

# Entrepreneurship Education and Performance of SMEs in the Manufacturing Sector of North Central Nigeria: Evidence from Primary Data Analysis

Faith Kadoon Ayatse

Department of Entrepreneurship, Joseph Sarwuan Tarka University, Makurdi, Nigeria

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## ABSTRACT

This study investigates the influence of entrepreneurship education on the performance of Small and Medium Enterprises (SMEs) in the manufacturing sector of North Central Nigeria. Utilizing a sample of 397 respondents (using simple random sampling) from the population of 54,657 SME owners in North Central Nigeria using Taro Yamane's formula. Data were collected through a questionnaire, with instrument validity confirmed by factor analysis and reliability tested using Cronbach Alpha, yielding a coefficient of 0.868. Data analysis was performed using SPSS (Version 26), with descriptive statistics presented in tables. Key findings highlight that technical and managerial skills training significantly enhances business leadership and strategic planning. However, gaps in digital proficiency and financial documentation persist. While 68% of respondents engage in innovation, 40% still struggle with product development. Networking skills training revealed strong collaboration, though challenges in information sharing remain. The study concludes that entrepreneurship education boosts SME performance in productivity, expansion, and job creation but stresses the need for targeted interventions in digital skills, resource management, and financial discipline. The study recommends enhanced technical, managerial, innovation, and financial training to address these gaps and foster growth.

**Keywords:** Entrepreneurship Education, SMEs Performance, Growth, Development, North Central, Nigeria

## INTRODUCTION

The geometric population growth and limited economic resources, coupled with gaps in government coordination and resource allocation, have driven entrepreneurial activities globally (Afolabi & Kareem, 2017). Governments and private sectors have established programs, institutions, and policies to provide entrepreneurship education, equipping entrepreneurs with the skills needed for self-reliance and employment generation. This education supports entrepreneurs in informed decision-making, leading to improved performance in their ventures. Marina, Rocha, and Edson (2022) emphasize the importance of entrepreneurship education, linking it to economic growth and job creation through the empowerment of small businesses. Entrepreneurship education, as highlighted by Yusuf (2017), provides formalized training to individuals interested in participating in socioeconomic development. As entrepreneurs acquire technical, managerial, and innovative skills, they become better equipped to contribute significantly to their enterprises' success and, by extension, the economic system.

The link between entrepreneurship education and SME performance is well-established. Studies show that education fosters innovation, business management, and competitiveness, all critical for improving business outcomes. In North Central Nigeria comprising of Kwara, Kogi, Benue, Nigeria, Plateau and Nasarawa, where SMEs play a pivotal role in economic development, the effect of entrepreneurship education on SME performance is of particular interest. Entrepreneurs' acquisition of business skills through structured education and training enhances their ability to manage and grow their enterprises, contributing to sales growth, improved service delivery, and overall business sustainability.

## Statement of the Problem

The development of Small and Medium Enterprises (SMEs) in Nigeria is crucial for economic restructuring, as

they significantly contribute to employment and overall economic performance. However, despite government efforts to enhance SME performance through entrepreneurship training programs, many enterprises in North Central Nigeria continue to face declining performance and high mortality rates (Egbide, Olushola, & Fakile, 2013). There is a notable gap in recognizing professional skills—such as financial, technical, managerial abilities, and networking—as key determinants of SME success. This raises concerns about the effectiveness of entrepreneurship education offered by agencies like the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). Although enrollment in training programs has increased, according to Adomah (2024), the impact on business performance remains unclear, prompting the need for an assessment of whether the skills gained truly bolster the resilience and growth of manufacturing SMEs in the region. Thus, this study seeks to explore the relationship between entrepreneurship education and SME performance, specifically focusing on the role of skills development in fostering growth and sustainability.

## Objectives of the Study

The main objective of the study is to investigate entrepreneurship education and performance of SMEs in the manufacturing sector of north central Nigeria: evidence from primary data analysis

The specific objectives of the study

- i. Ascertain in what ways the exposure to technical skills training of staff of small and medium enterprises result in performance of manufacturing small and medium enterprises in the North Central Nigeria.
- ii. Determine the extent to which managerial skills training of the managers of small and medium enterprises lead to increase performance of manufacturing small and medium enterprises in the North Central Nigeria.
- iii. Determine the extent to which innovative skills training of small and medium enterprises lead to increase performance of manufacturing small and medium enterprises in the North Central Nigeria.
- iv. Examine the extent to which business networking skills training of small and medium enterprises lead to increase performance of manufacturing small and medium enterprises in the North Central Nigeria.
- v. Investigate the effect of financial skills training of small and medium enterprises lead to increase performance of manufacturing small and medium enterprises in the North Central Nigeria.

This study is significant as it aims to enhance the understanding of how entrepreneurship education impacts the performance of manufacturing SMEs in Nigeria. It will provide valuable insights for the government, helping to allocate more resources to expand and improve training programs, including practical follow-up sessions and skill updates. SME owners will benefit by identifying the most critical skills for their businesses, enabling them to focus time and resources effectively.

## REVIEW OF RELATED LITERATURE

### Conceptual Review

#### Concept of Entrepreneurial Education

Since the 1950s, entrepreneurship has gained significant attention as a key focus in business education, although a universally accepted definition remains elusive. Scholars have explored various dimensions of entrepreneurship education, with Gana (2001) defining it as the capability to identify and exploit business opportunities. Education plays a critical role in enhancing the technical skills and creativity essential for entrepreneurial success (Egbide, Olusola & Fakile, 2013). Jones and English (2004) emphasize that entrepreneurship education equips individuals with the insight and skills to act on commercial opportunities, while Doan and Sung (2018) highlight its contribution to economic development through the creation of successful organizations. The field also focuses on areas like business strategy, innovation, risk management, and fostering independence (Bechard & Tolohons, 1998; Unachukwu, 2009; Nwokike, 2016). By cultivating

entrepreneurial attitudes and providing hands-on experiences, entrepreneurship education encourages self-employment and the development of traits such as risk-taking and innovation (Lewins, 2009; Umar, 2015; Hill & Amaechi, 2007). Ultimately, initiatives like the National Directorate of Employment and various entrepreneurship centers in Nigeria demonstrate the instrumental role of entrepreneurship education in fostering self-employment and enhancing entrepreneurial capabilities (Ayedun, 2004; Osemeke, 2012; UNESCO, 2017).

