constraints, and rising operational costs (NBS, 2024; NESG, 2025). Such high mortality rates undermine employment creation, weaken productive capacity, and limit the developmental contribution of entrepreneurship.

Given the persistent challenge of SME failure, scholars have devoted considerable attention to identifying factors that enhance entrepreneurial survival. Existing studies have linked survival to financial resources, institutional support, market conditions, business networks, leadership capabilities, governance structures, and environmental factors (Li & Johansen, 2021; Fernandez & Gohmann, 2022; Zhou et al., 2023). While these studies have significantly advanced understanding of survival dynamics, they have largely focused on external and structural determinants. Consequently, increasing scholarly attention has shifted toward entrepreneur-specific factors, particularly psychological resources that enable individuals to navigate uncertainty and sustain entrepreneurial activity under adverse conditions (Shepherd, 2020).

Among such psychological resources, entrepreneurial grit has emerged as a particularly important construct. Rooted in Grit Theory, entrepreneurial grit refers to the entrepreneur's sustained passion and perseverance toward long-term entrepreneurial goals despite setbacks, failures, and prolonged challenges (Duckworth et al., 2007). Entrepreneurship is inherently characterized by uncertainty, repeated obstacles, and resource limitations, making perseverance a critical requirement for venture continuity. Entrepreneurs with high levels of grit are more likely to remain committed to their ventures, persist through adversity, and continue pursuing opportunities even when immediate outcomes are discouraging (Duckworth, 2016). Empirical evidence suggests that entrepreneurial grit positively influences venture performance, resilience, opportunity pursuit, and survival outcomes (Salisu et al., 2020; Popoola & Karadas, 2022; Isichei et al., 2024). Nevertheless, although the direct relationship between grit and entrepreneurial outcomes has received growing attention, the underlying mechanisms through which grit translates into business survival remain insufficiently understood.

One potential mechanism through which entrepreneurial grit may influence survival is entrepreneurial learning. Entrepreneurial learning refers to the process through which entrepreneurs acquire, interpret, transform, and apply knowledge derived from experience, experimentation, and interaction with their environment (Cope, 2005; Pascucci et al., 2021). Through learning, entrepreneurs develop adaptive capabilities that enable them to recognize

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opportunities, overcome challenges, adjust business strategies, and respond effectively to changing market conditions. Existing research demonstrates that entrepreneurial learning contributes significantly to venture adaptability, innovation, and long-term business continuity (Barbosa et al., 2023; Aiman et al., 2024). More importantly, individuals characterized by high levels of grit are often more willing to engage in continuous learning because their perseverance motivates them to seek solutions, reflect on failures, and improve their competencies rather than abandon their ventures. Consequently, entrepreneurial learning may serve as a critical pathway through which entrepreneurial grit is converted into sustainable survival outcomes.

Despite the theoretical relevance of this relationship, empirical evidence examining entrepreneurial learning as a mediating mechanism between entrepreneurial grit and entrepreneurial survival remains limited. Existing studies have predominantly investigated grit and learning as independent predictors of entrepreneurial outcomes, with relatively little attention devoted to understanding how learning channels the influence of grit into survival (Awad et al., 2020; Zou, 2022). This gap is particularly evident in emerging economies where entrepreneurs operate under severe institutional constraints and resource scarcity. In such contexts, survival may depend not only on entrepreneurs' perseverance but also on their ability to continuously learn, adapt, and transform challenges into opportunities.

The need to address this gap is especially relevant in North-Central Nigeria, where SMEs face unique developmental challenges, including inadequate infrastructure, limited access to finance, weak institutional support, and persistent socio-economic uncertainties. These conditions create a demanding entrepreneurial environment in which psychological strength alone may be insufficient to ensure survival. Instead, entrepreneurs must leverage their perseverance to acquire and apply knowledge that enhances adaptability and strategic decision-making. Understanding how entrepreneurial grit fosters entrepreneurial learning and subsequently promotes survival can therefore provide valuable insights for both theory and practice.

Drawing on Grit Theory (Duckworth et al., 2007) and Entrepreneurial Learning Theory (Cope, 2005), this study examines whether entrepreneurial learning explains the relationship between entrepreneurial grit and entrepreneurial survival among SMEs in North-Central Nigeria. Although entrepreneurial learning has been proposed as a potential mechanism linking entrepreneurs' psychological resources to venture outcomes, empirical evidence remains limited and inconclusive, particularly in emerging economies. Accordingly, this study contributes to the entrepreneurship literature in three ways. First, it extends research on entrepreneurial grit by examining its influence on entrepreneurial survival in a resource-constrained environment. Second, it empirically tests entrepreneurial learning as a potential explanatory mechanism linking entrepreneurial grit to survival outcomes. Third, by revealing whether entrepreneurial learning explains (or fails to explain) the grit–survival relationship, the study provides deeper insights into the processes through which psychological resources shape entrepreneurial survival in emerging economies.

1.1 *Theoretical Foundation*

This study is anchored on Grit Theory (GT) and Entrepreneurial Learning Theory (ELT), which together provide a robust explanation of how entrepreneurial grit translates into entrepreneurial survival through entrepreneurial learning. The integration of these theories is particularly relevant because entrepreneurial survival is not merely a function of persistence but also of an entrepreneur's capacity to learn, adapt, and respond effectively to environmental challenges. While Grit Theory explains the motivational foundation that drives entrepreneurs to persist despite adversity, Entrepreneurial Learning Theory explains the cognitive mechanism through which such persistence is transformed into adaptive knowledge and survival-enhancing capabilities.

