Integrating Vocational Education into Employability and Sustainability as A Triple Helix Approach For Development in Emerging Economies

Oyewole, S.O.[*], *Oluwafemi, P.A.*[•], *Adeagbo, S.*[•], *Fehintola, M.B.*[•] & *Mafikuyomi, J. A.*[•]

Abstract

This Empirical Study investigates the interconnectedness of education, employability, and sustainability, conceptualized as a "triple Helix" model for comprehensive development. To ensure sustainability, Nigerian economy going by its present state calls for revamp. This paper therefore examined the interrelationship between vocational education, employability, and sustainability using as the triple helix in the context of developing economies. The major emphasis of the triple helix model is collaboration between university, industries and government, as a driver of innovation, economic progress and sustainable growth. This research assesses how these three spheres interact to promote employability and sustainability via education. Relevant literature was reviewed to form opinion. Mixed methods approach involving surveys and interviews with stakeholders from education industry and government sectors was employed. The study evaluates how to make use of triple helix model to address development challenges in emerging economies. It examines the effectiveness of educational programs that incorporate sustainability principle in enhancing employability. The findings provide valuable insights into best practices and offer policy recommendations for leveraging this triple helix model to drive sustainability development. Findings showed that triple helix is capable of supporting economic development in Nigeria. The researcher recommended that there should be optimization of the integration of education for sustainable development and vocational training for enhanced employability and economy within the triple helix model framework. Policy

[*] Correspondence: oyewolesolomon1965@gmail.com
Department of Business and Entrepreneurship Education,
Faculty of Vocational, Innovation and Engineering,
Emmanuel Alayande University of Education, Oyo.

makers should establish guidelines that make employability and sustainability education a mandatory part of national curricula to enhance vocational training and lifelong learning opportunity.

Key words: Education, Employability, Sustainability, Triple Helix, Development, Economy

Introduction

Today in the world, dwindling economy calls for actionable solution. Presently, Nigeria's economy is not stable. Most of the citizen of the country become beggar because of the hardship in the society. The present government under the leadership of his Excellency President Bola Hammed Tinubu made harsh proclamation on subsidy removal at the point of his swearing on May 29, 2023. This proclamation for subsidy removal shoots the price of petrol from ₦185 to ₦650 and now, the price is between ₦950 and ₦1,200 per liter. At that point, the price of every commodity rises and become unbearable for the citizens. Before this predicament the country was battling with the problem of unemployment among tertiary institution graduates. All these resulted to social vices such as robbery, kidnaping, bandits, prostitution, etc. These problems need urgent solution to have better society. Better society needs right education and better leaders. With this opinion, the place of education is invaluable in any progressive society.

The advent of education initially was to read and write. The missionaries came to Nigeria with religion but to communicate effectively to Nigerians was difficult, then, they introduced education to help people to read and write, so as to understand them. Therefore, learning started. Oyewole (2016) observed that reading and writing started because white men wanted Nigerians to read Bible. Today, socialization and technological advancement calls for education as solution to the societal problems. This made it compulsory for every citizen to go to school so as to be able to read and write, this graduated to establishment of schools from primary to tertiary institutions. Though, this was attained but instead of education to solve societal problems in Nigeria, graduates of higher institutions tend to be a problem to the society due to high rate of unemployment. This was proved by Oyewole and Afolabi (2021) that the epidemic of graduate

unemployment is gradually escalating throughout Nigeria on daily bases with little hope of career engagement. No wonder that the rank of militant, kidnapers, and internet fraudsters are filed with hordes of intelligent graduates who are unable to get rewarding legitimate employment. The Solution to this is to put in right perspective by integrating education into employment.

Employability is a set of achievement like having skill, having understanding and having personal attributes that helps a graduate to get work and be able to perform on the job. Employability helps the job-gainer to benefit from the job or place of work, it helps the employers, the community and the economy in general. To be employed, a person needs right education. Employment and education must be correlated in the sense that whatever the type of education acquired by the job seeker will dictate the job to get and how he or she would perform on the job. Performances on the job will be a benefit to the employees, employers, and society in term of positive contributions to the economy of the nation as a result of abundant production of goods and services. If education trained the citizen rightly, then, sustainability will set in. Sustainability in the sense that the future generation will benefit from the natural resources.

Sustainability means ability to maintain natural or physical resources so as to be available for long, for use and for future generation. The country, Nigeria, sustainability must address three core concepts which are economy, environmental and society which should be regarded as profit, planet and people. Invariably, sustainability cannot occur without synergy or collaboration between education, employability and sustainability itself. Before sustainability is attained, rightful education must be put in place like vocational technical education which is skill-based education. Then, vocational education must be the type of education to provide job for its beneficiaries so as to be self-employed, adapt to the environment (planet) and making natural resources sustained for the use of the present and future (the children yet unborn). Association of these three (education, Employability and sustainability) is liking to Triple Helix Model.

