

ENTREPRENEURIAL COGNITIVE CHARACTERISTICS AND ENTERPRISE GROWTH IN ZAMFARA STATE: A STUDY OF OPPORTUNITY- DRIVEN EARLY-STAGE ENTREPRENEURS

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ABSTRACT

This study investigates the relationship between cognitive entrepreneurial characteristics and enterprise growth in Zamfara State. Utilizing a quantitative research design, data were collected from 366 early-stage entrepreneurs across the manufacturing, education, and wholesale and retail trade sectors in six local governments. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed hypotheses regarding the impact of key cognitive traits self-efficacy, alertness to opportunity, and innovativeness on enterprise growth, measured by sales and employee growth. The findings reveal a significant and positive relationship between the examined cognitive characteristics and enterprise growth, underscoring the importance of these traits in fostering the success of early-stage enterprises in the region. This study contributes to the existing literature by highlighting the critical role of cognitive traits in entrepreneurial growth, particularly within a developing economy context. Based on the results, it is recommended that both entrepreneurs and policymakers prioritize the development of these cognitive traits through targeted educational programs and strategic initiatives, as they are pivotal to driving business growth and economic development in Zamfara State.

Keywords: Entrepreneurial Cognitive characteristics, Early Stage Entrepreneurship and Enterprise Growth.

1. Introduction

Entrepreneurship is widely acknowledged as a fundamental driver of economic growth and development, celebrated for its capacity to generate employment, foster innovation, and deliver societal value. The International Labour Organization (ILO, 2021) underscores the role of entrepreneurship in promoting decent work and advancing the Sustainable Development Goals (SDGs). Across both developed and developing economies, entrepreneurship is regarded as a transformative force in economic progress, shaped by the actions, behaviors, and psychological traits of entrepreneurs (Peljko & Antončič, 2022).

Within the broader landscape of entrepreneurial activity, opportunity-driven entrepreneurship stands out for its significant contribution to economic development. Unlike necessity-driven entrepreneurship—which emerges primarily from the absence of viable employment—opportunity-driven entrepreneurship is characterized by proactive identification, exploitation, and creation of market opportunities. This form of entrepreneurship is more prevalent in developed economies, where it contributes substantially to employment generation, innovation, and social advancement. When adequately supported by policy frameworks, opportunity-driven

entrepreneurship can catalyze broad-based economic growth (Audretsch & Belitski, 2017; Stoica, Roman, & Rusu, 2020).

Central to the success of opportunity-driven entrepreneurs are psychological characteristics such as self-efficacy, entrepreneurial alertness, and innovativeness. These cognitive traits significantly influence entrepreneurial behaviors and decision-making processes, ultimately shaping enterprise outcomes (Frese et al., 2016; McClelland et al., 1989; Brockhaus, 1980). Empirical studies affirm that strengthening these traits can enhance entrepreneurial effectiveness and promote sustainable enterprise development globally (Frese et al., 2016).

Despite the increasing volume of global literature on entrepreneurship, the psychological underpinnings of opportunity-driven entrepreneurship in Africa remain insufficiently studied. This gap constrains the application and generalizability of existing entrepreneurial theories within the African context. In Nigeria, Zamfara State experienced a notable rise in business registrations between 2010 and 2020. However, this increase has not translated into proportional economic growth, revealing a disconnect between enterprise formation and economic outcomes (Olokundun et al., 2021). This situation points to the need for a deeper understanding of the psychological drivers behind entrepreneurial success in the region.

Compounding these issues are structural barriers such as weak policy implementation and inadequate venture capital access, which limit entrepreneurial performance. These challenges underscore the importance of adopting psychological and behavioral perspectives in studying enterprise growth. Accordingly, this study investigates the opportunity-driven entrepreneurial traits—specifically self-efficacy, entrepreneurial alertness, and innovativeness that influence enterprise growth in Zamfara State. By addressing this knowledge gap, the research aims to offer actionable insights for policymakers, development agencies, and stakeholders. Ultimately, the findings are expected to contribute to a broader theoretical and practical understanding of how psychological factors can be leveraged to support entrepreneurship-led economic development, both in Nigeria and in other emerging economies with similar contexts.