Grit Theory, developed by Duckworth et al. (2007), posits that sustained passion and perseverance for long-term goals are critical determinants of success, particularly in uncertain and demanding environments. The theory challenges the traditional emphasis on talent and cognitive ability by arguing that enduring effort and commitment are often more important predictors of achievement. Two core dimensions characterize grit: perseverance of effort, which reflects the ability to sustain effort despite difficulties and setbacks, and consistency of interest, which refers to maintaining focus on long-term objectives without frequent changes in direction (Duckworth et al., 2007; Credé et al., 2017). In entrepreneurial settings, grit represents a valuable psychological resource that enables entrepreneurs to remain committed to their ventures despite financial constraints, market uncertainty, competitive pressures, and operational disruptions. Entrepreneurs with high levels of grit are more likely to persist through adversity, engage in proactive problem-solving, and continue pursuing venture goals even when immediate outcomes are discouraging (Fisher et al., 2020; Salisu et al., 2020). Empirical evidence consistently demonstrates that entrepreneurial grit contributes to venture resilience, opportunity pursuit, performance, and survival (Silalahi et al., 2023; Kaes et al., 2025; Li et al., 2024).

Despite its explanatory power, Grit Theory offers only a partial explanation of entrepreneurial survival. Although the theory effectively explains why entrepreneurs persist, it provides limited insight into how persistent effort is converted into effective survival strategies. Persistence alone may not guarantee survival if entrepreneurs are unable to learn from experience, adapt to changing market conditions, and improve their decision-making capabilities. This limitation highlights the need for a complementary theoretical perspective capable of explaining the process through which grit generates sustainable entrepreneurial outcomes. Entrepreneurial Learning Theory provides such an explanation.

Entrepreneurial Learning Theory, advanced by Cope (2005, 2011), conceptualizes entrepreneurship as a continuous process of knowledge acquisition, interpretation, and application through experience. Drawing from experiential learning principles, the theory argues that entrepreneurs learn through both successes and failures, using reflection and experimentation to develop new insights and improve future actions. Learning is viewed as a dynamic and iterative process through which entrepreneurs continuously update their knowledge base and refine their strategies in response to environmental changes. A central proposition of the theory is that

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challenging experiences, setbacks, and even failures can serve as powerful catalysts for higher-order learning, enabling entrepreneurs to develop stronger adaptive capabilities and strategic flexibility (Cope, 2011). Through entrepreneurial learning, entrepreneurs become better equipped to recognize opportunities, solve problems, manage uncertainty, and sustain business operations in volatile environments. Previous studies have shown that entrepreneurial learning enhances adaptability, resilience, innovation, and long-term venture continuity (Lattacher & Wdowiak, 2020; Secundo et al., 2023; Ramdani et al., 2024).

The integration of Grit Theory and Entrepreneurial Learning Theory provides a coherent explanation of entrepreneurial survival. Grit creates the motivational drive that encourages entrepreneurs to persist in the face of adversity, while entrepreneurial learning transforms this persistence into actionable knowledge and adaptive capabilities. Entrepreneurs who possess high levels of grit are more likely to remain engaged in entrepreneurial activities long enough to accumulate valuable experiences, reflect on failures, experiment with alternative approaches, and acquire knowledge that enhances business performance. Rather than abandoning their ventures when confronted with obstacles, gritty entrepreneurs are more likely to view challenges as learning opportunities. Through this process, persistence facilitates continuous learning, and learning subsequently improves the entrepreneur's ability to adapt to environmental uncertainty and sustain venture operations.

The integration of Grit Theory and Entrepreneurial Learning Theory provides a useful framework for examining the grit–survival relationship. While Grit Theory suggests that entrepreneurs with high levels of perseverance are more likely to sustain their ventures under adverse conditions, Entrepreneurial Learning Theory proposes that learning may constitute one pathway through which such persistence translates into entrepreneurial outcomes. However, the extent to which entrepreneurial learning actually explains the influence of entrepreneurial grit on entrepreneurial survival remains unclear. Consequently, this study empirically examines whether entrepreneurial learning serves as an explanatory mechanism linking entrepreneurial grit to entrepreneurial survival in the context of SMEs operating in North-Central Nigeria.

2.0 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 *Entrepreneurial Grit and Entrepreneurial Survival*

Entrepreneurial survival refers to the ability of a venture to remain operational and sustain its activities over time despite environmental uncertainty, resource constraints, and competitive pressures. As SME failure rates continue to pose significant economic challenges globally, scholars have increasingly sought to identify the factors that enable entrepreneurs to sustain their ventures. While traditional explanations have focused on external determinants such as access to finance, institutional support, and market conditions, growing attention has been directed toward entrepreneur-specific psychological resources that enhance business continuity (Shepherd, 2020; Sardeshmukh et al., 2023).

Among these psychological resources, entrepreneurial grit has emerged as a critical determinant of entrepreneurial success and survival. Entrepreneurial grit is derived from Grit Theory and refers to an entrepreneur's sustained passion and perseverance toward long-term entrepreneurial

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goals despite obstacles, setbacks, and failures (Duckworth et al., 2007). The construct encompasses perseverance of effort and consistency of interest, both of which enable entrepreneurs to remain committed to venture objectives even under adverse circumstances (Credé et al., 2017). In highly uncertain business environments, entrepreneurial grit provides the psychological stamina required to navigate prolonged periods of challenge, thereby reducing the likelihood of premature venture exit (Fisher et al., 2020).

Theoretically, entrepreneurial grit contributes to SME survival by fostering persistence, resilience, and long-term strategic orientation. Entrepreneurs with high levels of grit are more likely to endure financial difficulties, market fluctuations, and operational challenges while maintaining commitment to their ventures (Salisu et al., 2020; Asante et al., 2023). Grit also promotes proactive problem-solving, resource mobilization, and adaptive behaviour, all of which are essential for sustaining business operations in dynamic environments (Wolfe, 2021; Zhu et al., 2024). Furthermore, grit has been found to buffer the psychological strain associated with entrepreneurship, thereby reducing burnout and entrepreneurial withdrawal intentions (Arco-Tirado et al., 2019).

