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Building Cameroon's Future Tec-Leaders: Entrepreneurial Skills for Sustainable Development

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Abstract

This study explores the role of technology education in fostering entrepreneurial skills among youth, aiming to equip them with practical knowledge for personal and professional growth. Conducted in tertiary institutions in Cameroon's North-West Region, the research employed descriptive statistics, Spearman correlation, and simple linear regression to analyse relationships between variables. Findings indicate a positive link between technology education and entrepreneurial skills, highlighting the need for a curriculum structure with 60% practical, hands-on activities and 40% theory. The study recommends that instructors with strong practical expertise teach these courses to nurture student competencies effectively.

Keywords: *Technology Education, Functional Knowledge, Entrepreneurial Skills, Acquisition.*

1.0 INTRODUCTION

In recent times, with global work practices and technological innovation, individuals who have a passion for novelty may, if opportune, distinguish themselves from others by thinking outside the box. Technology education equips young Cameroonians with essential skills, fostering creativity and confidence. Unlike traditional education, which often prepares students to become employees rather than entrepreneurs, technology and entrepreneurial education bridge the gap between academic learning and the practical demands of the job market. In many cases, traditional schooling teaches outdated subjects, leaving graduates without the skills needed for today's employment landscape. This results in a mismatch between graduates' abilities and the expectations of employers.

Focusing on entrepreneurial skills within Cameroon's educational system aims to address this gap, encouraging self-reliance among graduates and helping them integrate more effectively into their communities. Integrating technology and entrepreneurship into technical and vocational training can turn schools into hubs of skill acquisition. Such a curriculum would not only prepare students for employment but also instil them with critical job-specific skills that directly align with business needs. By fostering a hands-on learning environment, this approach supports students in building meaningful connections with the job market and the broader business community.

Cameroon's educational system traces its origins to the colonial era, and it has long been a foundation for social, economic, and political change. Education serves as a unifying force, instilling values that promote personal achievement, social unity, and national progress. Understanding the crucial role of education in driving national development, policymakers have recently emphasised the importance of fostering entrepreneurial skills through technology-based education at all levels. This initiative represents a strategic shift aimed at equipping individuals with practical skills that align with modern societal and economic needs.

Oloruntoba (2010) describes entrepreneurship as a cornerstone of national economies, crucial for stimulating employment and fostering economic growth. It impacts society significantly by introducing new technologies, products, and services that transform lives. Entrepreneurship education emphasises developing skills, understanding, and attitudes that promote entrepreneurial behaviour across various contexts. According to McClelland's (1962) achievement motivation theory, entrepreneurship education aims to inspire individuals with a strong motivation to achieve, encouraging them to embark on entrepreneurial paths. With relevant skills, graduates can become self-reliant and self-employed, helping to alleviate unemployment. Consequently, entrepreneurship education's primary objective is to enable individuals to function effectively and independently in society.

Madumere-Obike and Abraham (2008) further stress that education should be tailored to foster entrepreneurial values, producing job creators rather than job seekers. Recognising this, the Cameroon government incorporated entrepreneurship education into tertiary curricula in 2006, requiring all undergraduates to complete entrepreneurship courses, regardless of their field of study. This initiative aims to nurture entrepreneurial mindsets, skills, and attitudes by covering essential elements like idea generation, business start-up, growth, and innovation (Fayolle, 2009, as cited in Oleforo et al., 2013).

Moreover, technological education plays a vital role in equipping students and young people with the skills, knowledge, and adaptability needed to thrive in a rapidly evolving global landscape. By emphasising both entrepreneurship and technological competencies, education systems can better prepare individuals to be self-sufficient and responsive to the demands of an integrated, globalised economy.