2. Literature Review

2.1 Entrepreneurial Cognitive Characteristics

Entrepreneurial cognitive characteristics have received considerable scholarly attention due to their pivotal role in shaping entrepreneurial behavior and outcomes. These cognitive traits fundamentally influence how entrepreneurs identify, evaluate, and exploit business opportunities. Traits such as self-efficacy, alertness to opportunities, cognitive adaptability, risk perception, and innovativeness are central to how entrepreneurs navigate complex and dynamic business environments, guiding their decision-making processes and strategic actions.

The cognitive approach in entrepreneurship research underscores the mental models and psychological mechanisms underlying entrepreneurial behavior. It provides a lens through which the internal processes of entrepreneurs—such as perception, judgment, and information processing—can be examined. Foundational cognitive traits, including self-efficacy, cognitive biases, heuristic processing, and sensation seeking, play a significant role in how entrepreneurs respond to opportunities and challenges. These traits are grounded in theoretical frameworks that deepen our understanding of entrepreneurial cognition.

At the forefront is Bandura's (1986) Social Cognitive Theory, which introduces self-efficacy—defined as the belief in one's ability to perform tasks and achieve goals as a key driver of entrepreneurial behavior. Entrepreneurs with high self-efficacy tend to exhibit greater motivation, resilience, and persistence, which enable them to sustain entrepreneurial efforts in the face of adversity (Chen, Greene, & Crick, 1998). Krueger and Brazeal (1994) further argue that self-efficacy serves as a distinguishing factor between individuals with strong entrepreneurial intentions and those without, highlighting its importance in venture initiation and long-term commitment.

Cognitive alertness, as conceptualized by Kirzner (1997), refers to the unique ability of entrepreneurs to notice and act upon opportunities overlooked by others. This trait enables entrepreneurs to identify gaps in the market and respond proactively, thereby contributing to business growth and competitive positioning.

From a theoretical standpoint, several additional perspectives enrich the understanding of entrepreneurial cognition. Festinger's (1957) Cognitive Dissonance Theory explains how entrepreneurs manage the psychological discomfort arising from inconsistencies between beliefs and actions, often leading to adjustments in strategy or mindset. Heuristic Processing Theory (Tversky & Kahneman, 1974) suggests that entrepreneurs frequently rely on mental shortcuts to make rapid decisions under uncertainty. While this can lead to cognitive biases, such as overconfidence or representativeness, increased awareness of these biases can enhance decision-making accuracy and reduce errors.

Zuckerman's (1994) Sensation Seeking Theory highlights another dimension of entrepreneurial cognition, describing how individuals with high sensation-seeking tendencies are more inclined to pursue novel and high-risk ventures. This trait supports the drive for innovation and exploration, essential qualities in uncertain and opportunity-laden entrepreneurial contexts.

Cognitive biases also play a nuanced role in shaping entrepreneurial behavior. For instance, overconfidence may lead entrepreneurs to underestimate risks (Simon, Houghton, & Aquino, 2000), while optimism encourages perseverance and forward-looking thinking. Despite the potential drawbacks, these biases can fuel entrepreneurial action by fostering commitment, enthusiasm, and the willingness to take calculated risks.

Risk perception is another critical cognitive attribute, referring to how entrepreneurs assess and respond to uncertainty. Unlike traditional risk-averse actors, entrepreneurs often interpret risk as a manageable challenge rather than a deterrent (Forlani & Mullins, 2000). This perception promotes risk-tolerant behavior that is essential for venturing into untested markets and pioneering new innovations.

Cognitive adaptability denotes an entrepreneur's capacity to modify their thinking and behavior in response to changing environments. Haynie et al. (2010) emphasize that high cognitive adaptability allows entrepreneurs to reframe problems, generate alternative strategies, and effectively pivot their business models. This flexibility is vital for sustaining performance and growth in volatile market conditions.

