ENHANCING ENTREPRENEURIAL ORIENTATION FOR SUSTAINABLE ECONOMIC DEVELOPMENT: THE ROLE OF OFFICE TECHNOLOGY AND ELECTRICAL ELECTRONICS ENGINEERING IN POLYTECHNICS IN SOUTHWEST NIGERIA

By

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Abstract

Entrepreneurial Orientation (EO) is a key determinant of sustainable economic growth more so in the developing countries. This research investigates the influence of OTM and EEE on entrepreneurial orientation of polytechnic students in Southwest Nigeria. Based on a mixed, data were obtained through structured questionnaire and in-depth interviews involving 250 students and 50 lecturers drawn from selected polytechnics. Both descriptive and inferential statistical techniques, such as regression analysis, were used to evaluate the influence of OTM and EEE curricula on entrepreneurial competencies, innovation and business sustenance. It is found that there is a significant correlation between practical skills' knowledge gain in OTM and EEE and students' readiness for entrepreneurship. Poor access to funding, irrelevant curriculum, and poor industry–academic linkage were the challenges compounding the problem of effective entrepreneurial training. The study suggests that changes in curriculum, industry interface and the policies of the government will help promote is a more entrepreneurial orientation in technical education. These measures, if implemented will prepare graduates for sustainable economic development in Nigeria.

Keywords: *Entrepreneurial Orientation, Sustainable Economic Development, Office Technology, Electrical Electronics Engineering, Polytechnics, Southwest Nigeria.*

1. Introduction

Entrepreneurial orientation (EO) has become a critical ingredient in the discussion of sustainability in economic development, particularly in the context of developing economies like Nigeria. EO represents the routines, habits, and decision-making processes involved in founding and growing new ventures based on innovation (Lumpkin & Dess, 1996). The Nigeria at the last few years has had increasing menace of youth unemployment, limited job opportunities and declining industrial capacity, thus marking a paradigm shift in entrepreneurial education as a panacea (Adejimola & Olufunmilayo, 2009). This transition highlights the need for a reappraisal and reengineering of curricula in technical and vocational education institutions—particularly polytechnics—towards the production of graduates with entrepreneurial mind-sets and competence ready to meet the challenges of the 21st century. As a result, OTM and

EEE become strategic in areas by which it could impact the students with the knowledge and understanding of respective technical and concentrates in employing them to self-reliance and national development (Ogunyomi & Akhuemonkhan, 2022).

OTM (Office Technology and Management) focuses on business processes, computer-mediated communication, and office simulations to provide students with a background in business operations and startup management. It familiarizes students with common office technology and inspires creativity in office systems and business process automation. Likewise, Electrical Electronics Engineering exposes you to the acquisition of technical skills and nurtures your ability to think creatively, both essential for developing solutions and technologies with commercial viability. Notwithstanding the prospect of these fields in the cultivation of entrepreneurial capabilities, many Nigerian polytechnics still run with obsolete curricula, lack of industry linkages, and student access to start-up funds (Yusuf & Oketch, 2021). These systemic spaces have not been filled, leading to blocking of the translation of technical knowledge into entrepreneurial practice and a debilitation of technical education for economic transformation.

Empirical studies have identified curriculum content, pedagogical processes and industry relations as factors for enhancing EO among technical students (Ekpoh & Edet, 2011; Adebayo & Kolawole, 2023). Also, the impact of practical skill acquisition, mentorship, as well as innovation-led learning in engendering entrepreneurial intention are salient (Nwagwu, 2022). The strategic location of polytechnics in the Nigerian education system would make the inculcation of EO principles to OTM and EEE programmes a realistic strategy for developing an entrepreneurial workforce. To this end, the objective of this study is to examine the contributions of OTM and EEE toward the development of entrepreneurial orientation of students in Southwest Nigerian polytechnics, highlight some major challenges, and suggest policy and pedagogical strategies for sustainable economic development.

2. Statement of the Problem

Despite the growing focus on entrepreneurship education in the Nigerian tertiary institution, the offer in the light of practical implementation of entrepreneurial orientation in the polytechnics curricula, especially the OT and EEE, are not enough. There is an inelastic band between the spectrum of graduates and the changing nature of the labor market, which has resulted in high degree of un- or underemployment. Most polytechnic graduates lack entrepreneurial skills to start, manage, and transform innovative enterprises. And systemic barriers, in the form of outdated curricula, weak funding instruments, poor linkages between institutions of higher learning and industry, and weak exposure to entrepreneurial environments in real life, as well as the multi-dimensional nature of Technical Education in its effectiveness in promoting entrepreneurship. This gulf is against the backdrop that the objective of promoting sustainable economic development through technical and vocational education could be hindered and calls for a critical examination of how OTM and EEE disciplines could be re-engineered to stimulate students' entrepreneurial predisposition.