### **Dimensions of Entrepreneurial Education**

Entrepreneurial education for SMEs performance includes dimensions such as customer intensity, resource leveraging, and value creation. This study, however, focuses on technical skills, managerial skills, innovative training, business networking, and financial skills training (Paolucci, Sansone, & Fiore, 2019). These dimensions are integral to equipping entrepreneurs with the necessary knowledge and capabilities to remain competitive, adapt to changes, and leverage opportunities in their business environment. Technical skills training helps ventures adapt to a rapidly evolving business landscape by teaching entrepreneurs how to maintain and replace technology while keeping processes efficient and competitive (Anup, 2015; Umar, 2015). Managerial skills are critical for SMEs, involving both structural and process elements. Effective managers guide teams toward achieving organizational goals while addressing the dynamics between subordinates and superiors (Zhas & Seibert, 2006; Ololade, 2013). Innovative skills involve the ability to generate and adapt to new ideas, driving firm competitiveness and growth (Tajeddini & Trueman, 2012; Tsai & Yang, 2013). Business networking fosters collaboration, information sharing, and problem-solving among firms, enhancing flexibility and performance (Saaib, Rao & Azhar, 2017; Ogunnaike & Kehinde, 2013). Financial skills are essential for small and medium enterprises (SMEs) to thrive in a dynamic economic environment. Financial literacy enhances decision-making, creditworthiness, and performance.

### **Performance of SMEs**

SME performance refers to improving key success measures such as revenue or profitability. According to scholars like Haibo and Gerrit (2009), businesses can enhance their performance through strategies like market expansion and product diversification. Factors like entrepreneurial skills, market changes, and reinvestment opportunities drive growth. A performing enterprise generates positive cash flows and expands its activities, signaling growth (Oluwaremi et al., 2016). Performance encompasses revenue generation, market share, and qualitative factors like customer goodwill (Osemeke, 2012). Performance is measured through non-financial indicators like increased employment and business expansion (Chibundu, 2006).

### **Theoretical Review**

#### **Innovative Theory of Entrepreneurship**

Schumpeter's Innovative Theory of Entrepreneurship (1949) as cited in Karol (2013), identifies innovation as the driving force behind economic development. Entrepreneurs are seen as agents who disrupt the economy by introducing new products, production methods, markets, or supply sources. Schumpeter views innovation as the core function of entrepreneurship, distinguishing innovators from inventors, as they convert technical advancements into economic opportunities. This theory positions entrepreneurs as pivotal to growth, by creating novel combinations of resources and stimulating economic progress through creative, risk-taking ventures.

#### **Economic Theory of Entrepreneurship**

Adam Smith's Economic Theory of Entrepreneurship emphasizes that entrepreneurship thrives in favorable economic conditions. It posits that economic incentives, such as availability of credit, capital, resources, and supportive policies, drive entrepreneurial activity. Papanek and Harris (1789) argue that market imperfections can hinder entrepreneurship, while efficient economic systems encourage it. The theory links economic growth to entrepreneurship, suggesting that regions with better financial and infrastructural environments, like Gujarat in India, tend to foster more entrepreneurial ventures and industrial development.

## Human Capital Entrepreneurship Theory

Human Capital Theory as propounded by Becker (1975), as cited by Naphat (2017) Posit that individuals' knowledge, skills, and experience gained through education and training enhance their entrepreneurial success. It suggests that human capital, which can be developed over time, significantly influences the performance and survival of businesses. Entrepreneurs continuously acquire skills throughout their ventures, increasing their capability. The theory distinguishes between entrepreneurship-specific human capital (focused on innovation) and venture-specific human capital (linked to corporate management), both essential for business growth and

## Review of Empirical Studies

Adomah (2024) examined the impact of entrepreneurship education on the sales growth of SMEs in Ghana using a logit regression model. Data from 300 SMEs showed that innovative skills training ( $B = 0.621$ ,  $p = 0.032$ ), marketing skills training ( $B = 0.472$ ,  $p = 0.041$ ), and financial literacy training ( $B = 0.286$ ,  $p = 0.014$ ) significantly boosted sales growth. However, technical skills training and managerial skills training had no significant impact. The study concluded that specific training types drive sales growth, while others may require refinement to better address SMEs' needs.

Emezue (2020) investigated the impact of entrepreneurship education on the performance of manufacturing SMEs in Enugu State, Nigeria. The study, based on a sample of 341 from a population of 2,368, found that employee training significantly enhances SME performance. Factors hindering entrepreneurship education included inadequate infrastructure, insecurity, and lack of vocational training facilities. The study concluded that improving employee training and addressing these challenges could foster better entrepreneurship education and performance in Nigeria.

Ogaba and Laven (2022) investigated the role of entrepreneurship education in developing small and medium enterprises (SMEs) in North Central Nigeria. The study highlighted challenges posed by the youth's lack of entrepreneurial attitude, which hampers economic growth. Objectives included assessing the impact of vocational training on product development, skill acquisition on productivity, and networking on market expansion. Utilizing a survey design with a sample of 377, findings indicated that vocational training and skill acquisition significantly enhance SME development. Recommendations emphasized greater government and private sector involvement in entrepreneurship education.

Afolabi and Kareem (2017) explored the impact of entrepreneurship education on self-employment initiatives among science and technology students at Gateway Polytechnic, Ogun State, Nigeria. Utilizing self-administered questionnaires and various analytical techniques, the study found that entrepreneurship education positively influences self-employment. Recommendations included encouraging students to pursue micro and small business ventures and fostering collaborations with entrepreneurs for practical training. The study's relevance lies in its focus on self-employment, though it lacked clarity on research design and targeted population.