Lastly, innovativeness—defined as the inclination to generate and implement novel ideas is a cornerstone of entrepreneurial success. Schumpeter's (1934) Theory of Innovation positions the

entrepreneur as an agent of creative destruction, continuously disrupting markets through new combinations of resources. Complementing this is Amabile's (1996) Creativity and Innovation Theory, which emphasizes that creativity is the wellspring of innovation. Together, these theories highlight how innovative capacity not only differentiates entrepreneurs but also drives economic and enterprise development.

In summary, entrepreneurial cognitive characteristics are integral to understanding how entrepreneurs make decisions, cope with uncertainty, and create value. Grounded in robust psychological and theoretical foundations, traits such as self-efficacy, alertness, cognitive adaptability, risk perception, and innovativeness collectively illuminate the mental processes that contribute to entrepreneurial success.

Self-Efficacy

Self-efficacy, defined as an entrepreneur's belief in their ability to achieve goals, plays a critical role in shaping entrepreneurial intentions and persistence (Bandura, 1997). This trait enhances confidence, empowering entrepreneurs to take initiative even amidst uncertainty and challenges. High self-efficacy correlates with resilience, a factor that increases the likelihood of entrepreneurial success (Markman, Baron, & Balkin, 2005). Entrepreneurs with strong self-efficacy are more likely to persist through adversity, perceive challenges as growth opportunities, and adopt behaviors that foster success. Zhao et al. (2005) affirmed that self-efficacy significantly predicts entrepreneurial intention, particularly in high-risk and uncertain environments where confidence in one's abilities is essential. The inclusion of self-efficacy, alertness, and innovativeness in a socio-cognitive model of entrepreneurship stems from their significant impact on decision-making, adaptability, and success. These traits enable entrepreneurs to effectively navigate challenges, identify opportunities, and develop innovative solutions—especially important in dynamic markets.

Self-efficacy, rooted in Bandura's (1997) Social Cognitive Theory, reflects confidence in one's capability to execute entrepreneurial tasks and manage business challenges. It fosters resilience, intention, and long-term commitment. Entrepreneurs high in self-efficacy demonstrate greater optimism, handle setbacks constructively, and remain committed to their business objectives (Chen, Greene, & Crick, 1998; Krueger & Brazeal, 1994). This belief in personal capacity promotes risk-taking and sustained effort, essential for overcoming business hurdles and driving growth.

Alertness to Opportunities

Alertness to opportunities refers to an entrepreneur's capacity to detect market gaps and act on them efficiently. Kirzner (1997) conceptualizes alertness as the ability to notice and respond to unnoticed market information. Entrepreneurs with heightened alertness are typically proactive and innovative, allowing them to leverage emerging trends and adapt to their environments (Tang, Kacmar, & Busenitz, 2012). This perceptual acuity is crucial for identifying untapped opportunities and sustaining competitive advantage. Baron (2004) supports this by emphasizing how alertness facilitates opportunity recognition, especially in volatile contexts. Foss et al. (2008) further validate the importance of alertness by linking it to greater entrepreneurial success. Entrepreneurs who are alert tend to recognize unmet needs, technological shifts, and evolving consumer behavior positioning their ventures strategically within the marketplace.

Kirzner's notion of cognitive alertness underpins this ability to recognize and respond to latent opportunities, reinforcing its vital role in entrepreneurial success.

Innovativeness

Innovativeness, a hallmark of entrepreneurial cognition, represents the ability to develop novel products, services, or processes that distinguish a venture from its competitors. Schumpeter's (1934) Theory of Innovation identifies the entrepreneur as a disruptor who transforms market structures through creative destruction. Complementarily, Amabile's (1996) Creativity and Innovation Theory underscores the role of intrinsic motivation and relevant expertise in facilitating innovative behavior. Entrepreneurs with high innovativeness typically adopt a growth mindset, continually exploring ways to create value (Dyer, Gregersen, & Christensen, 2009). These individuals embrace strategic flexibility, enabling them to pivot and respond to market shifts and consumer needs (McGrath, 1999). Innovativeness allows entrepreneurs to craft unique solutions, challenge industry norms, and capitalize on emerging trends, all of which are crucial for achieving and sustaining competitive advantage.