Empirical evidence largely supports the positive relationship between entrepreneurial grit and entrepreneurial outcomes. Studies have shown that entrepreneurial grit enhances venture performance, opportunity recognition, entrepreneurial resilience, and firm continuity (Chen et al., 2018; Lee et al., 2019; Salisu et al., 2020; Kaes et al., 2025). During periods of crisis and uncertainty, entrepreneurial grit has been found to significantly improve business survival by enabling entrepreneurs to persist despite adverse conditions (Silalahi et al., 2023; Isichei et al., 2024). Similarly, Lyu et al. (2022) reported that gritty entrepreneurs cultivate organizational cultures that promote adaptability and long-term survival. More recently, Kumdi et al. (2026), using data from SMEs in North-Central Nigeria, found that both entrepreneurial passion and perseverance exert significant positive effects on entrepreneurial survival. Their study concluded that sustained commitment and long-term focus constitute critical entrepreneurial capabilities for business continuity in resource-constrained environments. However, while existing studies establish a direct association between entrepreneurial grit and entrepreneurial survival, limited attention has been devoted to understanding the mechanisms through which entrepreneurial grit translates into survival outcomes. Based on the foregoing arguments and empirical evidence, the study proposes that entrepreneurial grit enhances the likelihood of entrepreneurial survival.

H1: Entrepreneurial grit has a positive and significant effect on entrepreneurial *survival.*

2.2 *Entrepreneurial Grit and Entrepreneurial Learning*

Entrepreneurial learning is widely recognized as a fundamental process through which entrepreneurs acquire, develop, and apply knowledge necessary for venture growth and continuity. Cope (2005) conceptualizes entrepreneurial learning as an experiential process whereby entrepreneurs learn from both successes and failures, continuously refining their knowledge, skills, and behaviours. Through learning, entrepreneurs develop adaptive capabilities that enable them to respond effectively to environmental changes and emerging opportunities.

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Although entrepreneurial grit is primarily considered a motivational construct, its influence extends beyond persistence to affect learning behaviour. Gritty entrepreneurs tend to remain engaged in entrepreneurial activities despite setbacks, thereby increasing opportunities for experiential learning and knowledge accumulation. Their perseverance encourages continuous experimentation, reflection, and problem-solving, all of which are central components of entrepreneurial learning (Duckworth et al., 2007; Cope, 2011). By remaining committed to long-term goals, entrepreneurs with high levels of grit are more likely to seek feedback, acquire new knowledge, and develop competencies that improve venture performance.

The relationship between grit and learning has received increasing empirical support. Light and Nencka (2019) found that gritty individuals demonstrate greater learning engagement and academic persistence, while Jiang et al. (2020) reported that grit positively influences self-regulated learning through sustained effort and metacognitive control. Tang et al. (2020) further observed that perseverance promotes learning outcomes by encouraging continuous engagement with challenging tasks. Within entrepreneurial settings, Zhao et al. (2023) found that grit enhances learning orientation and adaptive capability development, while Kakar et al. (2025) demonstrated that entrepreneurial persistence facilitates experiential learning and behavioural adaptation. These findings suggest that entrepreneurial grit provides the motivational foundation necessary for effective entrepreneurial learning.

From a theoretical perspective, entrepreneurs who possess high levels of grit are more likely to persist through challenges long enough to acquire valuable experiences, reflect upon outcomes, and transform experiences into actionable knowledge. Consequently, entrepreneurial grit is expected to positively influence entrepreneurial learning.

H2: Entrepreneurial grit has a positive and significant effect on entrepreneurial learning.

2.3 *Entrepreneurial Learning and Entrepreneurial Survival*

Entrepreneurial Learning Theory posits that entrepreneurs develop knowledge and competencies through experience, reflection, experimentation, and social interaction, thereby enhancing their ability to navigate uncertainty and sustain business operations (Cope, 2005; Cope, 2011). In increasingly dynamic business environments, survival depends not only on entrepreneurial effort but also on the ability to continuously learn and adapt. Entrepreneurial learning enables entrepreneurs to recognize opportunities, identify threats, refine strategies, and improve decision-making processes.

The survival benefits of entrepreneurial learning stem from its role in enhancing adaptability and strategic flexibility. Entrepreneurs who actively engage in learning processes are better positioned to respond to environmental changes, recover from setbacks, and avoid repeating costly mistakes. Learning facilitates the development of entrepreneurial competencies that support innovation, resilience, and business continuity (Pascucci et al., 2021; Barbosa et al., 2023). Furthermore, learning enables entrepreneurs to transform experiences into practical knowledge that strengthens their capacity to manage uncertainty and sustain competitive advantage.

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Empirical studies consistently demonstrate the importance of entrepreneurial learning for venture survival. Cope (2011) argued that learning from failure significantly improves future entrepreneurial preparedness and resilience. Lattacher and Wdowiak (2020) found that entrepreneurs who engage in reflective learning are more likely to recover from adverse business experiences and achieve venture continuity. Similarly, Pascucci et al. (2021) reported that entrepreneurial learning enhances adaptability and strategic renewal, while Barbosa et al. (2023) found that learning capabilities positively influence business sustainability. Recent studies by Aiman et al. (2024), Li et al. (2024), and Sahi et al. (2024) further reveal that entrepreneurs who continuously acquire and apply knowledge exhibit higher survival rates than those who rely solely on existing experience. The foregoing discussion suggests that entrepreneurial learning provides entrepreneurs with the adaptive capabilities necessary to sustain business operations in uncertain environments. Therefore, entrepreneurial learning is expected to positively influence entrepreneurial survival.