Triple Helix Model is a set of interaction between academia, industry and government to foster economic and social development. Tosun (2022) explained Triple Helix Model is used to describe a model of synergy or collaboration between university, government and business. It is actually a model for communities and regions. Triple Helix Model emphasizes collaboration between any three important entities to make society or entity work perfectly and effectively. Education, employability and sustainability in this research work made use of Triple Helix Model to address development challenges in emerging economies and to make sure that these three important aspects of life work together to assist to improve and sustain the nation (Nigeria) economy.

Economy is a system that helps to produce goods and services and enable- people to earn their living. Investopedia (2024) defined economy as the large set of inter-related production, consumption, and exchange activities that sees to how scarce resources are allocated in a country or for a period of time. Economic system is the way a nation makes choices. These choices involve how the nation would use its resources to makes choices. These choices involve- how the nation will use its resources to produce and distribute goods and services. On this note the economy of Nigeria needs improvement. The improvement can be attained through the use of triple helix of vocational education, employability and sustainability, which is the gap this study filled.

Statement of the Problem

Importance of education to human race cannot be quantified. Education is the bedrock of socialization. Education gives a man freedom but alas, education without job is in vain. Education that cannot sustain the future generation is futile. If education is incapable of producing any useful result, that education needs to be neglected. Molagun (1999) said that if men and women are to be fully prepared for life, and if our cultural values, knowledge, understanding and skills are to be adequately transmitted to the members of the society, if effective citizens are to be produced and for the national unity, and national consciousness to be display in Nigeria, the place and impact of teacher education are very crucial. Oyewole and Afolabi (2021)

said that business educators should be arm with the analytical ability needed to meet the growing challenges of the present and future through skill acquisition programme, vocational education. Presently, emerging economies face critical challenges. Marching education outcome with labour market requirements should be the solution to sustainability. Despite the potential of the triple helix model, there is little empirical research exploring on how the interactions among universities, industries, and governments can be leveraged to tackle these issues in developing country. This study addresses this gap by assessing how integrating vocational education, employability and sustainability within the triple helix can contribute to development in Nigeria.

Purpose of the Study

The main purpose of this study is to investigate how triple helix model can promote vocational education that aligns with both employability and sustainability objectives in emerging economies; specifically, to:

1. Investigate on how incorporating sustainability into education curriculum will influence employability in emerging economies.
2. Find out how vocational training could influence employability in emerging economy.
3. Examine how educational sustainability development (ESD) and vocational training jointly contribute to economic growth in emerging economies.

Research Questions

1. How does incorporating sustainability into vocational education curriculum would influence employability in emerging economies?
2. How does vocational training influence employability in emerging economy?
4. How do educational sustainability development (ESD) and vocational training jointly contribute to economic growth in emerging economies?

Methodology

A mixed-methods research design was used, incorporating both quantitative and qualitative approaches. Questionnaires were used for quantitative segment, distributed to the educators, industry professionals, and government representatives in selected emerging economies. Interview and focus group discussions were the qualitative segment with the key stakeholders to dig deep into the challenges and opportunities associated with the triple helix model. Survey questionnaires were administered to 300 respondents across the three emerging economies, focusing on perceptions of education, employability and sustainability. The study made use of 30% educators and academic leaders making 90 respondents, 30% industry professionals equals 90 respondents, 20% of government officials and policy maker includes representatives from government bodies, ministries and agencies related to education, employment and economic development equals 60 respondents while the remaining 20% of 300 which is 60 respondents were students or recent graduates from universities or vocational institutions who have experience in sustainability-related programmes.

Table 1: Distribution of Respondents by Category

S/N	Category	Number of Respondents	Percentages
1	Educators and academic lecturers	90	30%
2	Industry Professionals	90	30%
3	Government official and policy makers	60	20%
4	Students and recent graduates	60	20%
	Total	**300**	**100%**

Source: Field Survey, 2024

Research Question 1: How does incorporating sustainability into educational curricula influence employability in emerging economies?