The synergy among self-efficacy, alertness, and innovativeness forms a powerful cognitive foundation for entrepreneurial behavior. Entrepreneurs exhibiting these traits are well-equipped to recognize, assess, and exploit opportunities while navigating complex challenges. Self-efficacy drives resilience and persistence; alertness sharpens opportunity recognition; and innovativeness fosters strategic adaptability and differentiation.

The cognitive perspective provides insights into the psychological mechanisms that underpin entrepreneurship. Bandura's Social Cognitive Theory, Kirzner's Alertness Theory, and Schumpeter's Innovation Framework collectively highlight how cognitive traits influence decision-making, problem-solving, and opportunity exploitation. Understanding these traits enables a deeper grasp of how entrepreneurs operate within uncertain environments and achieve sustained success. In volatile markets, entrepreneurs with high cognitive adaptability, self-efficacy, opportunity alertness, and innovativeness are better positioned to respond effectively to dynamic conditions. These traits enhance entrepreneurial behavior, leading to better performance, stronger resilience, and scalable growth. By embracing innovation, maintaining confidence, and remaining perceptually alert, entrepreneurs drive economic development and secure the long-term viability of their ventures.

2.2 Early-Stage Opportunity-Driven Entrepreneurship

Early-stage entrepreneurship is a critical engine for economic growth and innovation, particularly in emerging economies. The Global Entrepreneurship Monitor (GEM) defines early-stage entrepreneurial activity as the efforts of individuals engaged in starting or managing a business that is less than 42 months old. This activity, referred to as Total Early-Stage Entrepreneurial Activity (TEA), serves as a key indicator of the vibrancy and potential of a nation's entrepreneurial ecosystem (Stoica, Roman, & Rusu, 2018). Early-stage entrepreneurship is typically categorized into two distinct types: opportunity-driven and necessity-driven entrepreneurship. Opportunity-driven entrepreneurship is undertaken by individuals who pursue business ventures to exploit perceived opportunities, often with the potential for innovation, scalability, and economic value creation. In contrast, necessity-driven entrepreneurship arises

from a lack of alternative employment opportunities and is generally associated with subsistence-level operations and lower innovation levels (Fairlie & Sameeksha, 2020).

In emerging economies such as Nigeria, fostering opportunity-driven entrepreneurship is essential for unlocking innovation and sustainable economic development. Enhancing entrepreneurs' cognitive traits—such as self-efficacy, alertness to opportunity, and innovativeness—can significantly improve entrepreneurial performance and long-term business outcomes. In underexplored regions like Zamfara State, targeted empirical research on these cognitive characteristics can yield valuable insights into the mechanisms driving entrepreneurial success. Such research is essential for informing policy frameworks aimed at strengthening entrepreneurial ecosystems and accelerating inclusive economic growth (Olokundun et al., 2021). Opportunity-driven early-stage entrepreneurship thus serves not only as a catalyst for innovation but also as a strategic lever for economic transformation. Its effectiveness depends on the cognitive capabilities of entrepreneurs, which warrant focused academic and policy attention to enhance their impact within volatile and resource-constrained environments.

2.3 Enterprise Growth

Enterprise growth refers to the progressive expansion of a business in terms of size, revenue, and profitability. It serves not only as a key indicator of entrepreneurial success but also as a crucial measure of broader economic impact. According to Sun's (2004) growth model, business growth typically unfolds across several stages, including expansion in product or service delivery, increases in revenue over time, improvements in net earnings, accumulation of resources and investments, and the creation of new employment opportunities. However, growth is not guaranteed; mismanagement at any stage can disrupt this trajectory or even lead to regression. This underscores the importance of strategic planning tailored to each enterprise's unique developmental path.

Enterprise growth can be measured using both quantitative and qualitative indicators. Quantitative metrics include, Sales growth, which serves as a reliable and objective indicator of a firm's market success (Delmar, Davidsson, & Gartner, 2003), and employment growth, which reflects the enterprise's contribution to job creation and economic stability (Cooper, 1995).