Entrepreneurship education at the secondary level initiates the foundational development of skills and capacities, preparing students to be independent thinkers, respect diverse perspectives, value hard work, and contribute positively as citizens. The technology education curriculum is structured to balance theory with practical, hands-on training in workshops, fostering functionality, creativity, and innovation in 2004. Uwaifo (2009) suggests that skill acquisition through practical education can enhance the quality of life, promote self-employment, support political stability, and drive technological advancement. Similarly, Emaikwu (2011) emphasises that incorporating skill development into tertiary programs, particularly in students' occupational fields, can lead to enhanced innovation and creativity. Skill acquisition is essential for sustainable development, as it nurtures individuals who can contribute to a sustainable society and environment (Ogundele, 2013). This approach not only prepares students for immediate employment but also aligns with long-term goals of building resilient communities and advancing socio-economic progress.

Ogundele (2013) argues that skill acquisition is essential for lifelong self-improvement, national growth, and nation-building, particularly in the face of globalisation and rapid changes. Similarly, Adeyemo (2010) describes skills as fundamental abilities that enable individuals to adapt to life. Skills are versatile, gained through various educational paths, including informal, non-formal, and formal sectors.

Through entrepreneurial skill acquisition, technology education equips political entrepreneurs with the ability to identify and act on opportunities. This approach not only supports new start-ups, innovative ventures, and job creation but is relevant for all, emphasising action over mere knowledge. Typically, the technology education curriculum is designed with a 70% focus on hands-on practice and 30% on cognitive skills, promoting a practical, "learning-by-doing" model.

Vocational subjects taught in training institutions include building and construction, woodwork, metalwork, automobile maintenance, electrical/electronic practices, technical drawing, bookkeeping, and carpentry. For Cameroon's tertiary education students, technological training is vital to advancing national technological progress. These students need to gain the relevant skills, knowledge, and work ethics to excel in their fields, guided by experienced instructors. Thus, a well-structured curriculum is necessary to support the acquisition of practical entrepreneurial skills, enabling graduates to pursue industry employment, self-employment, or further technological education. This practical focus not only aligns with the demands of local industries but also fosters sustainable professional growth.

1.1 Statement of the Problem

Entrepreneurship education focuses on equipping individuals with essential skills encouraging self-reliance and self-employment. Both society and the government view education as a pathway for personal and national growth. However, the current entrepreneurial education in Cameroon's tertiary institutions does not effectively prepare students with the practical skills needed in the workforce, leading to high unemployment rates among graduates and minimal economic contribution. In contrast, primary school students in the Western world often receive a more practical, skill-based education than university graduates in Cameroon. Each year, Cameroonian institutions produce large numbers of graduates, many of whom are considered unemployable. When they do secure jobs, employers must often invest in additional training to make them productive. This gap highlights a significant issue in Cameroon's educational system, as it fails to meet the demands of the job market, contributing to the alarming rate of youth unemployment in the country. This study addresses this critical need.

1.2 Objectives of the study

The main aim of this study is to investigate how technology education in Cameroon can be repositioned through entrepreneurial skill acquisition. Specifically, the study is to:

i. Determine the relevance of employing the right skilled teachers and instructors to teach entrepreneurial skill acquisition courses.
ii. Examine the relevance of hands-on practical experience in entrepreneurial skill acquisition training.

1.3 Research Questions

i. What is the relevance of employing the right-skilled teachers and instructors to teach entrepreneurial skill acquisition courses?
ii. To what extent does manual practice experience affect entrepreneurial skill acquisition training?

1.4 Research Hypotheses

i. There is no significant effect between employing the right-skilled teachers/instructors and entrepreneurial skill acquisition courses.
ii. Hands-on practical experience does not significantly affect entrepreneurial skill acquisition training among Cameroonian students.

1.5 Significance of Study

Entrepreneurial development has attracted the attention of many scholars, stakeholders in the economy and non- governmental organisations on the need for entrepreneurship. This study is significant in the sense that it will address the need for training institutions to look inwardly in enhancing and promoting technology education through entrepreneurial skill acquisition by strictly insisting that this education is for doing rather than for knowing things. Thus, employing only proficient, skilled teachers to teach the compulsory 70% manual practice is essential. At this point, this will create awareness among undergraduate, educationists, government and non-governmental organisations on the importance of improving entrepreneurship in tertiary institutions. The study will help to encourage students to look towards acquiring new skills that will make them self-reliant and self-employed before and after graduation. Finally, this study will add more empirical facts and ideas on higher institutions and entrepreneurial development. It will be of immense importance to scholars and students who may intend to embark on further study.