Isiaka, Adekunle, and Yusuf (2017), analyzed the significance of entrepreneurship in achieving Sustainable Development Goals in Nigeria, particularly focusing on small business management and failure reasons. Using secondary data, the study revealed that many SMEs fail within five years due to inadequate capital, poor market research, and lack of succession plans. It concluded that positive attitudes towards enterprise are crucial for success and recommended a supportive environment for sustainable development. While insightful, the study lacked empirical evidence and a clear research design.

Akinbola and Popoola (2022) assessed the moderating effect of training on the entrepreneurial performance of the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). With a sample of 142 SMEs, the study used ex-post facto design and various statistical analyses. Findings indicated that ethical training significantly enhances employment creation and entrepreneurial performance. Recommendations stressed the importance of training programs focused on creativity. The study is relevant to entrepreneurship education, though it lacked a clear design and detailed analysis methods.

Saidi (2016) examined the relationship between entrepreneurship education and the performance of SMEs in Nigeria, tracing the origins of entrepreneurship to the need for surplus exchange. Employing a quantitative approach with independent t-tests, data were collected via self-questionnaires. The study found a significant link between entrepreneurial ventures and SME development, recommending government reengineering to address challenges facing local entrepreneurs. The study is relevant in variable combination but lacks clarity on its research design.

Omorala (2018) examined the role of entrepreneurship skills in the growth of small and medium enterprises (SMEs) in Nigeria compared to minority entrepreneurs in the UK. The study used an online survey targeting 38 SME owners to analyze their perceptions of entrepreneurial skills. Findings revealed that skills like creative thinking and problem-solving are vital for growth in both countries, with notable differences in emphasis. However, the study lacked clarity in sampling and specific skill coverage.

Sani, Noraini, and Umar (2022) aimed to explore the relationship between innovativeness and SME performance, moderated by managers' educational levels. Using a structured questionnaire with 259 respondents, the study analyzed data through SPSS and PLS-SEM. Findings revealed that managers' education significantly affects the relationship between innovativeness and performance, providing insights for government policies on loan advances. However, the study's broad scope across Nigeria and limited sample size may undermine its representativeness.

## METHODOLOGY

### Research Design

The research study adopted a descriptive research design. Descriptive research design is a systematic method used to collect and analyze data to provide a comprehensive overview of a specific phenomenon or population. This design focuses on describing characteristics, behaviors, or attributes without manipulating variables.

### Nature and Source of Data

The data is purely primary data in nature because it is a firsthand opinions or facts to be elicited from respondent. The source of data for the study is primary (field work that the data was gathered from first-hand using questionnaire). The data for the study is primary data that would be collected with questionnaire.

### Population of the Study

The target population of the study is fifty four thousand six hundred and fifty seven (54,657) SMEs owners that received training from SMEDAN in state capitals in the states within North Central Nigeria;

Table 1: Individual State Population of Trained SMEs Owners

S/No	State	Population
1	Kwara	10, 082
2	Kogi	8, 323
3	Benue	10, 164
4	Niger	9, 846
5	Plateau	8, 418
6	Nasarawa	7, 824
	Total	54, 657

Source: Researchers Tour at SMEDAN Offices in the North Central Nigeria, 2023

## Sample and Sampling Techniques

The technique that was used for sample size selection is Taro Yamane (1967) formula:

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

Where:

n is required sample size,

N is required research population, and

e is tolerable error in judging the population.

For the purpose of this study 5% tolerable error was allowed. Therefore, using the above formula we have;

$$n = \frac{54,657}{1 + 54,65(0.05)^2}$$

$$n = \frac{54,657}{136.6425}$$

$$n = \frac{54,657}{137.6425}$$

$$n = 397.0939$$

$$n = 397 \text{ (Approximately)}$$

Therefore, the sample size for the study was 397.

The Bowley's 1964 proportional population allocation formula was used in calculating the individual sample size of small and medium enterprises owners according to the state.

The formula is:

Where:

nh is number of units allocated to each state,

n is total sample size,

Nh is number of population in each state

N is population size

Applying this formula, we have;

Kwara State

$$nh = \frac{10,082 \times 397}{54,657} = 73 \text{ (approximately)}$$

Kogi State

$$nh = \frac{8,323 \times 397}{54,657} = 61 \text{ (approximately)}$$

Benue State

$$nh = \frac{10,164 \times 97}{54,657} = 74 \text{ (approximately)}$$

Niger State

$$nh = \frac{9,846 \times 397}{54,657} = 72 \text{ (approximately)}$$

Plateau State

$$nh = \frac{8,418 \times 397}{54,657} = 61 \text{ (approximately)}$$

Nasarawa state

$$nh = \frac{7,824 \times 397}{54,657} = 56 \text{ (approximately)}$$

The questionnaire was distributed purposely through the use of the table of random sampling to the respondents across the states.

### **Instrument of Data Collection**

The questionnaire served as the primary research instrument for data collection in this study, justifying its use due to the reliance on cross-sectional data. This structured, self-administered tool was hand-delivered by the researcher or assistants to enhance response rates and provide clarifications as needed. The questionnaire featured two sections: demographic questions and perceptions related to study variables, using closed-ended items on a four-point Likert scale for ease of understanding and response.

### **Validation of Research Instrument**

Content validity was established for the questionnaire by seeking input from both the supervisor and subject matter experts to ensure the appropriateness and clarity of the wording. The supervisor provided guidance on the overall structure and relevance of the questions, while experts evaluated each item for its alignment with the study's objectives and its ability to accurately capture the intended constructs. Their feedback led to revisions that enhanced the clarity, relevance, and comprehensiveness of the items, ultimately ensuring that the questionnaire effectively measures the variables of interest.