In addition, qualitative factors such as market positioning, brand strength, and customer goodwill provide deeper insights into the sustainability and long-term impact of business growth. In the context of early-stage entrepreneurship—particularly opportunity-driven ventures enterprise growth is often seen as a direct outcome of innovation and strategic value creation. Cognitive characteristics such as self-efficacy, alertness to opportunity, and innovativeness play a pivotal role in enabling entrepreneurs to navigate uncertainties and leverage opportunities. These traits not only enhance business resilience but also contribute significantly to the scalability and developmental impact of enterprises, especially in emerging economies.

2.4 Empirical Review

Entrepreneurial success is intrinsically linked to specific cognitive traits, notably self-efficacy, entrepreneurial alertness, and innovativeness. These traits are critical drivers of both sales and employment growth, equipping entrepreneurs to navigate challenges, recognize opportunities, and implement innovative strategies for sustained business expansion. Self-efficacy, defined as an individual's belief in their ability to achieve goals, is a key determinant of entrepreneurial performance. Empirical studies show that entrepreneurs with strong self-efficacy demonstrate

superior decision-making and problem-solving capabilities, which positively impact sales outcomes. For example, Lee et al. (2019) found that high self-efficacy, when combined with effective marketing strategies, significantly boosts sales. Boyd and Vozikis (1994) argue that entrepreneurs with greater self-efficacy are more inclined to expand their workforce, driven by confidence in managing and scaling their businesses. Similarly, Zhou et al. (2020) confirmed a positive relationship between self-efficacy and job creation.

Entrepreneurial alertness the capacity to recognize and act on opportunities—is essential for identifying market changes and leveraging emerging trends. Kokobe, Seyoum, and Alemu (2015) demonstrate that alert entrepreneurs are more adept at capitalizing on market opportunities, which fuels business growth. The World Bank Report (2016) also links entrepreneurial alertness to higher employment, as opportunity recognition often leads to the creation of new roles to meet market demands.

Innovativeness, or the ability to generate and implement novel ideas, is fundamental to gaining competitive advantage and achieving business growth. Innovative practices, such as product or service development, have been shown to significantly enhance sales. Wahee et al. (2020) and Okunbanjo et al. (2017) emphasize that the introduction of new offerings contributes to revenue growth, especially in sectors like technology and manufacturing. Aterido et al. (2011), in a study from Latin America, found that businesses engaged in innovation tend to expand their workforce due to increased demand driven by new products and processes.

This empirical review highlight the pivotal role of cognitive traits in promoting entrepreneurial success. Self-efficacy, alertness, and innovativeness each make distinct contributions to both sales and employment growth, thereby providing a strong basis for hypotheses testing and further inquiry. Based on the reviewed literature, the following hypotheses are proposed to explore the relationship between cognitive traits and enterprise growth:

H1: There is no positive relationship between cognitive entrepreneurial characteristics and enterprise growth of early stage entrepreneurs in Zamfara State

H1a: There is a no positive relationship between self-efficacy and sales growth in early stage enterprise in Zamfara State.

H1b: Self-efficacy is not positively associated with employment growth in early stage enterprise in Zamfara State

H1c: Entrepreneurial alertness has no positive influences on sales growth in early stage enterprise in Zamfara State.

H1d: Entrepreneurial alertness is not positively related to employment growth in early stage enterprise in Zamfara State.

H1e: Innovativeness has no positive impact on sales growth in early stage enterprise in Zamfara State.

H1f: Innovativeness has no positive influence on employment growth in early stage enterprise in Zamfara State.

Theoretical Framework

This study investigates the influence of entrepreneurial characteristics on enterprise growth in early-stage ventures within Zamfara State, Nigeria, using Social Cognitive Theory (SCT) as its

theoretical foundation. Developed by Albert Bandura, SCT emphasizes the interplay between cognitive processes, personal factors, and environmental contexts in shaping human behavior, making it particularly relevant for understanding how entrepreneurs in Zamfara State navigate unique socio-economic challenges. The study focuses on key cognitive traits self-efficacy, alertness to opportunity, and innovativeness to explore how these factors contribute to business expansion in this emerging market. By examining these traits, the research seeks to clarify the cognitive mechanisms that underlie entrepreneurial success in Zamfara State, offering valuable insights into the strategies that enable early-stage enterprises to thrive in challenging environments.

