

IMPACT OF TVET IN IMPROVING E-AUTOPRENEURSHIP AMONG TECHNICAL COLLEGE GRADUATES FOR SUSTAINABLE GLOBAL ECONOMY

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Abstract

This study investigated the impact of Technical and Vocational Education and Training (TVET) in improving e-autopreneurship among technical college graduates and its implications for a sustainable global economy. The study adopted a descriptive survey research design. Population for the study comprised of all technical college graduate across different state within South West region of Nigeria with sample size of 150 technical college graduate. Structured questionnaire was used for data collection. Cronbach Alpha reliability technique was used to establish the internal consistency of the instrument and a reliability coefficient of 0.74 was obtained. Data was analyzed with descriptive statistics of mean and standard deviation for answering research questions, while the hypothesis was tested using Chi-Square. Findings revealed Finding revealed that there is significant impact of TVET programs on the digital skills and knowledge of technical college graduates for successful E-autopreneurship. Also, there are significant challenges or barriers in transitioning from traditional TVET education to E-autopreneurship in the digital landscape. Furthermore, that there is identifiable best practices or strategies for improving TVET programmes to better prepare graduates for E-autopreneurship and contribute to a sustainable global economy. It was therefore concluded and recommended that TVET programs and curriculum should be redesigned to incorporate digital entrepreneurship education, focusing on e-autopreneurship skills

Keywords: E-autopreneurship, TVET, Sustainable growth, Development, Vocational, Skill Acquisition

Introduction

The programme for motor vehicle mechanics work in Nigeria technical colleges is designed to produce competent craftsmen that can test, diagnose, service and completely repair any fault on motor vehicle to the manufacturer's specification. The aim of motor vehicle mechanics practice is to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant (NBTE, 2013). Technical colleges are post primary schools where students learn skills in various occupations. According to Sani and Anaele (2019), technical colleges are charged with the responsibility of producing craftsmen. Auto-mechanics craftsmen who undergo training in motor vehicle mechanics work are expected to possess work skills for success in automobile maintenance and repairs.

Dogara et. al. (2019) stated that in most technical colleges, classes are mostly conducted in theoretical form and students do not have the opportunity to apply what they learnt in solving new/unfamiliar problems. There appears to be gaps between the training acquired by technical college students and the skills required for new technologies in motor vehicle electrical system. These inadequate skills acquired by technical college students could be because of insufficient time allocated for practical classes, lack of materials, tools and equipment to conduct practical and expertise to conduct practical classes in technical colleges. This is evident in technical colleges where several subjects offered in the schools are contending for time, this insufficient

time necessary for practical work may have resulted in poor skills acquisition (Audu, Kamin & Saud, 2016). In addition, technological advancement in the work place and industries also necessitated a need to equip auto-mechanics students with e-autopreneurship knowledge which will make them adaptable to the present and envisaged future changes in motor vehicle which includes e-autopreneurship.

E-autopreneurship is the development of software and other technological innovations in the entire automobile as a system. E-autopreneurship will significantly create opportunities for entrepreneurs to provide specialized and innovative services in various sub-sectors of the automobile system such as vehicle manufacturing, automobile electrical system, vehicle washing, vehicle sales, maintenance, repair services, vehicle painting, vehicle wheel balancing and alignment, vehicle rental services, etc. Entrepreneurs who can invest in these areas of motor vehicle have a higher chance of thriving in the market and contributing to economic growth and development.

The reason why many technicians earn more than some university graduates is because the technicians acquire more practical skills than the theories, unlike the graduates who were fed with theoretical experiences while in the universities. Oluwadare (2019) saw skill acquisition as the ability to learn a skill, which can be intellectual such as learning to listen, speak, read and write or manual such as learning to build or make something. It is really unfortunate that there is a huge rate of unemployment in Nigeria. It is one of the causes of rapid growth in crime in many parts of the world. Today, there are many graduates in the country who are still unemployed. This is as a result of our long system of education that is more of theory and not much practical learning. It is evident that the continent of Nigeria has the highest rate of unemployed youths (Oluwadare, 2019).