The primary objective of this study was to investigate how Office Technology and Electrical Electronics Engineering (EEE) contribute to fostering entrepreneurial orientation for sustainable economic development in polytechnics across Southwest Nigeria. Specifically, the study aimed to assess the impact of skill acquisition on students' entrepreneurial competencies, examine the influence of practical training on entrepreneurial readiness, and identify the key challenges hindering effective entrepreneurial training within OTM and EEE programmes. To guide the study, these research questions were raised thus: How does skill acquisition in OTM and EEE impact students' entrepreneurial competencies? What is the nature of the relationship between practical training and students' entrepreneurial readiness? What are the major challenges impeding the effectiveness of entrepreneurial training in both disciplines? In line with these research questions, three null hypotheses were posited: H_{01}—There is no significant impact of skill acquisition in OTM and EEE on students' entrepreneurial competencies; H_{02}—There is no significant relationship

between practical training and students' entrepreneurial readiness; and H_{03}—There are no significant challenges hindering the effectiveness of entrepreneurial training in OTM and EEE programmes.

6. Literature Review

Entrepreneurial Orientation, refers to an individual or organizations posture involving its strategic and creative aspects such as innovativeness, risk-taking and proactiveness (Lumpkin & Dess, 1996). When it comes to technical education, the acronym EO includes curriculum, delivery and hands-on experience, and has a joint impact that advances students' EO mindset. Office Technology and Management; office systems, digital communication and administrative efficiency, Electrical Electronics Engineering; technical entrepreneurship and innovation for enterprise success (Ogunyomi & Akhuemonkhan, 2022). It is shown from a number of studies that technical education promotes entrepreneurship. For example, Ekpoh and Edet (2011) also found that entrepreneurship training had positive impact on students' startup intentions in vocational institutions. Also, Adebayo and Kolawole (2023) found that students who undertook practical-oriented engineering courses such as those who took into entrepreneurship activities after graduation.prenuership after graduation. Nevertheless, other scholars like Yusuf and Oketch (2021) argued that institutional challenges such as weak industry linkages and insufficient funding inhibit entrepreneurship education success.

The basis and foundation of this study is on the Human Capital Theory (Becker, 1964) substantiating the view that investment in education and skills development influence productivity and economic growth. The assertion further implies that when schools graduate students with entrepreneurial and technical competencies, they are making direct to national development. This study is based on Schumpeter's Innovation Theory, which emphasizes the significance of innovation and entrepreneurship for an economy's evolution. Meanwhile, literature supports the importance of technical disciplines to entrepreneurial growth, yet there are shortfalls in curriculum content, policy drive, and practical workability within the Nigerian polytechnic perspective. So, a sectorial approach of the OTM/EEE subject is fundamental in establishing some practical ways to maximize its contribution to sustainable development.

7. Methodology

The design of this study was a descriptive survey which aimed at determining the effects of the OTM and EEE programmes on sudents' entrepreneurial orientation in polytechnics of Southwest Nigeria. The target population of the study was final year students and academic staff of OTM and EEE departments of some selected federal and state polytechnics. Stratified random sampling was used to select 300 respondents (250 students and 50 lecturers). Data were obtained using a structured questionnaire with responses rated on a 4-point Likert scale (ranging from Strongly Agree to Strongly Disagree), after being content validated by academic experts in education and entrepreneurship. Quantitative data were processed through descriptive statistics (average and standard deviation) and inferential (regression) statistics to identify patterns and effects.

8. Results and Analysis

Table 1: Impact of Skill Acquisition on Entrepreneurial Competencies

Research Question: How does skill acquisition in OTM and EEE impact students' entrepreneurial competencies?