H3: Entrepreneurial learning has a positive and significant effect on entrepreneurial survival.

2.3 *The Mediating Role of Entrepreneurial Learning*

Although entrepreneurial grit has been consistently linked to entrepreneurial survival, the process through which gritty entrepreneurs convert persistence into sustainable survival outcomes remains insufficiently understood. Existing studies have primarily focused on the direct effects of entrepreneurial grit on entrepreneurial outcomes (Salisu et al., 2020; Silalahi et al., 2023; Isichei et al., 2024; Kumdi et al., 2026), providing limited insight into the underlying mechanisms responsible for this relationship.

The integration of Grit Theory and Entrepreneurial Learning Theory provides a useful explanation for this process. Grit Theory suggests that entrepreneurs who possess high levels of passion and perseverance remain committed to entrepreneurial goals despite adversity (Duckworth et al., 2007). Entrepreneurial Learning Theory, on the other hand, explains how entrepreneurs transform experiences into knowledge that enhances adaptability and venture continuity (Cope, 2005; Cope, 2011). Together, these theories suggest that entrepreneurial grit promotes entrepreneurial learning because persistent entrepreneurs are more likely to engage in experimentation, reflection, and knowledge acquisition. Through these learning activities, entrepreneurs develop adaptive capabilities that subsequently enhance entrepreneurial survival.

Empirical evidence provides indirect support for this mediating mechanism. Research has shown that persistence promotes learning orientation, adaptive capability development, and behavioural adjustment (Tang et al., 2020; Zhao et al., 2023; Kakar et al., 2025). Similarly, entrepreneurial learning has been found to strengthen resilience, strategic flexibility, and business continuity (Lattacher & Wdowiak, 2020; Pascucci et al., 2021; Barbosa et al., 2023). More so, Mallo et al., (2022) established that the study revealed that, consumer access, legal and regulatory environment, capital access, and technological adoption all have a major impact on technological adoption. Thus, financial and other lending institutions should be aware of the costly and difficult lending conditions that youth-owned SMEs face in the country. Consequently, entrepreneurial learning may serve as the missing explanatory mechanism through which entrepreneurial grit influences entrepreneurial survival. Rather than affecting survival solely through direct persistence, entrepreneurial grit may exert its influence by encouraging continuous learning and adaptation that improve the entrepreneur's ability to sustain venture operations. Although prior studies suggest that persistence promotes learning orientation and that entrepreneurial learning enhances adaptability and business continuity, empirical evidence directly linking these relationships within a unified mediation framework remains limited. Furthermore, the relevance of this mechanism may vary across institutional contexts. Therefore, entrepreneurial learning is examined as a potential explanatory pathway through which entrepreneurial grit may influence entrepreneurial survival.

H4: Entrepreneurial learning mediates the relationship between entrepreneurial grit and SME survival.

2.4 Conceptual Framework

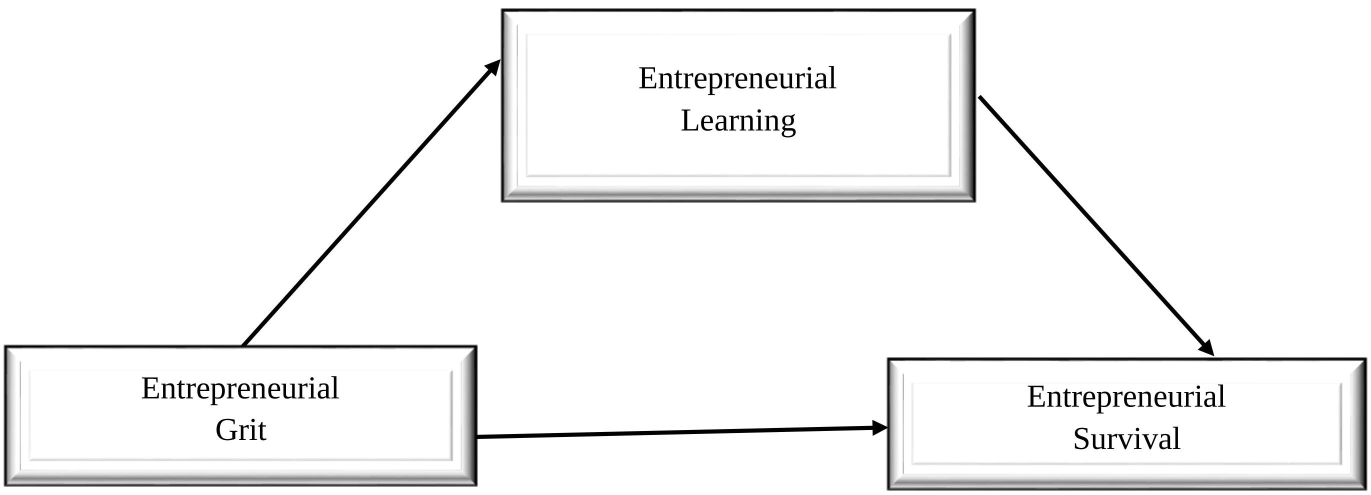

Figure 1: The Research Model

3.0 METHODOLOGY

3.1 *Sampling and Data Collection*

This study adopted a quantitative cross-sectional survey design to examine whether entrepreneurial learning explains the relationship between entrepreneurial grit and entrepreneurial survival among SMEs in North-Central Nigeria. The study covered the North-Central geopolitical zone of Nigeria, comprising Benue, Kogi, Kwara, Nasarawa, Niger, Plateau States, and the Federal Capital Territory (FCT), Abuja.