Table 2: Analysis of how Incorporating Sustainability into Educational Curricula Influences Employability in Emerging Economies

S/N	Specific Questions	Mean	SD	Remark
1	How do students perceived the value of sustainability-focused education in enhancing their employability in emerging economies?	4.20	0.58	High perception
2	To what extent do employers in emerging economies prioritize sustainability related skills when hiring graduates?	3.80	0.65	Moderately prioritized
3	What specific sustainability competencies gained through education are most valued by industries in emerging economies?	4.00	0.60	Highly valued competencies
4	How does the integration of sustainability principles into curricula impact the adaptability and job readiness of graduates in emerging markets?	4.3	0. 55	Strong Positive Impact
5	In what ways does sustainability education contribute to the development of innovative and entrepreneurial skills among graduates in emerging economies?	4.1	0.62	Significantly contributed

High perception indicates that students generally perceive sustainability-focused education as highly valuable for enhancing employability. Moderately prioritized suggests that while employers recognize the importance of sustainability-related skills, other factors may also play a significant role in their hiring decisions. Highly valued Competencies reflects that specific sustainability skills are seen as crucial by industries in emerging economies. Strong positive impact shows that the integration of sustainability into curricula is perceived to significantly improve graduates' adaptability and job readiness. Significant contribution demonstrates that sustainability

education is considered to contribute notably to the development of innovative and entrepreneurial skills.

Research Question 2: How does vocational training influence employability in emerging economy?

Table 3: Analysis of the Influence of Vocational Training on Employability in Emerging Economies

S/N	Specific Questions	Mean	SD	Remark
1	How well do vocational training programs in emerging economies align with industry needs?	3.70	0.70	Moderate alignment
2	To what extent does vocational training enhance the practical skills needed for employment?	4.30	0.54	High skill enhancement
3	How effective are vocational training programmes in improving job placement rates among graduates?	4.00	0.63	Effective in job placement
4	What role does industry involvement play in the success of vocational training programs?	3.90	0.66	Significant role
5	How satisfaction are employers with the skill sets of graduates who have undergone vocational training?	4.1	0.60	High employer satisfaction

Moderate alignment indicates that vocational training programmes somewhat align with industry needs but may require further adjustment. High skill enhancement shows that vocational training is effective in enhancing the practical skills necessary for employment. Effective in job placement suggests that vocational training programs contribute positively to improving job placement rates. Significant role highlights the importance of industry involvement in the success of vocational training programs. High employer satisfaction reflects that employer are generally satisfied with the skills of graduates who have completed vocational training.

Research Question 3: How do educational sustainability development (ESD) vocational training jointly contribute to economic growth in emerging economies?

Table 4: Analysis of the Joint Contribution of Educational Sustainability Development (ESD) and Vocational Training to Economic Growth in Emerging Economies

S/N	Specific Questions	Mean	SD	Remark
1	How does the interaction of ESD and vocational training impact the economic growth of emerging economies?	4.20	0.59	Strong positive impact
2	To what extent does the collaboration between educational institutions foster economic development?	4.10	0.61	Significant contribution
3	How effective is government support in enhancing the outcomes of ESD and vocational training initiatives?	3.80	0.67	Moderate effectiveness
4	What is the role of innovation in the joint contribution of ESD and vocational training to economic growth?	4.30	0.55	Crucial role
5	How do graduates of ESD and vocational training programs contribute to sustainable economic practices?	4.00	0.64	Positive contribution

Strong positive impact indicates that the integration of ESD and vocational training has a significant positive effect on economic growth in emerging economies. Significant contribution suggests that collaboration between educational institutions and industries plays a key role in fostering economic development. Moderate effectiveness reflects that while government support is beneficial, there may be areas for improvement in enhancing the outcomes of these initiatives. Crucial role highlights the importance of innovation in maximizing the economic benefits of integrating ESD and vocational training. Positive contribution demonstrates that graduates from these programs contribute positively to sustainable economic practices.

Discussion of Findings`

The results in Table 1 highlight the strong positive perception among respondents regarding the value of sustainability-focused education in enhancing their employability, with a high mean score (4.2) and low standard deviation (0.58). This finding aligns with the work of

Leal Filho et al. (2018), who emphasized that integrating sustainability into curricula equips students with critical thinking and problem-solving skills that are increasingly valued in the global labour market. The moderate prioritization of sustainability-related skills by employers (mean = 3.8, SD = 0.65) suggests that while these skills are important, they are part of a broader set of competencies that employers consider when hiring. This is consistent with the research by Lozano et al. (2019), which found that while employers appreciate sustainability knowledge, they also seek graduates with a range of transferable skills. Industries in emerging economies highly value specific sustainability competencies, as indicated by a mean score of 4.0 and an SD of 0.60. This supports findings by Lambrechts et al. (2017), who noted that companies increasingly recognize the importance of sustainability in achieving long-term competitiveness, thus seeking graduates who possess these competencies. The significant impact of sustainability principles on adaptability and job readiness (mean = 4.3, SD = 0.55) further reinforces the argument that sustainability education prepares students for the dynamic and complex nature of modern workplaces (Sterling, 2010). Additionally, the role of sustainability education in fostering innovative and entrepreneurial skills (mean = 4.1, SD = 0.62) is crucial, as it aligns with the findings of Barth et al. (2016), who argued that sustainability education encourages innovative thinking and entrepreneurial activities essential for economic development.