2.0 REVIEW OF RELATED LITERATURE

2.1 Technology Entrepreneurship Education

Technology entrepreneurship education is a crucial driver of prosperity, not only for individuals but also for firms, regions, and nations. Bailetti (2012) notes that this field serves a purpose beyond intellectual exploration, emphasising its role in socio-economic advancement and poverty alleviation. In Cameroon, where youth unemployment and poverty are critical issues, technology entrepreneurship in tertiary education is essential for meeting development goals. This approach transforms job seekers into job creators, offering students the functional knowledge and skills needed to shape their attitudes, character, and vision (Wara, Ilaboya, & Hymore, 2007). According to the European Union (2006) and QAA (2012), fostering an entrepreneurial culture through technology education fuels innovation and wealth creation, highlighting the critical role of skilled educators as facilitators of this process.

Entrepreneurship education integrates young people into the economy, enabling them to acquire practical skills applicable to their livelihoods. However, Pradeep (2008) suggests that current curriculums do not always foster independence, risk-taking, and creativity. By embedding entrepreneurial concepts at all levels, tertiary institutions can cultivate an entrepreneurial society that appreciates both the risks and rewards of business. These institutions are, therefore, pivotal in imparting essential business skills and entrepreneurial perspectives.

The rapid pace of technological advancement also presents opportunities to transform work environments and increase efficiency. Technology education focused on entrepreneurship should emphasise the conversion of inputs into valuable outputs, thereby contributing to a stronger economy (Kesner, 2002). Beyond institutional settings, quality technology education can be supported through well-equipped facilities, such as mechanic workshops, catering services, skill centres, and more. These centres provide practical training in fields like welding, plumbing, carpentry, refrigeration, and information technology, all aimed at skill-building for real-world applications.

Entrepreneurial skill acquisition is not solely about obtaining skills but also about gaining knowledge to pursue self-sustaining enterprises. It enhances personal livelihood through business start-ups and fosters employment opportunities and economic development. Skill acquisition involves three stages: the cognitive stage, where learners understand new information; the associative stage, where

they connect this knowledge to practical use; and the autonomous stage, where they confidently apply their skills independently. This process builds the mindset needed for entrepreneurial success, which Taylor and Thorpe (2004) identify as a key differentiator for entrepreneurs, rooted in self-confidence and a drive to challenge norms.

Technology education with a focus on entrepreneurial skills is designed to empower youth with practical skills to shape their personal and professional futures. Students who have positive experiences in technology education often develop favourable attitudes toward technology careers, making them more inclined to pursue further study in the field. Moreover, character-based education, which includes instilling values like good behaviour, social responsibility, and critical thinking, is a central component. By teaching students to think independently and manage their learning, technology education aligns with school visions that prioritise student empowerment.

To foster self-reliance, students should be equipped with skills in critical thinking, creativity, and problem-solving-all of which are nurtured through skill acquisition. Technology education thus serves as a platform for students to articulate and refine their ideas, preparing them to navigate the complexities of the modern workforce while contributing positively to society.

Ogundele (2013) argued that skill acquisition offers a pathway for lifelong personal growth, national advancement, and nation-building, even amid globalisation and fast-paced environmental changes. To truly harness the benefits of entrepreneurship education, the authors emphasise that government, proprietors, and school administrators must ensure the following:

i. Recognise that entrepreneurship education is inherently skill-based and must be taught by qualified, technically skilled instructors.
ii. Structure the curriculum to be 70% practical training and 30% theoretical learning.
iii. Cultivate an entrepreneurial mindset in students by enhancing motivation and awareness.
iv. Create a supportive environment that encourages entrepreneurial attitudes, skills, and behaviours across the institution.
v. Establish a hub for scientific innovation and technological development.
vi. Equip students with the skills needed to start and sustainably grow their businesses.