The target population consisted of 130,862 SME owner-managers operating within the region. This population was derived from the 2021 National Survey of Micro, Small and Medium Enterprises conducted by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS). The distribution of SMEs across the study area was as follows: Benue (14,851), Kogi (12,517), Kwara (25,356), Nasarawa (10,728), Niger (23,197), Plateau (21,352), and the FCT Abuja (22,861), giving a total population of 130,862 SMEs (SMEDAN & NBS, 2021).

The sample size was determined using the formula proposed by Taro Yamane (1967):

$$n = \frac{N}{1 + N(e)^2}$$

where $n$represents the sample size, $N$is the population size, and $e$denotes the level of precision. Adopting a 95% confidence level and a margin of error of 5% ($e = 0.05$), the sample size was computed as follows:

$$n = \frac{130{,}862}{1 + 130{,}862(0.05)^2}$$

$$n = \frac{130{,}862}{1 + 130{,}862(0.0025)} = \frac{130{,}862}{1 + 327.155} = \frac{130{,}862}{328.155} = 398.74$$

The computed value was approximated to 399 SMEs, which represents the minimum required sample size for the study.

Thus, a minimum sample size of 399 respondents was required. To address the likelihood of non-response and incomplete questionnaires, the sample size was adjusted upward by 20%, in line with recommendations for survey research in business and social sciences (Israel, 1992). The adjustment was computed as follows:

$$399 \times 0.20 = 79.8 \Rightarrow 399 + 79.8 = 478.8 = 479$$

Consequently, 479 questionnaires were distributed across the study area.

A multi-stage sampling procedure was employed. First, the study area was stratified according to the seven states and the FCT to ensure geographical representation. Thereafter, questionnaires were proportionately allocated across the strata based on the concentration of SMEs in each location. Respondents were subsequently selected using a combination of convenience and snowball sampling techniques due to the absence of a comprehensive and accessible sampling frame of SME owner-managers in the region.

Data were collected through a structured questionnaire administered directly to SME owner-managers. Of the 479 questionnaires distributed, 435 were returned and found suitable for analysis, representing a response rate of 91%. The final sample exceeded the minimum required sample size and was considered adequate for mediation analysis using bootstrapping procedures (Fritz & MacKinnon, 2007; Hayes, 2022).

Participation in the study was voluntary, and informed consent was obtained from all respondents prior to data collection. Respondents were assured of anonymity and confidentiality, and all information provided was used solely for academic purposes. Participants were informed of their

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right to withdraw from the study at any stage without penalty. These procedures ensured compliance with established ethical standards for social science research.

Measurement of Variables

The study examined three constructs: entrepreneurial grit, entrepreneurial learning, and entrepreneurial Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Entrepreneurial grit (EG) was measured using the eight-item Short Grit Scale (Grit-S) developed by Duckworth and Quinn (2009). Consistent with recent entrepreneurship research, entrepreneurial grit was operationalized as a unidimensional construct reflecting an entrepreneur's sustained passion and perseverance toward long-term entrepreneurial goals.

Entrepreneurial learning (EL) was measured using seven items adapted from Shen et al. (2021). The scale conceptualizes entrepreneurial learning as the process through which entrepreneurs acquire, transform, and apply knowledge derived from prior entrepreneurial experiences.

Entrepreneurial survival (ES) was measured using eight items adapted from Amah (2017). The construct captures the ability of SMEs to remain operational and sustain performance despite environmental and operational challenges.

All items were contextualized to the Nigerian SME environment while preserving their original conceptual meanings.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 27 and Hayes' PROCESS macro version 5.0. Preliminary analyses included data screening, descriptive statistics, and reliability assessment.

The study hypotheses were tested using PROCESS Model 4, which estimates a simple mediation model. This model was considered appropriate because the study sought to determine whether entrepreneurial learning mediates the relationship between entrepreneurial grit and entrepreneurial survival. The indirect effect was estimated using bias-corrected bootstrapping with 5,000 resamples and 95% confidence intervals. Following Hayes (2022), mediation is established when the confidence interval for the indirect effect excludes zero. Bootstrapping has been widely recommended as a robust and statistically powerful approach for testing mediation effects in entrepreneurship and management research because it does not rely on assumptions of normality in the sampling distribution of indirect effects.

4.0 RESULTS

4.1 *Descriptive Statistics and Respondent Profile*

A total of 435 usable questionnaires were obtained from SME owner-managers operating across North-Central Nigeria. Table 1 presents the demographic and business characteristics of the respondents. The majority of respondents were between 36 and 45 years of age (37.7%), followed by those aged 46–55 years (27.1%) and 25–35 years (26.9%). Male respondents constituted 53.8% of the sample, while females accounted for 46.2%.

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With respect to geographical distribution, respondents were drawn from all states in the North-Central region and the Federal Capital Territory, with the largest proportions originating from Niger State (18.9%), Kwara State (18.4%), Plateau State (17.0%), and Abuja (16.8%). The agricultural sector accounted for almost half of the sampled firms (49.7%), followed by retail (29.0%) and manufacturing (21.4%).

Most firms were small enterprises employing between 10 and 49 workers (94.0%), while only 6.0% were medium-sized enterprises. Similarly, 94.0% reported asset values between ₦10 million and ₦100 million. In terms of business longevity, 60.5% had operated between five and ten years, while 39.5% had been in operation for between eleven and fifteen years. A substantial proportion of respondents (70.8%) reported prior entrepreneurial experience, and the overwhelming majority possessed tertiary education qualifications (96.8%). Regarding ownership structure, 74.5% operated as limited liability companies, while 21.8% were sole proprietorships. Furthermore, 79.1% reported annual turnover below ₦5 million, and most businesses (74.9%) were registered with the Corporate Affairs Commission (CAC).

The sample is dominated by small-scale, experienced, and well-educated entrepreneurs, with a substantial proportion operating in the agricultural sector. These characteristics provide useful insights into SMEs operating within the resource-constrained environment of North-Central Nigeria.