The major cause of the unemployment among these vibrant youths in our society today is mainly due to the lack of skill to back up what they learnt from their institutions of learning. The time when all these graduates were in school, they did not learn at least a single skill like; graphic designing, hair dressing, carpentry, electrical maintenance among others. Assuming they learnt any skill, the rate of unemployment will reduce among them (Iwuh, 2019). Skills acquisition will not only lead to the economic growth of the country, it will curb the rate of social vices in the country because a lot of youths will be actively engaged. One of the major Millennium Development Goals (MDGs) which Nigeria aimed to achieve is the eradication of extreme poverty and hunger with the target of encouraging the proportion of people who earn less than a dollar a day to engage in skills acquisition. A lot of youth desires to learn one skill or the other but lack the resources to enroll in such programs.

Skill acquisition is the main focus of technical education programme for self-reliance and more employable motives. Omidiji and Ogwu (2019) defined skill acquisition as a systematic and sequential development of skills that promotes efficiency and effectiveness in the performance of a specified job. Skill acquisition is the process of developing capacities through all levels of education and training, occurring in formal, nonformal, and on-the-job settings, which enable individuals in all areas of the economy to be fully and productively engaged in livelihoods and to have the capacity to adapt their skills to meet the changing demands and opportunities of the economy and labour market especially in the e-world (Enang & Okute, 2019). Skill acquisition is the ability to be trained on a particular task or function and become expert in it. Some of the needed skills in business education for one to be self-reliant include communication skills, reading skills, and manipulative skills. Skill acquisition has been described by many as the recipe for eradicating extreme poverty and hunger by creating avenue for employment, thereby creating job opportunities and wealth creation. Mshelia (2019) asserted that skill acquisition in Nigeria should be perceived as a catalyst to increase the rate of economic growth, create job opportunities, reduce import of manufactured goods and decrease trade deficits that result from such import.

According to the UNESCO International Centre for TVET (UNESCO-UNEVOC, 2020), Technical and Vocational Education and Training is involved with the acquisition of skills, competencies, and knowledge for the world of work. TVET is an incredibly diverse sub-sector of education and training. It comprises formal, non-formal, and informal learning. It develops skills and knowledge from basic to advanced levels and shapes people's attitudes. It takes place across a wide range of institutional settings, including schools, public and private vocational institutes, tertiary education institutions, community projects, at home, and in the workplace in both the formal and informal economies. TVET harnesses and improves skills for innovation, working, lifelong learning, and living, as well as for a contribution to human, socio-economic, environmental, and technological aspects of development. Similarly, TVET is structured as a set of approaches to learning, both to prepare students for the world-of work, for well-being later in adult life. Additionally, TVET can contribute significantly to skills development and also to human resource strategies and policies that are targeted to serve the different needs of the national and international labor markets. In particular, as the experience of numerous countries shows, successful TVET can serve as an effective function in skills development, both traditionally and in new trades and industries. It can also build societal, group, and individual re-adjustment after catastrophe and conflicts and strengthens resilience and social capital.

Statement of Problem

The quality of education available in Nigerian institutions of higher learning has been weakened over the years. In recent years, the educational system has passed through tremendous odds, which has placed a grip of insecurity and uncertainty about the relevance of educational instruction to current market realities (Okumagbe, 2017). An aspect of the many challenges affecting institutions of learning is the steadily increasing mismatch between the needs of the society (reflected through the needs of industries) and the skills obtainable in the school system occasioned by poor quality education. Out of the segment of education that could provide remedies to the aforementioned challenges, education for sustainable development through TVET is possible. Therefore, this study investigates the impact of technical and vocational education and training (TVET) in improving E-autopreneurship among technical college graduates for the sustainable growth and development of Nigeria

Objectives of the Study

1. To find out the effectiveness of TVET programs in equipping technical college graduates with the digital skills and knowledge necessary for successful e-autopreneurship in the global economy.
2. To identify the challenges and barriers faced by technical college graduates in transitioning from traditional TVET education to e-autopreneurship in the digital landscape.
3. To identify best practices and strategies for enhancing TVET programs to better prepare graduates for e-autopreneurship and contribute to a sustainable global economy.