### **Reliability of Research Instrument**

Table 2: Reliability Statistics

Variable	Code	Cronbach's Alpha
Sales Growth	SGT	0.93

Quality of Service Delivery	QSD	0.879
Technical Skills Training	TST	0.898
Managerial Skills Training	MST	0.86
Innovative Skills Training	IST	0.831
Business Networking Training	BNT	0.86
Financial Skills Training	FST	0.82
Overall Cronbach Alpha Coefficient		0.868

Source: SPSS Version 26 Result, 2024

Legend: SGT = Sales Growth, QSD = Quality of Service Delivery, TST = Technical Skills Training, MST = Managerial Skills Training, IST = Innovative Skills Training, BNT = Business Networking Training, FST = Financial Skills Training

Cronbach's Alpha was utilized to assess the reliability of various constructs in the study, revealing strong internal consistency among the variables. For Sales Growth (SGT), a Cronbach's Alpha value of 0.930 indicates a very high level of reliability, confirming that the items measuring this construct are highly consistent and dependable. Quality of Service Delivery (QSD) also demonstrated excellent reliability with a value of 0.879, while Technical Skills Training (TST) showed a high internal consistency with an Alpha of 0.898. Managerial Skills Training (MST) and Business Networking Training (BNT) both recorded an Alpha of 0.860, and Financial Skills Training (FST) had a value of 0.820. All values exceeded 0.8, suggesting good reliability. The overall high Cronbach's Alpha values indicate that the questionnaire effectively captures the dimensions of entrepreneurship education and its influence on SME performance, validating the instrument for robust statistical analysis and interpretation.

### Technique for Data Analysis

Data analysis was conducted using descriptive statistics to establish trends and summarize the characteristics of the collected data. This involved calculating measures such as means, medians, and standard deviations for various variables, which provided insights into the central tendency and variability of responses. Frequency distributions were also generated to visualize how often specific responses occurred, allowing for a clearer understanding of patterns in attitudes and behaviors related to the study's objectives. By aggregating the data in this way, trends over time or differences among demographic groups could be identified, facilitating a comprehensive overview of the key findings.

## RESULTS AND DISCUSSION

Four hundred and thirty seven (437) questionnaires were distributed and 429 were recovered, seventeen (17) questionnaires were declared invalid due to wrong filling as such could not be used for analysis. Four hundred and twelve (412) questionnaires were accurately filled and three hundred and ninety seven (397) questionnaires which is the actual sample size were used for the analysis, hence the quality of the research results is not affected by incomplete questionnaires.

### Demographic Characteristics of the respondents

The demographic characteristics of gender, age, highest educational level and years of work experience of respondents were presented using descriptive statistics of frequencies and percentages as shown in Figure 1 - 4.



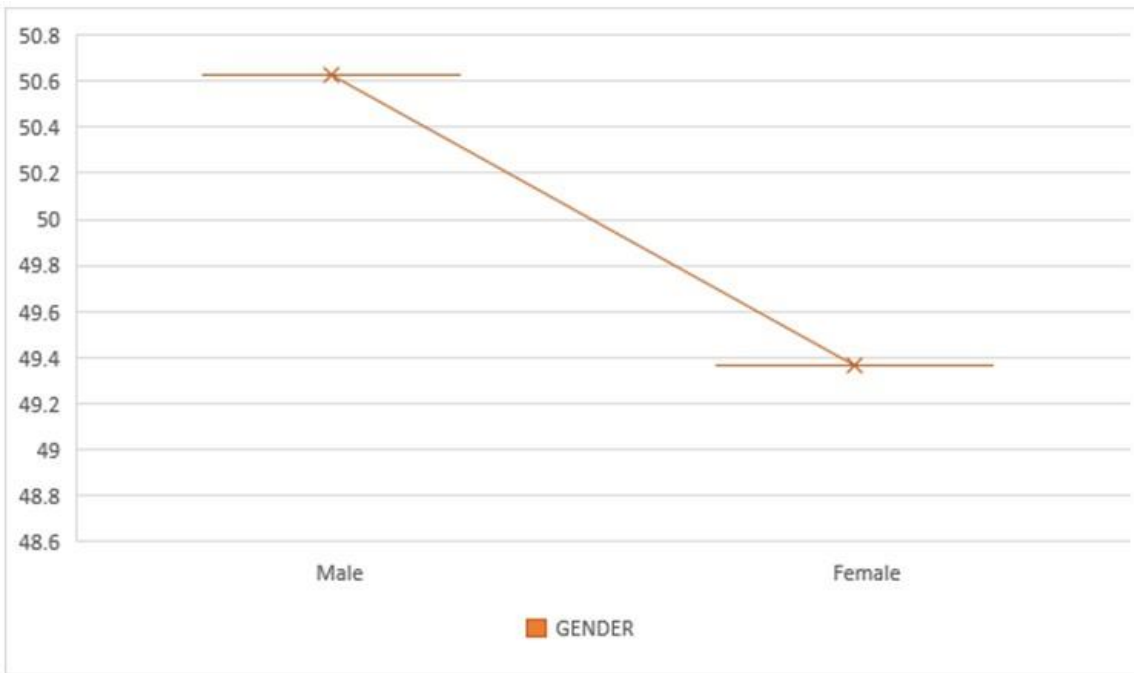


Figure 1 above shows the demographic characteristics of the respondents by gender which shows that majority of the respondents 201 (50.63%) are male, while 196 (49.37%) are female. This nearly equal gender distribution suggests a balanced representation of both male and female entrepreneurs in the sample, which provides a more comprehensive understanding of how entrepreneurship education might affect SMEs in the region, regardless of gender. This balance allows the study to capture diverse perspectives on performance outcomes and reduces potential bias that could arise from an uneven gender sample.