Reliability and Validity Assessment

The reliability of the measurement scales was assessed using Cronbach's alpha coefficients. The results indicated satisfactory internal consistency for entrepreneurial grit ($\alpha = 0.705$), entrepreneurial learning ($\alpha = 0.745$), and entrepreneurial survival ($\alpha = 0.795$), exceeding the recommended threshold of 0.70 (Hair et al., 2022).

Construct validity was evaluated using exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.506, while Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 13{,}929.594$, df = 465, $p < .001$), confirming the suitability of the data for factor analysis. Communalities ranged from 0.484 to 0.919, and eight components with eigenvalues greater than one collectively explained 74.85% of the total variance. These results provide evidence of the adequacy of the measurement model and support the construct validity of the study variables.

Common Method Bias

Given that all data were collected from a single source using a self-administered questionnaire, Harman's single-factor test was conducted to assess the potential influence of common method bias. The first unrotated factor accounted for only 17.52% of the total variance, which is substantially below the recommended threshold of 50% (Podsakoff et al., 2003). Consequently, common method bias was not considered a significant threat to the validity of the findings.

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Assessment of Regression Assumptions

Prior to hypothesis testing, key regression assumptions were examined. Visual inspection of residual plots confirmed the assumptions of linearity, normality, and homoscedasticity. Furthermore, multicollinearity diagnostics indicated no concerns, with Variance Inflation Factor (VIF) values of 1.134 and tolerance values of 0.882, well within acceptable limits.

Table 1: Demographic and Business Characteristics of Respondents (N = 435)

Characteristic	Category	Frequency (n)	Percentage (%)
Age Range	25–35 years	117	26.9
	36–45 years	164	37.7
	46–55 years	118	27.1
	56 years and above	36	8.3
	Total	435	100.0
Gender	Female	201	46.2
	Male	234	53.8
	Total	435	100.0
State of Operation	Abuja (FCT)	73	16.8
	Benue	49	11.3
	Kogi	42	9.7
	Kwara	80	18.4
	Nasarawa	35	8.0
	Niger	82	18.9
	Plateau	74	17.0
	Total	435	100.0
Industry Sector	Agriculture	216	49.7
	Retail	126	29.0
	Manufacturing	93	21.4
	Total	435	100.0
Number of Employees	10–49 (Small Enterprise)	409	94.0
	50–199 (Medium Enterprise)	26	6.0
	Total	435	100.0
Asset Value (₦)	₦10 million – ₦100 million (Small)	409	94.0
	₦100 million – ₦1 billion (Medium)	26	6.0
	Total	435	100.0

Years of Business Operation	5–10 years	263	60.5
	11–15 years	172	39.5
	Total	435	100.0
Prior Entrepreneurial Experience	No	127	29.2
	Yes	308	70.8
	Total	435	100.0
Educational Qualification	Secondary education	14	3.2
	Tertiary education	421	96.8
	Total	435	100.0
Ownership Structure	Sole proprietorship	95	21.8
	Partnership	16	3.7
	Limited liability company	324	74.5
	Total	435	100.0
Annual Turnover (₦)	Below ₦5 million	344	79.1
	₦5 million – ₦50 million	73	16.8
	₦50 million – ₦500 million	18	4.1
	Total	435	100.0
Business Registration	SMEDAN only	26	6.0
	CAC only	326	74.9
	SMEDAN and CAC	83	19.1
	Total	435	100.0

Source: Field Survey, 2026

Hypotheses Testing

The proposed mediation model was tested using Hayes' PROCESS Macro Version 5.0 (Model 4) with 5,000 bootstrap resamples and 95% bias-corrected confidence intervals. The analysis examined the direct effect of entrepreneurial grit on entrepreneurial survival and the indirect effect transmitted through entrepreneurial learning.

Effect of Entrepreneurial Grit on Entrepreneurial Learning

The first stage of the mediation analysis assessed the influence of entrepreneurial grit on entrepreneurial learning. As shown in Table 2, entrepreneurial grit significantly and positively predicted entrepreneurial learning ($b = 0.329$, $SE = 0.043$, $t = 7.625$, $p < .001$, 95% CI [0.244, 0.414]). The model explained 11.8% of the variance in entrepreneurial learning ($R = 0.344$, $R^2 = 0.118$, $F(1, 433) = 58.139$, $p < .001$).

The result indicates that entrepreneurs who exhibit higher levels of perseverance and sustained commitment are more likely to engage in learning activities that facilitate the acquisition,

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transformation, and application of entrepreneurial knowledge. Therefore, H2, which posited that entrepreneurial grit positively influences entrepreneurial learning, is supported.

Table 2: Effect of Entrepreneurial Grit on Entrepreneurial Learning

Predictor	*b*	*SE*	*t*	*P*	LLCI	ULCI
Constant	4.328	0.275	15.728	<.001	3.787	4.869
Entrepreneurial Grit	0.329	0.043	7.625	<.001	0.244	0.414

Note: N = 435. Model statistics: $R = .344$, $R^2 = .118$, $F(1, 433) = 58.139$, $p < .001$.

Effects of Entrepreneurial Grit and Entrepreneurial Learning on Entrepreneurial Survival

The second stage of the mediation analysis examined the effects of entrepreneurial grit and entrepreneurial learning on entrepreneurial survival. The overall model was statistically significant ($R = 0.702$, $R^2 = 0.493$, $F(2, 432) = 210.158$, $p < .001$), indicating that the predictor variables jointly explained approximately 49.3% of the variance in entrepreneurial survival.