Research Questions

1. What is the current level of effectiveness of TVET programs in equipping technical college graduates with the digital skills and knowledge necessary for successful e-autopreneurship in the global economy?
2. What are the challenges and obstacles that technical college graduates encounter when transitioning from traditional TVET education to e-autopreneurship?
3. What are the best practices and strategies for enhancing TVET programs to prepare graduates for e-autopreneurship and promote a sustainable global economy?

Research Hypotheses

H0₁: There is no significant impact of TVET programs on the digital skills and knowledge of technical college graduates for successful e-autopreneurship.

H0₂: There is no significant challenge in transitioning from traditional TVET education to e-autopreneurship in the digital landscape.

H0₃: There is no identifiable best practices or strategies for improving TVET programs to better prepare graduates for e-autopreneurship and contribute to a sustainable global economy.

Literature Review

Technical and Vocational Education and Training (TVET)

TVET is a way to prevent social exclusion and its consequences. It can contribute to reducing international inequities through debt restructuring and financial transfers, boost national economic growth, contribute to institutional development, thereby enabling a favorable environment for growth, help to provide for basic needs and strengthen the social sector and social security, develop human capital, empower populations, and encourage social inclusion, participation, and rights-based approaches, including gender, ethnic, and age based inclusion (UNESCO-UNEVOC, 2020). It can further contribute to building livelihoods by reducing intergenerational inequities (environment) and contributing to preparing populations for disaster management and rehabilitation (reducing vulnerability to shocks at various levels), as well as achieving peacemaking and reconciliation. “TVET has played a significant role in responding to the needs of skilled workers and technical cadres of countries in the thrusts of modernization and industrialization.

Skill Acquisition Process

Skill acquisition is an integral part of all economic activities. This is because human beings are the pivots of all economic activities. For them to successfully carry out any economic function, therefore, they must learn how to acquire the necessary skills required for the activity in demand. This is also called training. Acquiring skills presupposes that there are at least two parties. On one side is a teacher (also referred to as trainer) and on the other side is a student (or trainee). The teacher/trainer is assumed to have previously acquired the skills and is now able to exhibit the skills required with relative ease and within a reasonable time limit (Padelford, 2014).

Acquiring skills may involve a series of either simple or complex steps which must be followed sequentially in order to accomplish the task demanded. For example, a furniture construction worker must follow the necessary steps leading to the production of a filing cabinet. In teaching or training a person to acquire skills, therefore, each of the steps must be demonstrated before the watch of the trainee one step at a time. At the initial stage, the trainee only watches how it is done (Romiszowski, 2009). Subsequently, the teacher/trainer would carry out each step while allowing the trainee to imitate his actions. After a series of these practices, the trainee is then allowed to do it on his own while the teacher watches and makes corrections where necessary. After this the trainee is allowed to practice the steps on his/her own several times until he/she can competently reproduce the actions with speed and accuracy. In this wise, time is a critical factor. For example, if a task takes an average period of ten minutes to accomplish, a trainee who takes 30 minutes or more to accomplish the same task may be viewed as having fewer skills or less competency even though he/she may eventually and successfully accomplish the task. (Enemali, 2010).

Benefits of Skill Acquisition in e-autopreneurship to Global Economy

The International labor Organization (ILO, 2010) has identified some key areas where skills development can boost the economy of a nation. One of the benefits as highlighted by ILO (2010) is that it empowers people to develop their full capacities and to seize employment and

social opportunities. It also raises productivity level of workers and their enterprises. Moreover, skill acquisition contributes to the enhancement of future innovation and development and encourages both domestic and foreign investment, and thus job growth, lowering unemployment and underemployment. When broadly accessible, it expands labor market opportunities and reduces social inequalities. Invariably skill acquisition leads to higher wage earnings.

Methodology

Descriptive survey research design was adopted for the study. The population for this study comprised of all technical college graduates who have completed TVET programs in their specific area of specialization. The sample for the study was drawn from multiple technical colleges within a specific region in South West Nigeria to ensure diversity. Structured questionnaire was used for data collection. Data was validated by three expert who are educators in the field of vocational and technical education. Reliability of the instruments was established by administering 20 copies of the instrument to respondents outside the study area. Cronbach Alpha reliability technique was used to establish the internal consistency of the instrument and reliability coefficient of 0.74 was obtained. The instrument was administered by the researcher with support of two research assistant. The filled questionnaire was collected on the spot by the researchers. Data was analyzed using descriptive statistics of mean and standard deviation and Chi-square to test the hypotheses. Null hypotheses with p-value that are less than or equal to 0.05 was rejected while null hypotheses with p-values that are greater than 0.05 was accepted.