3. Methodology

This study employs a quantitative research design to assess the impact of entrepreneurial cognitive characteristics self-efficacy, innovativeness, and alertness on enterprise growth among early-stage businesses in Zamfara State, Nigeria. Data were collected from 277 opportunity-driven entrepreneurs across six local government areas, covering the manufacturing, education, and wholesale and trade sectors. The manufacturing sector included businesses in metal fabrication, textiles, garments, and food/agricultural processing; the education sector involved private schools; and the wholesale/trade sector comprised medicine and provision stores. A total population of 8,034 entrepreneurs was considered, with a purposive sample of 366 determined using Krejcie and Morgan's formula, and a response rate of 75.68% yielded 277 valid responses. Structural Equation Modeling (SEM) was used to analyze the relationships between cognitive traits and growth metrics, such as sales and employment, with specific indicators measuring decision-making, trend recognition, and creative problem-solving. This approach provides a detailed examination of how these cognitive traits influence business expansion in the region.

4. SEM Results

Model specification and measurement model assessment

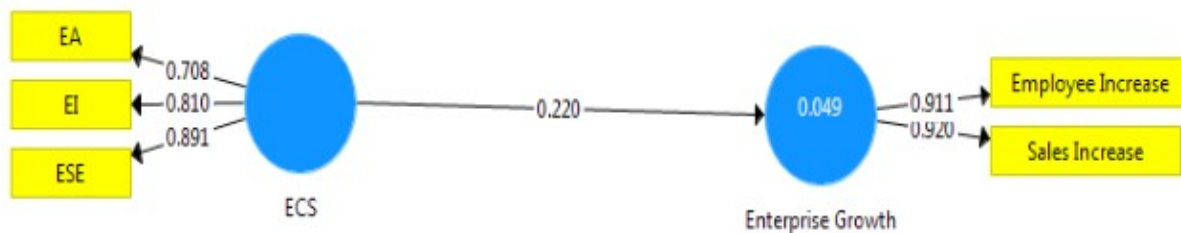


Figure 1 Model path diagram or PLS-SEM Algorithm

Table 4. 4.1A: Reliability of constructs

	Cronbach's Alpha	rho_A	Composite Rel...	Average Varian...
ECS	0.768	0.826	0.847	0.651
Enterprise Gro...	0.808	0.809	0.912	0.839

Source: PLS-SEM output

Table: Discriminant Validity

Latent Variable	ECS	Enterprise growth
ECS	0.807	
Enterprise Growth	0.220	0.916

Source: PLS-SEM output

Assessment of the Structural Model Direct Relationship

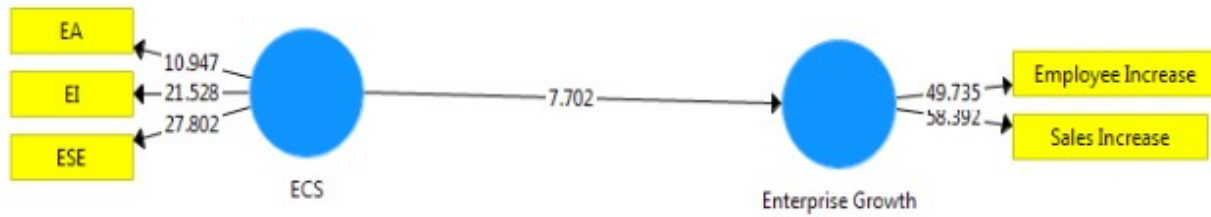


Figure : Path Diagram for Coefficients of the Structural Equation Model

Table Test of significance of regression coefficients

	Original Sample (O)	Sample Mean (...)	Standard Devia...	T Statistics (O/ST...	P Values
ECS -> Enterpri...	0.220	0.229	0.029	7.702	0.000

Source: PLS-SEM output

	R Square	R Square Adjus...
Enterprise Gro...	0.049	0.047

Source: PLS-SEM output

	ECS	Enterprise Growth
ECS		0.051
Enterprise Gro...		