Table 3: Regression Results Predicting Entrepreneurial Survival

Predictor	***b***	***SE***	**β**	***T***	***p***	**LLCI**	**ULCI**	**Tolerance**	**VIF**
Constant	-1.266	0.360	-	-3.517	.001	-1.973	-0.558	-	-
Entrepreneurial Grit	0.491	0.048	0.374	10.245	<.001	0.397	0.585	0.882	1.134
Entrepreneurial Learning	0.659	0.050	0.480	13.149	<.001	0.561	0.758	0.882	1.134

Note: N = 435. $R = .702$, $R^2 = .493$, $F(2, 432) = 210.158$, $p < .001$. Cohen's f^2: Grit = 0.243 (medium-to-large); Learning = 0.401 (large).

The results reveal that entrepreneurial grit exerted a significant positive effect on entrepreneurial survival ($b = 0.491$, $SE = 0.048$, $t = 10.245$, $p < .001$, 95% CI [0.397, 0.585]). Likewise,

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entrepreneurial learning significantly influenced SME survival (b = 0.659, SE = 0.050, t = 13.149, p < .001, 95% CI [0.561, 0.758]).

These findings suggest that SMEs led by entrepreneurs who demonstrate greater perseverance and long-term commitment are more likely to survive. Furthermore, entrepreneurs who continuously acquire and apply knowledge from experience are better positioned to sustain business operations in challenging environments. Consequently, H1 and H3 are supported.

Mediation Analysis

The mediation hypothesis was assessed by examining the indirect effect of entrepreneurial grit on entrepreneurial survival through entrepreneurial learning. The bootstrap results revealed a significant indirect effect (Effect = 0.217, BootSE = 0.034), with a 95% bootstrap confidence interval ranging from 0.152 to 0.285. Since the confidence interval does not include zero, the indirect effect is statistically significant.

In addition, the direct effect of entrepreneurial grit on entrepreneurial survival remained positive and statistically significant after controlling for entrepreneurial learning (b = 0.491, SE = 0.048, t = 10.245, p < .001, 95% CI [0.397, 0.585]). The significance of both the direct and indirect effects indicates the presence of partial mediation.

Table 4: Bootstrap Results for Indirect Effect (5,000 resamples)

Mediator	Effect	Boot SE	Boot LLCI	Boot ULCI	Decision
Entrepreneurial Learning	0.217	0.034	0.152	0.284	Supported (Partial Mediation)

To determine the magnitude of the mediation effect, the total effect was computed as the sum of the direct and indirect effects (0.491 + 0.217 = 0.708). The indirect effect therefore accounts for approximately 30.6% of the total effect of entrepreneurial grit on entrepreneurial survival. This finding suggests that entrepreneurial grit enhances entrepreneurial survival both directly and indirectly through entrepreneurial learning. Accordingly, H4, which proposed that entrepreneurial learning mediates the relationship between entrepreneurial grit and entrepreneurial survival, is supported.

Summary of Hypotheses Testing

Table 5 summarizes the outcomes of the hypothesis tests. All four hypotheses received empirical support.

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Table 5: Summary of Hypotheses Testing Results

Hypothesis	Path	Decision
H1	Entrepreneurial Grit → Entrepreneurial Survival	Supported
H2	Entrepreneurial Grit → Entrepreneurial Learning	Supported
H3	Entrepreneurial Learning → Entrepreneurial Survival	Supported
H4	Entrepreneurial Grit → Entrepreneurial Learning → Entrepreneurial Survival	Supported (Partial Mediation)

Overall, the findings provide strong support for the mediation model. Entrepreneurial grit contributes significantly to entrepreneurial survival both directly and indirectly through entrepreneurial learning. The results suggest that while perseverance and sustained commitment independently enhance business continuity, part of their influence operates through learning processes that enable entrepreneurs to acquire, interpret, and apply knowledge necessary for sustaining their ventures in challenging environments.

4.1 DISCUSSION

This study examined whether entrepreneurial learning explains the relationship between entrepreneurial grit and entrepreneurial survival among SMEs in North-Central Nigeria. The findings provide substantial support for the proposed mediation model and offer important insights into the psychological and cognitive mechanisms that underpin entrepreneurial survival in resource-constrained environments.

The results reveal that entrepreneurial grit exerts a significant positive influence on entrepreneurial survival. This finding supports Grit Theory (Duckworth et al., 2007), which posits that sustained passion and perseverance toward long-term goals enable individuals to persist despite setbacks and adversity. Within the entrepreneurial context, the finding suggests that entrepreneurs who remain committed to their ventures and maintain focus despite operational, financial, and environmental challenges are more likely to sustain business continuity. The result is consistent with previous studies that identified entrepreneurial grit as a critical determinant of venture resilience, persistence, and survival (Salisu et al., 2020; Silalahi et al., 2023; Isichei et al., 2024). The finding also corroborates the recent study by Kumdi et al. (2026), which demonstrated that entrepreneurial passion and perseverance significantly enhance SME survival in North-Central Nigeria. The consistency of these findings reinforces the growing consensus that entrepreneurial grit constitutes a strategic psychological resource that enables entrepreneurs to withstand uncertainty and remain operational over time.

The study further found that entrepreneurial grit significantly and positively influences entrepreneurial learning. This finding suggests that gritty entrepreneurs are more likely to engage in learning behaviours that facilitate the acquisition, interpretation, and application of knowledge derived from entrepreneurial experiences. Entrepreneurs who exhibit high levels of perseverance are more inclined to persist in seeking solutions, reflecting on failures, and experimenting with alternative approaches when confronted with challenges. This finding supports Entrepreneurial Learning Theory (Cope, 2005, 2011), which emphasizes that entrepreneurial knowledge develops through continuous interaction with experiences and environmental feedback. The result also aligns with studies suggesting that persistent entrepreneurs are more likely to engage in reflective learning and opportunity recognition processes that enhance entrepreneurial competence and adaptability (Awad et al., 2020; Zou, 2022). In resource-constrained environments such as North-Central Nigeria, grit appears to stimulate learning by encouraging entrepreneurs to remain engaged long enough to accumulate valuable experiential knowledge.