Results

Hypothesis One

H₀₁: There is no significant impact of TVET programs on the digital skills and knowledge of technical college graduates for successful e-autopreneurship.

Table 1: Contingency Table

O	E	O - E	(O - E) ²	$\frac{(O - E)^2}{E}$
20	16	4	16	1
10	16	-6	-36	2.25
15	16	-1	-1	0.06
25	16	9	81	5.06
10	16	-6	36	2.25
15	14	1	1	0.07
25	14	11	121	8.64
10	14	-4	-16	1.14
10	14	4	16	1.14
10	14	4	16	1.14
17	18.4	-1.4	-196	10.65
15	18.4	-3.4	-1,156	0.062
20	18.4	1.6	2.56	0.139
15	18.4	-3.4	-1,156	0.0628
25	18.4	6.6	43.56	2.367
8	11.6	-3.6	-12.96	1.117
10	11.6	-1.6	2.56	0.220
15	11.6	3.4	11.56	0.996
10	11.6	-1.6	2.56	0.220
15	11.6	3.4	11.56	0.996
TOTAL				40.145

Degree of Freedom

$$\begin{aligned}
 DF &= (r - 1) (c - 1) \\
 &= (5 - 1) (4 - 1) \\
 &= (4) (3) \\
 &= 12
 \end{aligned}$$

12 at 0.05 level of significance = 21.026

Table 2: Summary of Chi-Square Analysis

ITEM	SA	A	D	SD	TOTAL	D.F	S.L	X ² CAL	X ² TAB	DECISION
1.	20	15	17	8	60	12	0.05	40.145	21.026	Rejected
2.	10	25	15	10	60					
3.	15	10	20	15	60					
4.	25	10	15	10	60					
5.	10	10	25	15	60					

From the summary of table above, the X² tabulated at degree of freedom of 12 using 0.05 level of significance is 21.026 which is less than X² calculated value of 40.145 therefore, the null hypothesis is rejected and concluded that there is significant impact of TVET programs on the digital skills and knowledge of technical college graduates for successful e-autopreneurship.

Hypothesis Two

H₀₂: There is no significant challenges or barriers in transitioning from traditional TVET education to e-autopreneurship in the digital landscape.

Table 3: Contingency Table

O	E	O - E	(O - E) ²	$\frac{(O - E)^2}{E}$
25	17.2	7.8	60.84	3.53
30	17.2	12.8	163.84	9.52
10	17.2	-7.2	-51.84	3.01
11	17.2	-6.2	-38.44	2.23
10	17.2	7.2	51.84	3.01
20	14.4	5.6	31.36	2.18
10	14.4	-4.4	-19.36	1.34
15	14.4	0.6	0.36	0.025
12	14.4	-2.4	-5.76	0.4
15	14.4	0.6	0.36	0.025
10	14	-4	-16	1.14
15	14	1	1	0.07
20	14	6	36	2.57
15	14	1	1	0.07
10	14	-4	16	1.14
5	14.4	-9.4	-88.36	6.136
5	14.4	-9.4	-88.36	6.136
5	14.4	-9.4	-88.36	6.136
22	14.4	7.6	57.76	4.011
25	14.4	10.6	112.36	7.803
TOTAL				60.482

Degree of Freedom

$$DF = (r - 1)(c - 1) = (5 - 1)(4 - 1) = (4)(3) = 12$$

12 at 0.05 level of significance = 21.026

Table 4: Summary of Chi-Square Analysis

	SA	A	D	SD	TOTAL	D.F	S.L	X ² CAL	X ² TAB	DECISION
6.	25	20	10	5	60	12	0.05	60.482	21.026	Rejected
7.	30	10	15	5	60					
8.	10	15	20	15	60					
9.	11	12	15	22	60					
10.	10	15	10	25	60					

The above table shows that the calculated value of 60.482 is greater than the value. The null hypothesis is rejected. From the summary of table above, the X² tabulated at degree of

freedom of 12 using 0.05 level of significance is 21.026 which is less than X^2 calculated value of 60.482. Therefore, the null hypothesis is rejected and concluded that, there are significant challenges or barriers in transitioning from traditional TVET education to e-autopreneurship in the digital landscape.