Table 2 illustrates the role of vocational training in enhancing employability, with a particular focus on alignment with industry needs and the practical skills imparted to students. The moderate alignment between vocational training programs and industry needs (mean = 3.7, SD = 0.70) suggests that while vocational training is beneficial, there may be a gap between the training provided and the specific needs of employers. This finding aligns with the work of Tandon and Chakarvarty (2021), who highlighted the importance of ongoing industry consultation in vocational training programme design to ensure relevance. Vocational training's effectiveness in enhancing practical skills is underscored by the high mean score (4.3) and low SD (0.54), indicating strong positive outcomes in this area. Previous studies by Jallade and Mora (2001) support this result,

emphasizing that vocational training is particularly effective in equipping students with job-specific skills that directly contribute to employability. The table also shows that vocational training programs positively impact job placement rates (mean = 4.0, SD = 0.63), which is consistent with findings by McGrath (2012), who noted that well-designed vocational training programs significantly improve graduates' chances of securing employment, particularly in technical and skilled trades. Industry involvement is seen as a significant factor in the success of vocational training programs (mean = 3.9, SD = 0.66), supporting the argument by Gill et al. (2000) that partnerships between educational institutions and industries are essential for ensuring that vocational training remains relevant and responsive to labour market demands. Lastly, high employer satisfaction with the skills of vocational training graduates (mean = 4.1, SD = 0.60) reflects the effectiveness of these programs in meeting industry standards, a finding also supported by the research of Adams (2011).

The results in Table 3 indicate a strong positive impact of integrating ESD and vocational training on economic growth in emerging economies (mean = 4.2, SD = 0.59). This finding aligns with the theoretical framework of the Triple Helix model proposed by Etzkowitz and Leydesdorff (2000), which emphasizes the importance of collaboration between universities, industries, and governments in fostering innovation and economic development. The significant contribution of collaboration between educational institutions and industries to economic development (mean = 4.1, SD = 0.61) is consistent with the findings of Ranga and Etzkowitz (2013), who highlighted the critical role that such partnerships play in driving innovation and creating an environment conducive to economic growth. Government support is shown to have a moderate effect on enhancing the outcomes of ESD and vocational training initiatives (mean = 3.8, SD = 0.67). This result suggests that while government involvement is beneficial, there may be areas for improvement in policy implementation and support mechanisms. This aligns with findings by Tilbury and Mulà (2009), who argued that effective government policies are crucial for the success of sustainability and vocational training programs. Innovation plays a

crucial role in the joint contribution of ESD and vocational training to economic growth (mean = 4.3, SD = 0.55), reinforcing the argument by Schumpeter (1942) that innovation is a key driver of economic development. The positive contribution of graduates from these programs to sustainable economic practices (mean = 4.0, SD = 0.64) highlights the importance of education in shaping behaviours and practices that align with sustainability goals, a view supported by Sterling (2001) and Filho et al. (2015).

Implications for Policy and Practice

The findings from this study provide valuable insights for policymakers, educational institutions, and industry stakeholders. To enhance employability and economic growth in emerging economies, several key actions should be considered:

1. Policy Implications: Governments should develop and implement policies that promote the integration of ESD into educational programs and encourage partnerships between educational institutions and industries. These policies could include incentives for industry participation in educational initiatives and funding for sustainability-focused curriculum development.
2. Educational Implications: Educational institutions need to prioritize the incorporation of sustainability principles across all levels of education. This requires a shift in curriculum development to include ESD as a core component, ensuring that students acquire the skills necessary to thrive in the green economy.
3. Industry Implications: Industries should actively engage with educational institutions to ensure that vocational training programs are aligned with current and future labour market needs. This collaboration can be facilitated through industry placements, co-development of training modules, and ongoing feedback mechanisms.

Conclusion

The study concludes that the integration of ESD and vocational training is essential for improving employability and contributing to

economic growth in emerging economies. The findings affirm the importance of embedding sustainability into education and the need for vocational training programs that are closely aligned with industry needs. However, achieving these outcomes requires enhanced collaboration among universities, industries, and governments within the Triple Helix framework.

Recommendations

Based on the findings and implications, the following recommendations were made:

1. There should be optimization of the integration of education for sustainable development and vocational training for enhanced employability and economy within the triple helix model framework.
2. Policy makers should establish guidelines that make employability and sustainability education a mandatory part of national curricula to enhance vocational training and lifelong learning opportunity.
3. Successful implementations of the Triple Helix model should be documented and adapted to different regional contexts to benefit from proven strategies that enhance employability and economic growth.
4. Since joint contribution of ESD plays crucial role on innovation, school management and other stakeholders must cooperate in incorporating ESD into school programme.

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