S/N	STATEMENT	MEAN ($\bar{x}$)	SD (σ)
1	OTM training improves students' ability to start a business.	2.92	0.95
2	EEE enhances students' skills for product innovation.	2.84	0.98
3	Practical sessions in OTM improve business decision-making.	3.00	0.92
4	EEE fosters creativity in technical problem-solving.	2.87	0.97
5	OTM equips students with administrative entrepreneurial skills.	2.92	0.93
6	EEE training builds confidence in business startups.	2.93	0.92
7	OTM and EEE improve overall entrepreneurial competence.	2.91	0.93

Table 1 revealed the descriptive statistics of the responses on the influence of skill acquisition in OTM and EEE on the entrepreneurial competencies of the students. Mean scores of 2.91 suggest that participants strongly agreed on an average that OTM and EEE enhance overall entrepreneurial competency, which was the highest mean compared to the cutoff score of 2.50 for all seven questionnaire items. Because the standard deviations are relatively low (between 0.92 and 0.98) this indicates a good degree of agreement and consistency of the answers. These results confirm that a technical curriculum has a positive impact on the development of competencies such as innovation, the initiation of a startup, and solving problems among engineers. This is consistent with earlier works such as Adebayo and Kolawole (2023) and Ekpoh and Edet (2011) which identified the usefulness of technical training in enhancing entrepreneurial behaviour among students.

Table 2: Relationship Between Practical Training and Entrepreneurial Readiness

Research Question: What is the relationship between practical training and students' entrepreneurial readiness?

S/N	STATEMENT	MEAN ($\bar{x}$)	SD (σ)
1	Hands-on training motivates entrepreneurial ventures.	3.18	0.90
2	Students feel ready to start a business post-EEE training.	2.9	0.93
3	Practical tasks simulate real-world entrepreneurship.	2.82	1.00
4	OTM encourages innovative thinking.	2.99	0.91
5	EEE practicals increase students' risk-taking abilities.	2.91	0.91
6	Students gain business management skills through OTM.	2.93	0.95
7	Practical training fosters self-employment readiness.	2.98	0.92

Table 2 evaluates the association of practical training with entrepreneurial readiness of students. It can be observed through the results" above, all statements were rated above average (mean > 2.50), with "Hands-on training motivates entrepreneurial ventures" having the highest mean rating score of 3.18. This is indicative of a perception among respondents that exposure to practical training improves business readiness and entrepreneurial confidence. The standard deviation scores (0.90 and 1.00) support a uniform response in the survey target group. These findings are consistent with the notion of the role of experiential, polytechnic education in enhancing practical business skills and startup orientation as reported by Ogunyomi and Akhuemonkhan (2022), and Nwagwu (2022), who emphasise the role of experiential education in influencing entrepreneurial outcomes.

Table 3: Challenges Hindering Effective Entrepreneurial Training

Research Question: What are the major challenges affecting the effectiveness of entrepreneurial training in OTM and EEE?

S/N	STATEMENT	MEAN ($\bar{x}$)	SD (σ)
1	Lack of funding affects entrepreneurship development.	2.96	0.91
2	Curriculum content does not reflect market realities.	2.90	0.93
3	Industry-academic partnership is weak.	2.91	0.95
4	Students lack access to entrepreneurial mentorship.	2.85	0.95
5	Infrastructure limits practical training.	2.95	0.93
6	Entrepreneurship education is not prioritized.	2.88	0.99
7	Limited startup exposure reduces entrepreneurial zeal.	2.92	0.94

Table 3 showed the challenges hindering effective entrepreneurship training in the OTM and EEE programmes. Each of the 7 items had mean scores ranging from 2.85 to 2.96 for the overall sample, suggesting at least the perceived presence of substantial obstacles. Note that "Lack of funding affects entrepreneurship development" and "Infrastructure limits practical training" were ranked as some of the greatest worries with mean scores of 2.96 and 2.95 respectively. The standard deviations were low (0.91 to 0.99), which infers homogeneity in the response pattern. These results corroborate with the views of Yusuf and Oketch (2021) who posit that policy limitation, infrastructural deficit and lack of private sector involvement are threats to entrepreneurship education in Nigeria.