Hypothesis Three

H₀₃: There is no identifiable best practices or strategies for improving TVET programmes to better prepare graduates for e-autopreneurship and contribute to a sustainable global economy.

Table 5: Contingency Table

	E	O - E	(O - E) ²	$\frac{(O - E)^2}{E}$
10	16	-6	-36	2.25
15	16	-1	-1	0.06
20	16	4	16	1
25	16	9	81	5.06
10	16	-6	-36	2.25
20	14.4	5.6	31.36	2.18
17	14.4	2.6	6.76	0.42
10	14.4	-4.4	-19.36	1.34
5	14.4	-9.4	-88.36	6.136
20	14.4	5.6	31.36	2.18
10	14.6	-4.6	-21.16	1.49
18	14.6	3.4	11.56	0.79
15	14.6	0.4	0.16	0.010
10	14.6	-4.6	-21.16	1.49
20	14.6	5.4	29.16	1.99
20	15	5	25	1.67
10	15	-5	-25	1.67
15	5	0	0	0
20	15	5	25	1.67
10	15	-5	-25	1.67
TOTAL				35.326

Degree of Freedom

$$DF = (r - 1)(c - 1) = (5 - 1)(4 - 1) = (4)(3) = 12$$

12 at 0.05 level of significance = 21.026

Table 6: Summary of Chi-Square Analysis

	SA	A	D	SD	TOTAL	D.F	S.L	X ² CAL	X ² TAB	DECISION
11.	10	20	10	20	60					
12.	15	17	18	10	60					
13.	20	10	15	15	60	12	0.05	35.326	21.026	Rejected
14.	25	5	10	20	60					
15.	10	20	20	10	60					

The table above shows that the calculated value of 35.326 is greater than the table value 21.026. The null hypothesis is rejected. From the summary of table above, the X^2 tabulated at degree of freedom of 12 using 0.05 level of significance is 21.026 which is less than X^2 calculated value of 35.326. Therefore, the null hypothesis is rejected and concluded that there is

identifiable best practices or strategies for improving TVET programmes to better prepare graduates for e-autopreneurship and contribute to a sustainable global economy.

Implication of the study

The findings of this study will have practical implications for TVET program development and policy formulation. The results can inform curriculum changes to better align with the digital demands of e-autopreneurship, improving graduates' readiness for the global digital economy. Policymakers and educators can use the research to enhance the quality and relevance of TVET programs, ultimately contributing to a more sustainable global economy by preparing a digitally skilled workforce. Also, contribute to theoretical frameworks for enhancing TVET programs to align with the demands of the digital economy. It underscores the importance of adapting educational models to ensure graduates are well-prepared for sustainable participation in the global digital marketplace.

Conclusion

This study has shed light on the critical role of TVET in preparing technical college graduates for e-autopreneurship in a rapidly changing digital world. It has highlighted the existing gap between traditional TVET curricula and the digital skills required for sustainable global economic participation. By addressing this gap through curriculum enhancements, professional development, industry collaboration, mentorship, and policy reform, it is possible to better equip technical college graduates with the skills and knowledge necessary to thrive in e-autopreneurship. This, in turn, can contribute to a more sustainable global economy by fostering entrepreneurship and digital innovation among the workforce.

Recommendations

Based on the research findings, the following recommendations were made:

1. TVET programs and curriculum should be redesigned to incorporate digital entrepreneurship education, focusing on e-autopreneurship skills.
2. TVET instructors and educators should undergo continuous training to stay updated with the latest digital trends and technologies to effectively teach and mentor students.
3. There should be collaboration between technical colleges and industry stakeholders in order to provide students with practical exposure to e-autopreneurship, internships, and mentorship opportunities.
4. Governments should establish mentorship programs connecting technical college graduates with successful e-autopreneurs who can provide guidance and insights into the challenges and opportunities of digital entrepreneurship.
5. Policymakers should consider integrating digital entrepreneurship education into national education policies, ensuring that TVET programs align with the evolving needs of the digital economy.

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