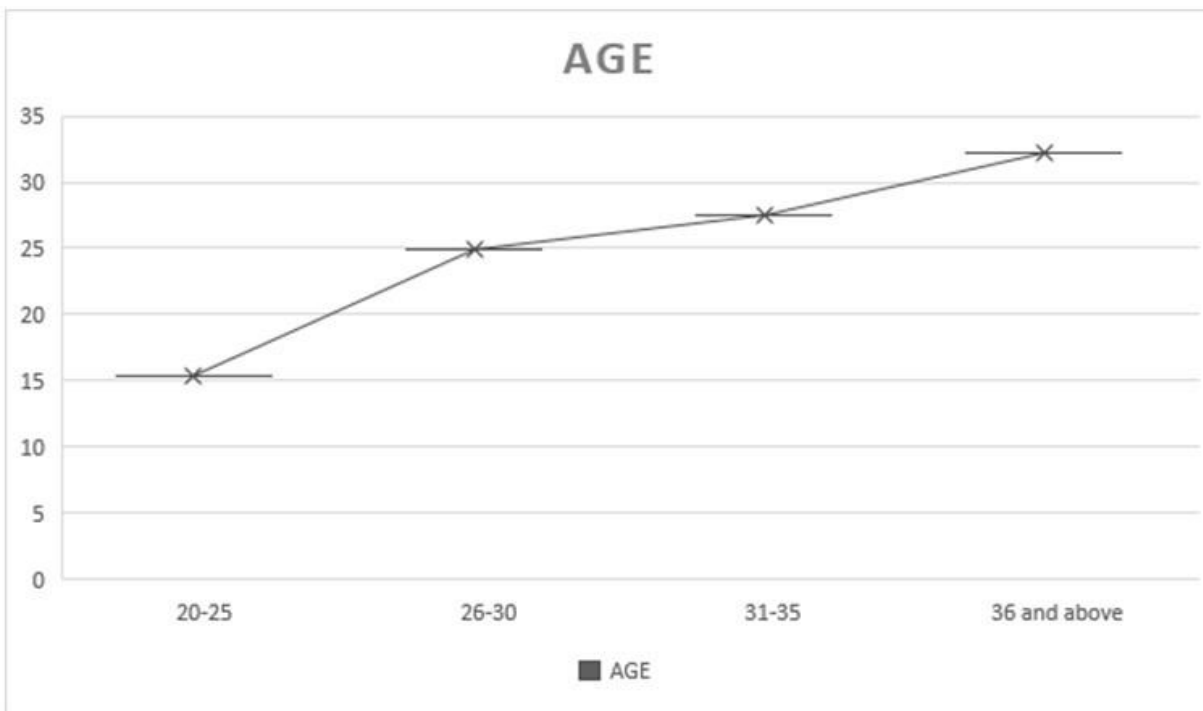


Figure 2 presents the age distribution of respondents. Among the 397 respondents, the majority (32.24%) are aged 36 and above, followed by 27.46% in the 31-35 age group, 24.94% in the 26-30 age group, and 15.37% aged between 20-25. This age distribution indicates that a significant portion of the respondents (over 59%) are above 31 years old, suggesting that the study largely involves more experienced entrepreneurs. The relatively smaller representation of younger entrepreneurs (20-25 years) may reflect fewer younger individuals being involved in manufacturing SMEs, or their limited exposure to entrepreneurship education. The diverse age range provides a broad perspective on how entrepreneurship education might influence SME performance across different stages of maturity.

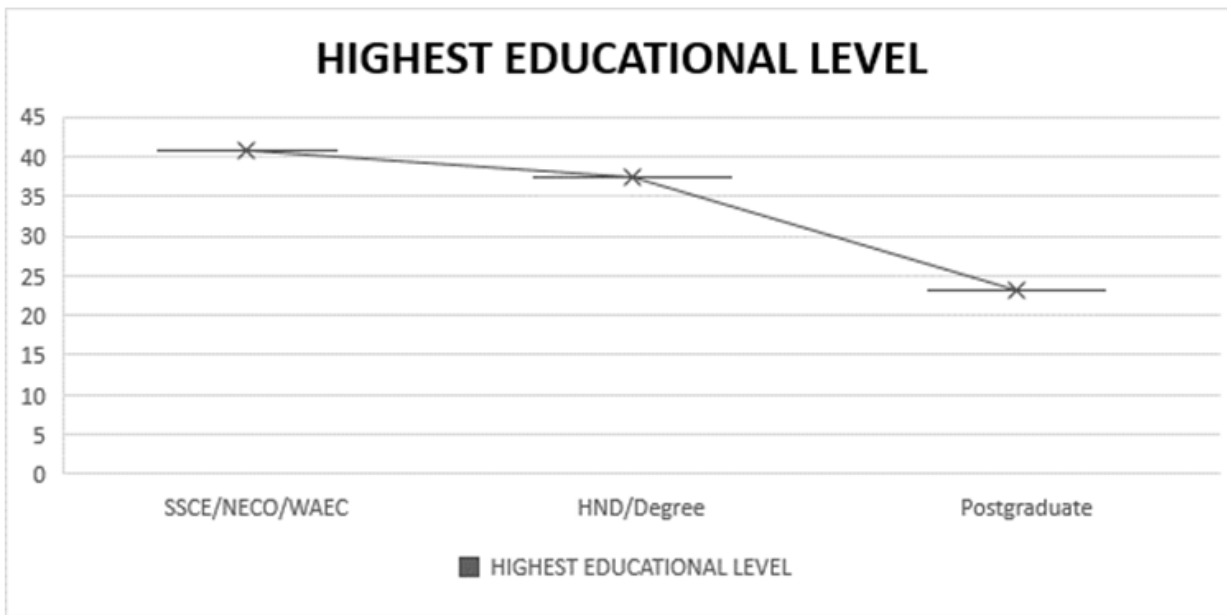


Figure 3 displays the highest educational level of respondents. Of the 397 respondents, 40.81% hold an SSCE/NECO/WAEC qualification, 37.28% have an HND or Degree, while 23.14% possess a postgraduate qualification. This distribution shows that the largest group of respondents have completed secondary education (SSCE/NECO/WAEC), followed by those with higher education qualifications (HND/Degree), and a smaller portion with postgraduate education. The substantial representation of respondents with secondary education indicates that many SME operators may have foundational education but may lack advanced qualifications, which could influence their access to entrepreneurship knowledge. On the other hand, the presence of those with HND/Degree and postgraduate qualifications suggests that the study includes respondents who may have received formal entrepreneurship training, potentially contributing to their business performance.