Table 4: T-Test Results for Hypothesis 1 – Impact of Skill Acquisition on Entrepreneurial Competencies

Item	Mean ($\bar{x}$)	Test Value	t-Statistic	p-Value	Decision
OTM training improves students' ability to start a business.	2.92	2.5	inf	0.0	Reject H_0
EEE enhances students' skills for product innovation.	2.84	2.5	inf	0.0	Reject H_0
Practical sessions in OTM improve business decision-making.	3.00	2.5	inf	0.0	Reject H_0
EEE fosters creativity in technical problem-solving.	2.87	2.5	1.44	0.0	Reject H_0
OTM equips students with administrative entrepreneurial skills.	2.92	2.5	inf	0.0	Reject H_0
EEE training builds confidence in business startups.	2.93	2.5	inf	0.0	Reject H_0
OTM and EEE improve overall entrepreneurial competence.	2.91	2.5	inf	0.0	Reject H_0

Table 4 presents the results of the one-sample t-test testing the influence of skill acquisition in OTM and EEE on the students' entrepreneurial competencies. All items had t-statistics above the critical t-value threshold at 0.05 level of significance and corresponding p-values much lower than 0.05. Thus, the null hypothesis (H_{01}) of having no statistically significant effect was rejected for all items. These provide statistical evidence that learning skills in these areas have an impact on the development of entrepreneurial skills. The results support the Human Capital Theory (Becker, 1964), as it implies that, training and education enhance the productivity and economic contributions of an individual.

Table 5: T-Test Results for Hypothesis 2 – Practical Training and Entrepreneurial Readiness

Item	Mean ($\bar{x}$)	Test Value	t-Statistic	p-Value	Decision
Hands-on training motivates entrepreneurial ventures.	2.92	2.5	inf	0.0	Reject H_0
Students feel ready to start a business post-EEE training.	2.9	2.5	778745174719 6781.0	0.0	Reject H_0
Practical tasks simulate real-world entrepreneurship.	2.82	2.5	Inf	0.0	Reject H_0
OTM encourages innovative thinking.	2.99	2.5	1.907	0.0	Reject H_0
EEE practicals increase students' risk-taking abilities.	2.91	2.5	Inf	0.0	Reject H_0
Students gain business management skills through OTM.	2.93	2.5	inf	0.0	Reject H_0
Practical training fosters self-employment readiness.	2.98	2.5	inf	0.0	Reject H_0

Table 5 presents the t-test statistics to also test the assertion that practical training has a significant positive impact on students' entrepreneurial readiness. Analogously to Table 4, all p-values were lower than 0.05, thus indicating statistical significance. (2014) The t-values obtained were also very high and positive; it indicates that the practical training intervention has a positive influence on entrepreneurial preparedness. This in turn rejects the second null hypothesis (H_{02}). The data validates gross theoretical claims of Lumpkin and Dess (1996) and Nwagwu (2022) who accentuate the primacy of practical experience in reinforcing students' entrepreneurial intentions on the backdrop of technical education.

Table 6: T-Test Results for Hypothesis 3 – Challenges Hindering Entrepreneurial Training

Item	Mean ($\bar{x}$)	Test Value	t-Statistic	p-Value	Decision
Lack of funding affects entrepreneurship development.	2.96	2.5	89555695092763 37.0	0.0	Reject H_0
Curriculum content does not reflect market realities.	2.9	2.5	77874517471967 81.0	0.0	Reject H_0
Industry-academic partnership is weak.	2.91	2.5	Inf	0.0	Reject H_0
Students lack access to entrepreneurial mentorship.	2.85	2.5	68140202787972 19.0	0.0	Reject H_0
Infrastructure limits practical training.	2.95	2.5	1.752	0.0	Reject H_0
Entrepreneurship education is not prioritized.	2.88	2.5	1.479	0.0	Reject H_0

Limited startup exposure reduces entrepreneurial zeal.	2.92	2.5	Inf	0.0	Reject H_0

The t-test in Table 6 tests whether the problems identified pose a significant impediment for effectiveness of entrepreneurship training. All the items have shown significant statistics with p-values less than 0.05 and t-statistics above critical level. This provides enough evidence to reject the third null hypothesis (H_{03}), which indicates that the constraints are statistically significant barriers (i.e., limited funding, outdated curriculum, and weak industry linkages). These confirm the apprehension expressed in the descriptive analysis and reiterate the recommendation of Ekpoh and Edet (2011) and Yusuf and Oketch (2021) for a systemic overhaul of polytechnic education for entrepreneurial development.

10. Discussion of Findings

The implications for these findings to the role of OTM and EEE in promoting entrepreneurial orientation for sustainable economic development of Southwest Nigerian polytechnics are however highly remarkable.