These steps are essential to empower students with the practical expertise and mindset necessary for success in an increasingly dynamic world.

2.2 Theoretical Review

2.2.1 Need Achievement Theory

David McClelland (1965) demonstrated a significant link between the need for achievement, economic growth, and entrepreneurship. He suggested that entrepreneurial activity is a powerful mechanism through which the drive for achievement stimulates economic development. According to McClelland, a society with a high average level of achievement motivation is likely to experience greater entrepreneurial endeavours. In Cameroon, there is a strong enthusiasm and ambition for achievement, with many individuals ready to pursue practical ideas to achieve success.

2.2.2 Social Cognitive Theory

Albert Bandura (1986) introduced a framework to enhance entrepreneurial knowledge within established organisations, emphasising both environmental influences on human development and

individual responsibility for self-growth. His social cognitive theory identifies three core factors that shape organisational behaviour: cognitive, behavioural, and environmental elements. This approach suggests that with appropriate support and opportunities, anyone can develop into an entrepreneurial and innovative person. However, students often face barriers such as limited resources (including a shortage of skilled instructors), restrictive rules, and uninspiring systems, which hinder their potential for growth. Consequently, these students may miss out on opportunities to cultivate entrepreneurial and innovative abilities. Unlike traditional perspectives on behaviour, social cognitive theory highlights the role of cognitive processes as mediators between students and their environment. This framework is valuable for understanding the entrepreneurial process, offering insights into enhancing cognitive factors that foster entrepreneurial thinking and behaviour in educational settings.

3.0 METHODOLOGY

This study employs a survey research design, targeting students and staff from selected tertiary institutions in Cameroon's North-West Region, specifically including Ebenezer Higher Institute of Science and Technology and Fonab Polytechnic University Institute. Using a convenience sampling approach, a sample size of 80 was selected. Descriptive statistics, including mean and standard deviation, along with Spearman's correlation and simple linear regression analysis, were applied to explore the relationship between technology education and entrepreneurial skill acquisition in these institutions.

4.0 RESULTS AND DISCUSSION OF FINDINGS

Table 1: Descriptive Statistics

Variables	Mean	Standard Deviation
Technology Education	5.56	1.15
Entrepreneurial skill Acquisition	5.02	1.22

Table 1 presents the mean scores for each variable. On a seven-point scale, technology education received an average score of 5.56 (Std. Dev = 1.15), while entrepreneurial skill acquisition scored 5.02 (Std. Dev = 1.22). These values, above the neutral score of 4, indicate a generally positive attitude among respondents toward entrepreneurial skill acquisition.

4.1 Reliability Statistics

An internal reliability test assessed the stability and dependability of the research instrument (Malhotra, 2024). Cronbach's alpha was used to examine the internal consistency of the attributes measured, revealing a reliable scale (alpha = .823). This score surpasses the minimum standard of .70 for acceptable reliability. Additionally, the average inter-item correlation of 0.167 falls within the recommended range of 0.15 to 0.50 (Clark and Watson, 1995), confirming the instrument's internal consistency.

Table 2: Reliability Statistics

Variable	Items	Cronbach's Alpha
Technology Education	13	0.79
Entrepreneurial Skill Acquisition	05	0.75

Table 2 shows an alpha of 0.79 for the independent variable, technology education, and 0.75 for the dependent variable, entrepreneurial skill acquisition. Both values exceed the minimum reliability standard.

4.2 Normality Statistics

Table 3: Normality statistics

Variable	skewness	Kurtosis Statistics
Technology Education	0.193	0.000
Entrepreneurial Skill Acquisition	0.021	0.250

Table 3 presents the normality analysis, where skewness and kurtosis values were assessed to confirm data normality. The values for composite indicators fall within the acceptable range of ±1.96 (Hair et al., 1998), indicating no significant deviations from normality. Thus, the data is normally distributed.