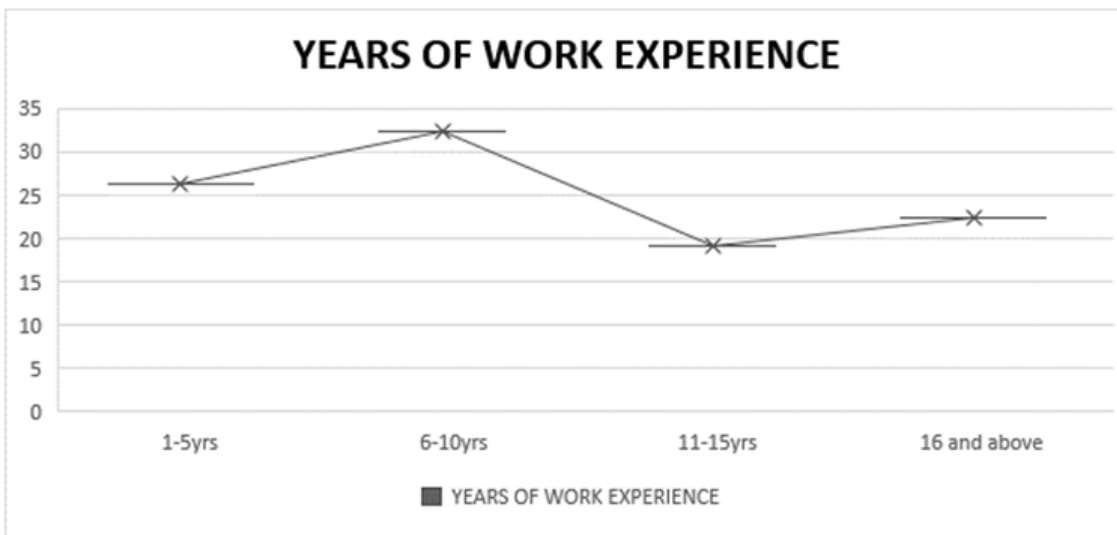


Figure 4 illustrates the work experience of respondents. Among the 397 respondents, the majority (32.24%) have 6-10 years of work experience, followed by 26.21% with 1-5 years of experience. Additionally, 22.42% have 16 or more years of experience, while 19.14% have 11-15 years of experience. This distribution suggests that a significant portion of respondents (over 50%) have more than 6 years of work experience, indicating a well-established base of entrepreneurs who likely have significant practical knowledge in running SMEs. The large representation of those with 6-10 years of experience points to a mid-career entrepreneurial cohort, which may provide insights into how entrepreneurship education influences business performance at different stages of professional growth. The smaller proportion of respondents with 1-5 years of experience reflects a younger or less experienced group, potentially offering perspectives on how entrepreneurship education supports newer entrants into the SME sector.

**Presentation of the Result based on the Specific Objective of the Study**

The specific objectives of the study were presented using the four-point scale of strongly agreed, agreed, disagreed and strongly disagreed. This is presented using descriptive statistics of frequencies and percentages as depicted in this section.

Table 3: Technical Skills Training

Variables	Frequency	Percentage
The owner/manager has fair knowledge of the business		
Strongly Agree	213	53.65%
Agree	119	29.97%
Disagree	36	9.07%
Strongly Disagree	29	7.30%
Total	397	100
There is proficient knowledge on computer application in business.		
Strongly Agree	107	26.95%
Agree	116	29.22%
Disagree	88	22.17%
Strongly Disagree	86	21.66%
Total	397	100
The processes are clearly defined.		
Strongly Agree	196	49.37%
Agree	143	36.02%
Disagree	33	8.31%
Strongly Disagree	24	6.05%
Total	397	100
There is clear understanding of business analysis.		
Strongly Agree	103	25.94%
Agree	149	37.53%
Disagree	91	22.92%

Strongly Disagree	54	13.60%
Total	397	100
There is clear knowledge of marketing research.		
Strongly Agree	159	40.05%
Agree	122	30.73%
Disagree	54	13.60%
Strongly Disagree	62	15.62%
Total	397	100

Source: Field Survey, 2024

Table 3 presents the perceptions of respondents regarding technical skills training and its effect on the performance of manufacturing SMEs in North Central Nigeria. A notable 53.65% of respondents strongly agree that their owner or manager has a fair knowledge of the business, with an additional 29.97% agreeing, totaling over 80% who believe in their leadership's substantial understanding of business operations. This is critical for enhancing decision-making and overall performance through entrepreneurship education. Conversely, 9.07% disagree and 7.30% strongly disagree, indicating that a minority feel their leaders lack adequate business knowledge, which could hinder the effectiveness of entrepreneurship education.

The proficiency in computer applications for business shows a concerning trend, with only 26.95% strongly agreeing and 29.22% agreeing that there is sufficient knowledge, totaling 56.17%. Notably, 22.17% disagree and 21.66% strongly disagree, reflecting nearly 44% of respondents lacking confidence in their computer skills, highlighting a gap essential for modern operations. Conversely, 49.37% strongly agree that business processes are clearly defined, and 36.02% agree, resulting in over 85% perceiving structured processes as beneficial for efficiency. The understanding of business analysis reveals mixed perceptions, with 25.94% strongly agreeing and 37.53% agreeing, while 36% express uncertainty or lack these skills. Regarding marketing research, 40.05% strongly agree and 30.73% agree, indicating over 70% feel confident, yet nearly 30% lack adequate skills, suggesting a need for targeted entrepreneurship training to enhance SME growth and competitiveness.

Table 4: Managerial Skills Training

Variables	Frequency	Percentage
The business plan before execution of her activities.		
Strongly Agree	134	33.75%
Agree	117	29.47%
Disagree	79	19.90%
Strongly Disagree	67	16.88%
Total	397	100

The business organizes resources according to business plan.		
Strongly Agree	196	49.37%
Agree	118	29.72%
Disagree	47	11.84%
Strongly Disagree	36	9.07%
Total	397	100
There is objective allocation of business resources.		
Strongly Agree	107	26.95%
Agree	99	24.94%
Disagree	94	23.68%
Strongly Disagree	97	24.43%
Total	397	100
The business is controlled for analysis of variances.		
Strongly Agree	116	29.22%
Agree	99	24.94%
Disagree	103	25.94%
Strongly Disagree	79	19.90%
Total	397	100
Informed business decisions are taken based on evidences.		
Strongly Agree	119	29.97%
Agree	101	25.44%
Disagree	98	24.69%
Strongly Disagree	79	19.90%
Total	397	100

Source: Field Survey, 2024

Table 4 examines respondents' perceptions of managerial skills training among SMEs, revealing both strengths and areas for improvement. A total of 63.22% of respondents (33.75% strongly agree and 29.47% agree) affirm that their businesses have a plan before executing activities, indicating a solid recognition of the

importance of strategic planning. However, 36.78% (19.90% disagree and 16.88% strongly disagree) do not prioritize planning, which could hinder operational efficiency and long-term sustainability. Additionally, 80% of respondents (49.37% strongly agree and 29.72% agree) believe resources are organized in alignment with their business plan, reflecting effective resource allocation. Nevertheless, 20.91% (11.84% disagree and 9.07% strongly disagree) struggle with this aspect, suggesting potential inefficiencies that could limit growth.