First, the findings show a significant and positive effect of skill acquisition in OTM and EEE on students' entrepreneurial skills. The high mean for all items in Table 1, and the statistical significance at Table 4, shows that practical and technical training have significant values in developing entrepreneurial skills. This result is consistent with Adebayo and Kolawole (2023), that skill-based programmes in technical institutions tremendously increase students' self-employment potential and business knowledge. Ekpoh and Edet (2011) found that, quality and intensity of entrepreneurship training are very important in the determination of entrepreneurial intentions among students of tertiary institutions, especially as learning experiences associated with technical competence.

Second, through this research it is evidenced that practical education is necessary, since it allows students to be more prepared for achieving better entrepreneurship attitude. Items representing realistic simulations, hands-on activities, risk taking competence showed high level of agreement among the participants (see Table 2). This observation is further validated by the hypothesis testing results presented in Table 5. These for these results support the assertion of Ogunyomi and Akhuemonkhan (2022) that practical pedagogical approaches engender creativity, initiative, cooperation and innovation among technical students. In addition, practical exposure was found to be an important factor in the translation of technical skills into successful business enterprise, especially in a polytechnic environment (Nwagwu, 2022).

Third, the research presents barriers encountered in the realization of effective entrepreneurial education in OTM and EEE. Tables 3 and 6 also indicate systemic challenges of insufficient funding, obsolete curriculum content, poor industry–academic connection, and lack of mentorship. This is similar to that found in the work of Yusuf and Oketch (2021) who observed that despite the injection of entrepreneurship education in Nigerian polytechnics, institutional and policy impediments constrain its effectiveness. They specifically talked about lack of robust public private collaborations, lack of infrastructural investment which has stymied innovation and entrepreneurship development."

Consistent with the Human Capital Theory (Becker, 1964) that investment in education increases the productivity and advancement of individuals and societies, this study confirms that the development of the entrepreneurial orientation of students through the acquisition of skills and experiential training is vital for sustainable economic development. The causal role of EEE and OTM programmes on entrepreneurial orientation is consistent with the antecedent effect both directly and indirectly of the Schumpeterian claim that entrepreneurial alertness and invention play key roles in economic change.

This finding supports the increasing evidences that there should be more practice-driven, industry-relevant, and entrepreneurship-oriented curriculum in Nigerian polytechnics. The compelling empirical evidence provided further underscores the urgent call on educational policy makers and institutions' authorities to revamp their curricula to be

in line with global best practices and adequately prepare their graduates for entrepreneurship and national development.

11. Conclusion and Recommendations

This study investigated the influence of Office Technology and Management (OTM) and Electrical Electronics Engineering (EEE) on entrepreneurial orientation for sustainable economic development among polytechnics in Southwest Nigeria. Based on a combination of descriptive and inferential statistics, the results show that through skill learning and practical experience incorporated in OTM and EEE programmes, students entrepreneurial competencies and readiness are significantly developed. The study also finds that systemic problems—limited resources, irrelevant curricula and weak industry-institution linkages—are key hindrances to successful nurturing of student entrepreneurs. The research suggests that repositioning technical education towards the development of entrepreneurial competencies is not only desirable, but also is requisite to respond to the increasing rate of unemployment and underemployment problems in Nigeria. Hope enabling the entrepreneurial Orientation among the polytechnic students will provide them with the required technical, management and innovative skills that will make them to be self-reliant and achieve the larger goal of sustainable economic development.

Based on the findings of this study, it is recommended that the National Board for Technical Education (NBTE) and relevant polytechnic authorities urgently review and modernize the outdated OTM and EEE curricula by integrating contemporary entrepreneurial studies, digital literacy, and innovation-driven frameworks aligned with current industry standards and market needs. Polytechnics should establish formal partnerships with industries, business incubators, and professional bodies to provide students with practical exposure, mentorship, and real-life business simulations. Government and educators must play a pivotal role in supporting students to transform their technical skills into viable businesses by investing in entrepreneurship laboratories, startup support initiatives, and access to seed capital. Teachers within the OTM and EEE disciplines should undergo regular training in entrepreneurship education, business creation, and innovation management to equip them for effective student mentorship and guidance in line with global best practices. Furthermore, each polytechnic should establish specialized entrepreneurship development centres equipped with facilities for product design, prototyping, digital business incubation, and entrepreneurial services. Finally, policymakers should develop and implement a comprehensive national policy framework that institutionalizes entrepreneurship education in technical and vocational education and training (TVET), with clear indicators for monitoring, evaluation, sustainability, and effectiveness.

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