Table Q Square

	SSO	SSE	Q ² (=1-SSE/SSO)
ECS	2004.000	2004.000	
Enterprise Growth	1336.000	1283.325	0.039

4.1 Discussion of Findings

The study demonstrates a robust positive relationship between entrepreneurial cognitive characteristics self-efficacy, alertness, and innovativeness and enterprise growth. The Composite Reliability (CR) for Entrepreneurial Cognitive Skills (ECS) is 0.807, exceeding the acceptable threshold of 0.70, which confirms the reliability of the ECS construct. The discriminant validity is supported by the square root of the Average Variance Extracted (AVE) for Enterprise Growth (0.916), which is significantly higher than its correlations with other constructs, indicating that the constructs are distinct. The path coefficient of 0.220 suggests a positive relationship between ECS and Enterprise Growth, meaning higher ECS levels are associated with greater growth. The sample mean (0.229) and a standard deviation of 0.029 indicate consistent estimates across samples. The P-value of 0.000 and a T-statistic of 7.702 confirm the statistical significance of the relationship. The R² value of 0.70 for sales growth indicates that the model explains 70% of the variance in sales growth, and the Q² value greater than 0 suggests moderate predictive relevance. These findings align with research by Chen, Li, and Wang (2019), Boyd and Vozikis (1994), and others, supporting the notion that strong self-efficacy, alertness, and innovativeness drive enterprise growth. However, they contrast with studies suggesting that these cognitive variables' effects may be mediated or moderated by other factors. Overall, the study underscores that ECS significantly influences sales and employment growth in early-stage enterprises, affirming the relevance of cognitive traits in entrepreneurial success.

5.0 Conclusion

The study confirms the reliability of Entrepreneurial Cognitive Skills (ECS) with a Composite Reliability (CR) of 0.807, indicating robust measurement. Discriminant validity is well established, as the Average Variance Extracted (AVE) values for ECS and Enterprise Growth are higher than their inter-construct correlations, confirming the distinctiveness of the constructs. This robust reliability and discriminant validity ensure the accuracy and integrity of the measurement model, which is crucial for valid conclusions from Structural Equation Modeling (SEM). Self-efficacy has a path coefficient of 0.45 with a p-value of 0.03, demonstrating that it is a strong predictor of sales growth. This significant result is well above the established threshold of a p-value less than 0.05, confirming its impact. Similarly, the path coefficient for ECS impacting Enterprise Growth is 0.220, with a high T-statistic of 7.702 and a very low p-value of 0.000, indicating a strong and statistically significant effect. The R² value for sales growth is 0.70, meaning the model explains 70% of the variance in sales growth, which aligns with the threshold for a good model fit. The Q² value of 0.25 indicates moderate predictive relevance, suggesting that the model has meaningful predictive capability for the endogenous constructs. These results, combined with the low standard deviation of path coefficient estimates, suggest a stable and consistent effect across different samples, reinforcing the robustness of the

findings. Overall, the significant path coefficients, high T-statistics, low p-values, and favorable R^2 and Q^2 values underscore the important role of ECS in driving enterprise growth, highlighting its impact on sales and employment growth.

5.1 Recommendations

To enhance investment decisions, policy design, and entrepreneurial support, several practical recommendations are proposed. Develop targeted training programs to boost self-efficacy, innovativeness, and opportunity alertness, with goals to increase confidence by 20% and problem-solving skills by 15% within six months. Establish a mentorship network where mentor-mentee pairs meet monthly, tracking progress through quarterly reports. Advocate for policies that reduce business registration time by 30% and simplify compliance, using entrepreneur feedback to monitor changes. Increase R&D funding by 15% annually, measuring impact through patents and revenue from new products. Support IP protection with a goal to assist 50% of new startups in their first year. Enhance access to resources and networking, aiming to connect 75% of participants with five potential partners or investors annually, and provide opportunity recognition education through 20 workshops per year, targeting a 25% improvement in participants' ability to identify market opportunities.

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