The perceptions around resource allocation show mixed responses, with only 51.89% (26.95% strongly agree and 24.94% agree) feeling that resources are allocated fairly and strategically. In contrast, nearly half (48.11%) disagree or strongly disagree, pointing to a significant gap that could lead to inefficiencies. Moreover, only 54.16% (29.22% strongly agree and 24.94% agree) feel that their businesses effectively control operations for variance analysis, leaving 45.84% (25.94% disagree and 19.90% strongly disagree) without effective oversight. This suggests a lack of understanding or resources for tracking performance. Lastly, while 55.41% (29.97% strongly agree and 25.44% agree) believe decisions are data-informed, a considerable 44.59% (24.69% disagree and 19.90% strongly disagree) feel otherwise, highlighting the need for enhanced evidence-based decision-making training in entrepreneurship education.

Table 5: Innovative Training

Variables	Frequency	Percentage
The business is creative in product/service update.		
Strongly Agree	191	48.11%
Agree	81	20.40%
Disagree	68	17.13%
Strongly Disagree	57	14.36%
Total	397	100
New product/service introduction.		
Strongly Agree	129	32.49%
Agree	99	24.94%
Disagree	89	22.42%
Strongly Disagree	79	19.90%
Total	397	100
New processes/methods of doing business.		
Strongly Agree	109	27.46%
Agree	103	25.94%
Disagree	101	25.44%
Strongly Disagree	84	21.16%

Total	397	100
Business always adapts emerging technology.		
Strongly Agree	118	29.72%
Agree	87	21.91%
Disagree	108	27.20%
Strongly Disagree	84	21.16%
Total	397	100
Business converts desires to physical products/services		
Strongly Agree	128	32.24%
Agree	116	29.22%
Disagree	87	21.91%
Strongly Disagree	66	16.62%
Total	397	100

Source: Field Survey, 2024

Table 5 highlights respondents' views on innovative training within SMEs. A significant 48.11% strongly agree that their businesses are creative in updating products or services, with 20.40% agreeing, totaling 68.51%. This indicates that the majority of SMEs are engaged in creative practices, essential for maintaining competitiveness. However, around 31% of respondents—17.13% disagreeing and 14.36% strongly disagreeing—feel their businesses lack such creativity, underscoring the need for enhanced training and support to foster innovation.

Regarding the introduction of new products or services, 32.49% strongly agree and 24.94% agree, making a total of 57.43%. Despite this positive trend, over 40% of respondents disagree or strongly disagree, suggesting potential barriers such as limited resources or lack of innovation training. For new processes or methods, a total of 53.40% (27.46% strongly agree and 25.94% agree) reflect a moderate adoption, yet nearly half do not embrace innovative practices. When considering technology adoption, 51.63% of respondents (29.72% strongly agree and 21.91% agree) are integrating new technologies, but close to 50% struggle with this due to various challenges. Lastly, 61.46% (32.24% strongly agree and 29.22% agree) feel effective in converting consumer desires into products, while nearly 40% face difficulties.

Table 6: Business Networking Skills Training

Variables	Frequency	Percentage
There collaborate with other sister companies.		
Strongly Agree	216	54.41%
Agree	142	35.77%

Disagree	27	6.80%
Strongly Disagree	12	3.02%
Total	397	100
There is information sharing among businesses.		
Strongly Agree	118	29.72%
Agree	86	21.66%
Disagree	109	27.46%
Strongly Disagree	84	21.16%
Total	397	100
The business sub contracts some of her activities.		
Strongly Agree	181	45.59%
Agree	106	26.70%
Disagree	62	15.62%
Strongly Disagree	48	13.08%
Total	397	100.00%
The individuals are always participating in business sales.		
Strongly Agree	174	43.83%
Agree	102	25.69%
Disagree	94	23.68%
Strongly Disagree	27	6.80%
Total	397	100
Effective communication for relationships management.		
Strongly Agree	109	27.46%
Agree	119	29.72%
Disagree	99	24.94%
Strongly Disagree	70	17.62%
Total	397	100



Source: Field Survey, 2024

Table 6 highlights the impact of business networking skills training among SMEs, showing a strong collaboration culture. An overwhelming 90.18% of respondents (54.41% strongly agree, 35.77% agree) report collaborating with sister companies, while only 9.82% disagree. Information sharing reveals a divide, with 51.38% (29.72% strongly agree, 21.66% agree) reporting effective sharing, but 48.62% expressing dissatisfaction. Subcontracting is practiced by 72.29% (45.59% strongly agree, 26.70% agree), while 28.70% resist. In sales activities, 69.52% (43.83% strongly agree, 25.69% agree) participate, yet 30.48% show low engagement. Effective communication for relationship management is recognized by 57.18% (27.46% strongly agree, 29.72% agree), with 42.56% struggling (24.94% disagree, 17.62% strongly disagree), pointing to a need for improved communication skills.

Table 7: Financial Skills Training

Variables	Frequency	Percentage
The business keeps proper financial records.		
Strongly Agree	131	32.99%
Agree	93	23.44%
Disagree	84	27.18%
Strongly Disagree	91	29.45%
Total	397	100
The business separates from non-business financial commitment.		
Strongly Agree	237	59.69%
Agree	98	24.69%
Disagree	34	8.56%
Strongly Disagree	28	7.05%
Total	397	100
The business mobilizes funds from low interest rate financial institutions		
Strongly Agree	152	38.29%
Agree	190	47.86%
Disagree	37	9.32%
Strongly Disagree	18	4.53%
Total	397	100.00%
The business disburses funds according to budgeted activities.		