The findings also demonstrate that entrepreneurial learning significantly enhances entrepreneurial survival. This result supports Entrepreneurial Learning Theory and affirms the argument that learning enables entrepreneurs to acquire adaptive capabilities necessary for navigating uncertain business environments. Entrepreneurs who continuously learn from prior successes and failures are better positioned to identify opportunities, adjust strategies, manage risks, and respond effectively to environmental changes. The finding is consistent with previous studies that identified entrepreneurial learning as a critical determinant of venture continuity and long-term performance (Pascucci et al., 2021; Barbosa et al., 2023; Li et al., 2024). The result suggests that survival is not solely dependent on perseverance but also on the entrepreneur's ability to transform experience into actionable knowledge that improves business decision-making and strategic flexibility.

Most importantly, the findings indicate that entrepreneurial learning partially mediates the relationship between entrepreneurial grit and entrepreneurial survival. The bootstrap analysis revealed a significant indirect effect, confirming that entrepreneurial grit contributes to entrepreneurial survival not only directly but also indirectly through entrepreneurial learning. This finding extends both Grit Theory and Entrepreneurial Learning Theory by demonstrating the mechanism through which entrepreneurial grit translates into survival outcomes. Specifically, entrepreneurs who possess high levels of grit are more likely to engage in learning processes that enhance their ability to adapt, innovate, and respond effectively to challenges, thereby increasing the likelihood of business survival.

The mediation result is particularly important because it advances existing entrepreneurship literature beyond the direct effect perspective that has dominated previous studies. While earlier

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research primarily established that entrepreneurial grit influences entrepreneurial outcomes, relatively little attention has been devoted to understanding how this influence occurs. The present study demonstrates that entrepreneurial learning serves as an important explanatory pathway linking entrepreneurial grit to entrepreneurial survival. Nevertheless, the persistence of a significant direct effect alongside the indirect effect suggests that entrepreneurial learning only partially explains the relationship. This implies that other mechanisms, such as entrepreneurial resilience, resource bootstrapping, opportunity recognition, or strategic adaptability, may also contribute to the translation of entrepreneurial grit into survival outcomes.

THEORETICAL AND PRACTICAL IMPLICATIONS

The study makes several important theoretical contributions. First, it extends Grit Theory by demonstrating that entrepreneurial grit influences entrepreneurial survival both directly and indirectly through entrepreneurial learning. While prior studies have primarily focused on the direct performance implications of grit, the present study identifies entrepreneurial learning as a key mechanism through which grit translates into entrepreneurial outcomes.

Second, the study contributes to Entrepreneurial Learning Theory by empirically validating the role of entrepreneurial learning as an explanatory pathway linking entrepreneurial characteristics to business survival. The findings provide evidence that learning is not merely an outcome of entrepreneurial activity but a strategic capability that transforms psychological resources into sustainable entrepreneurial outcomes.

Third, the study enriches entrepreneurship research in emerging economies by integrating psychological and cognitive perspectives into the explanation of entrepreneurial survival. In contrast to traditional approaches that emphasize financial, institutional, or environmental determinants, the findings highlight the importance of entrepreneur-level capabilities in sustaining business continuity under conditions of uncertainty.

From a practical perspective, the findings suggest that entrepreneurship development programmes should place greater emphasis on cultivating both entrepreneurial grit and entrepreneurial learning capabilities. Government agencies, entrepreneurship support institutions, and SME development organizations should design interventions that strengthen perseverance, long-term commitment, reflective learning, and experiential knowledge acquisition among entrepreneurs. Such initiatives may improve the capacity of SMEs to survive and thrive in challenging business environments.

5.0 CONCLUSION

This study examined whether entrepreneurial learning explains the relationship between entrepreneurial grit and entrepreneurial survival among SMEs in North-Central Nigeria. The findings reveal that entrepreneurial grit significantly enhances entrepreneurial survival and positively influences entrepreneurial learning. Entrepreneurial learning was also found to significantly predict entrepreneurial survival. Furthermore, the results demonstrate that entrepreneurial learning partially mediates the relationship between entrepreneurial grit and entrepreneurial survival.

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The study therefore concludes that entrepreneurial grit contributes to entrepreneurial survival through both direct and indirect pathways. While perseverance and long-term commitment independently enhance business continuity, part of their influence operates through learning processes that enable entrepreneurs to acquire, interpret, and apply knowledge necessary for adapting to changing business conditions. The findings underscore the importance of integrating psychological and learning-based perspectives in understanding entrepreneurial survival and provide evidence that entrepreneurial learning serves as a critical mechanism through which entrepreneurial grit translates into sustained SME survival in emerging economy contexts.

5.1 LIMITATIONS AND FUTURE RESEARCH

Despite its contributions, this study has certain limitations. First, the cross-sectional design restricts causal inference and does not capture the dynamic evolution of entrepreneurial grit, learning, and survival over time. Future studies may adopt longitudinal designs to examine these relationships across different stages of venture development. Second, the study focused exclusively on SMEs in North-Central Nigeria, which may limit the generalizability of the findings to other regions and contexts. Future research should replicate the model in different geographical and institutional settings. Finally, entrepreneurial learning only partially explained the relationship between entrepreneurial grit and entrepreneurial survival, suggesting the existence of additional mediating mechanisms. Future studies should explore variables such as entrepreneurial resilience, resource bootstrapping, opportunity recognition, strategic adaptability, and entrepreneurial self-efficacy as potential explanatory pathways.

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