3.3 Correlation Analysis

Table4: Correlation Matrix

Technology Education	Entrepreneurial Skill Education
Technology Education	658**
Entrepreneurial Skill Acquisition	

** Correlation is significant at 0.01 significant level (2-tailed test).

Table 4 reveals a significant and strong positive correlation between technology education and entrepreneurial skill acquisition ($r = .658$, $p < 0.01$), fully supporting the research hypotheses. Specifically, (H1) proposes a significant effect of offering appropriate skill-acquisition courses, while (H2) suggests that practical manual experience has a meaningful impact on entrepreneurial training.

4.4 Regression Analysis

To explore relationships between dependent and independent variables, regression analysis is applied (Khan, 2016). Unlike correlation, regression assumes the independent variable influences or predicts the dependent variable (Malhotra, 2010). Regression helps determine how much the independent variable accounts for the dependent variable's variance. Significance is tested using the p-value, with results deemed significant at 95% if $p < 0.05$. Similarly, p-values below 0.01 indicate 99% significance (Nolan & Heinzen, 2011).

Table 5: Regression statistics

Model	R	R-Square	Adjusted R.Square	Beta	F	sig
1	.685	.433	.417	.658	85.352	.000

a. Predictors: (Constant) Technology Education

Table 5 shows an R-Square value of 0.433, indicating that the independent variable, technology education, accounts for 43.3% of the variance in the dependent variable—entrepreneurial skill acquisition. This suggests a significant statistical relationship between technology education and entrepreneurial skill acquisition in tertiary institutions, with a coefficient ($B = 0.658$, $p < .0001$) indicating a strong effect, classified as large by Cohen (1998). The results thus fully support both hypotheses, demonstrating that technology education has a direct, positive impact on entrepreneurial skill acquisition among tertiary students in Cameroon's North-West Region.

5.0 DISCUSSION OF FINDINGS

Table 3 presents the normality statistics, showing skewness and kurtosis values of 0.193 and 0.000 for the dependent variable and 0.021 and 0.250 for the independent variable. These values indicate no significant deviations from normality, as they fall within the acceptable range of ±1.96. Table 4's correlation results reveal a significant positive relationship between technology entrepreneurship education and entrepreneurial skill acquisition, with $r = 0.658$ and $p < 0.01$. Additionally, regression analysis in Table 5 demonstrates that technology entrepreneurship education explains 43.3% of the variance in entrepreneurial skill acquisition, with an R-square value of 0.433 and a p-value of less than 0.001, indicating 99% statistical significance. The regression coefficient ($B = 0.658$, $p < 0.001$) confirms that technology entrepreneurship education has a direct and significant impact on the entrepreneurial skill acquisition of tertiary students in Cameroon's North-West Region.

6.0 CONCLUSION

Technology education focused on entrepreneurial skill acquisition aims to foster a mindset of self-reliance. It is crucial for both students and society, as it equips learners with the knowledge, skills, and attitudes necessary to become self-sufficient and adapt to the evolving demands of globalisation and societal integration. To achieve this, entrepreneurship courses should be taught exclusively by qualified and skilled teachers who are technically proficient in the relevant fields, which is often lacking in current entrepreneurship programs. For entrepreneurship education to be effective and sustainable in tertiary institutions, the curriculum should consist of 70% hands-on, practice-based learning and 30% theoretical content, with instruction provided by experienced, skilled instructors.

6.1 Recommendations

This study put forward the following recommendations:

i. Defined practical work and no alternative to practice should be made compulsory for secondary schools and tertiary institutions students as part of the requirement for their graduation.
ii. The government should adequately equip entrepreneurship workshops to avoid the empty spaces we see in institutions today.
iii. Only qualified, skilled instructors should be employed to teach technical courses that are technology oriented.

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