Strongly Agree	191	48.11%
Agree	143	36.02%
Disagree	34	8.56%
Strongly Disagree	29	7.30%
Total	397	100
The business always analysis the implications of borrowed funds.		
Strongly Agree	238	59.95%
Agree	98	24.69%
Disagree	37	9.32%
Strongly Disagree	24	6.05%
Total	397	100

Source: Field Survey, 2024

Table 7 provides insights into financial skills training among SMEs, highlighting both strengths and areas for improvement. A total of 56.43% (32.99% strongly agree, 23.44% agree) maintain proper financial records, while 56.63% (27.18% disagree, 29.45% strongly disagree) fail to prioritize documentation, indicating a need for better financial management training. Regarding financial discipline, 84.38% (59.69% strongly agree, 24.69% agree) successfully separate business and personal finances, with 15.61% struggling. Accessing low-interest funds is effective for 86.15% (38.29% strongly agree, 47.86% agree), but 13.85% face challenges. Adherence to budgetary guidelines is strong, with 84.13% (48.11% strongly agree, 36.02% agree) following them effectively. Furthermore, 84.64% (59.95% strongly agree, 24.69% agree) analyze the implications of borrowed funds, though some need further training. Overall, while many SMEs demonstrate sound financial practices, gaps remain in financial documentation and borrowing risk analysis.

Table 8: Manufacturing SME's Performance

Variables	Frequency	Percentage
There is increase workers employment.		
Strongly Agree	226	56.93%
Agree	108	27.20%
Disagree	31	7.81%
Strongly Disagree	32	8.06%
Total	397	100
There is increase in business productivity.		

Strongly Agree	161	40.55%
Agree	182	45.84%
Disagree	38	9.57%
Strongly Disagree	16	4.03%
Total	397	100
There is expansion in business activities.		
Strongly Agree	193	48.61%
Agree	146	36.78%
Disagree	41	10.33%
Strongly Disagree	17	4.28%
Total	397	100
There is increase in business assets.		
Strongly Agree	202	50.88%
Agree	112	28.21%
Disagree	61	15.37%
Strongly Disagree	22	5.54%
Total	397	100
There is improvement in quality of service delivery.		
Strongly Agree	161	40.55%
Agree	180	45.34%
Disagree	39	9.82%
Strongly Disagree	17	4.28%
Total	397	100

Source: Field Survey, 2024

Table 8 highlights the performance outcomes of manufacturing SMEs in North Central Nigeria, reflecting the positive impact of entrepreneurship education on various aspects of business growth. A notable 84.13% of respondents (56.93% strongly agree and 27.20% agree) report an increase in worker employment, indicating that most SMEs are contributing to job creation. Only 15.87% express disagreement, suggesting that while the majority are expanding their workforce, some may require additional support to achieve similar results. In

terms of productivity, 86.39% of respondents (40.55% strongly agree and 45.84% agree) acknowledge increased efficiency, with only 13.60% disagreeing. This indicates that entrepreneurship education is enhancing productivity levels, although a small minority may still face challenges that could be addressed through further training.

Business expansion also shows a positive trend, with 85.39% of respondents (48.61% strongly agree and 36.78% agree) experiencing growth in their activities, attributed to improved business skills from entrepreneurship education. Conversely, 14.62% disagree, indicating a need for strategic support for some SMEs. Additionally, 79.09% of respondents (50.88% strongly agree and 28.21% agree) report an increase in business assets, essential for sustainability, though 20.91% do not experience similar growth. Training in financial management could aid these enterprises. Finally, service delivery improvements are evident, with 85.89% of respondents (40.55% strongly agree and 45.34% agree) indicating enhanced quality, while 14.28% disagree. This underscores the need for tailored training in customer service to further enhance business performance.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The study highlights the positive influence of entrepreneurship education on the performance of small and medium enterprises (SMEs) in North Central Nigeria's manufacturing sector. Most respondents affirm that technical, managerial, and financial skills training significantly improve productivity, business expansion, and job creation. Training in areas such as resource allocation, strategic planning, and innovation has also contributed to enhanced efficiency and competitiveness. However, gaps in digital proficiency and effective decision-making persist, indicating the need for further training in modern business operations and entrepreneurship education. While entrepreneurship education has fostered significant growth and increased business performance for many SMEs, the study also reveals areas where additional support is required. Notably, challenges in technological adoption, resource management, and financial discipline were evident among a sizable minority of respondents. This suggests that targeted interventions, especially in digital and financial skills, are crucial for optimizing SME performance and ensuring long-term sustainability in the manufacturing sector. Thus, a comprehensive entrepreneurship education framework is essential for addressing these gaps and fostering sustainable growth.

### Recommendations

Based on the findings of the study the following recommendations are made:

- i. Improving computer proficiency among SME owners is crucial, as 44% lack confidence in their skills. Providing targeted technical skills training, particularly in digital tools and marketing research, can close this gap and empower businesses to embrace modern practices, enhancing their operational efficiency and competitiveness.
- ii. While 63.22% of SMEs prioritize strategic planning, the remaining 36.78% struggle. Offering enhanced managerial training that emphasizes the importance of planning, resource allocation, and evidence-based decision-making can improve the operational efficiency of SMEs and ensure long-term sustainability and growth.
- iii. With 31% of SMEs lacking creativity in product and service updates, innovation training is essential. Providing targeted support in adopting new technologies and innovative business methods will help SMEs in North Central Nigeria stay competitive, increasing their ability to adapt and thrive in the market.
- iv. While 90.18% of SMEs collaborate with sister companies, nearly half struggle with information sharing and communication. Strengthening business networking skills, with a focus on subcontracting, sales activities, and communication for relationship management, will foster better collaboration and business growth in the manufacturing sector.

v. Despite 84.38% of SMEs separating personal and business finances, over 50% struggle with financial record-keeping. Providing comprehensive financial skills training, including budgeting, financial documentation, and managing borrowed funds, will help SMEs avoid poor financial decisions and improve access to credit, contributing to their growth and stability.

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