

Revamping Technical Education Towards Pathway for Industrialization and Innovation in Ogun State, Nigeria

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Abstract

The study examined revamping technical education towards pathway for industrialization and innovation in Ogun State, Nigeria. The study involves the use of a descriptive survey research design where questionnaire was used to acquire necessary data for the research work. The population for this study consists of all students at Secondary schools in Odeda Local Government Area of Ogun State. Simple random sampling technique was utilized to select a sample of one hundred (100) from students at Secondary schools in Odeda Local Government Area of Ogun State. Four (4) research questions were raised and answered in this study. Simple percentage, mean and standard deviation statistical tools were used to analyse the gathered information. Findings revealed that, Nigeria is under -industrialized as a result of lip services being paid to technical education and for sustainable industrialization and economic development of Nigeria, technical education and training must be given its right of place. Underfunding of technical education programme at all levels has drastically affected adequate provision of reasonable workforce needed for industrialization and economic development in the country. Therefore, it is recommended that, there is need for adequate funding of technical and vocational education and training as well as setting out a workable educational policy toward skill acquisition, entrepreneurship, and industrialization.

Keywords: *Revamping, Technical Education, Industrialization, Innovation*

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Background to the Study

Sociologically, education is a process of acculturation through which people are guided and trained to develop their potentials, talents and skills necessary for their overall development and that of their societies (Ibritam & Bassey, 2013). It is indeed a major indicator of knowledge and skills development, and thus has the potential for transformation and equipping man with the cognitive and innovating abilities which position him to contribute meaningfully to the overall development of his society.

Presently, most African countries are mainly offering education in general subjects, but to achieve development, they must offer a variety of courses in disciplines such as technical, vocational, professional and agricultural education, etc. This is because every country needs a balanced distribution of manpower in all areas (Gazi, 2018), so that the vast population of Africa can contribute to economic growth by participating in more productive activities. Additionally, if people get involved in more productive activities, naturally, they will create their own opportunities for job creation. Technical education equips man with the technological capability needed to drive rapid industrialization. According to Akpakpan (2016), it is technological capability that distinguishes a strong economy from a weak one, and creates the goods and services needed for survival and growth in today's world.

The rapid industrialization of any nation is tied to the acquisition of education especially technical education. Fundamentally, technical education is a systematic way of exposing individuals to the practical training needed for developing and producing goods and services for the citizens in any country. Nigeria as a developing country has failed to achieve any meaningful industrial development because of a number of factors; principal among them is overdependence on imported goods from the developed countries. Nigeria has abundant natural resources but lacks the necessary vocational and technical knowledge and manpower to transform these resources into finished products. Therefore, acquisition of technical education is imperative to attained industrial development, for it is a type of education that involves the application of the rudiments of science and technology for industrial design, production, distribution, and services (Okoricoch & Duru, 2014).

The National Policy on Education has defined technical education as that aspect of education that leads to the acquisition of practical and applied skills as well as basic scientific knowledge (NPF, 2004). It relates to a training in which learners directly develop expertise in some techniques or technical skills. In fact, it is meant to prepare learners for careers based on manual and practical activities, and this constitutes the bedrock of sustainable development of any nation. Okoro (2013) defines technical education as post-secondary vocational training programme whose major purpose is the production of technicians. In Africa, different nations have their policies on education and have varied opinions on some aspects of education. For instance, the Nigerian National Policy on Education (2004) defines technical and vocational education as a comprehensive term referring to those aspects of the educational process that involve, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Daso (2012) sees technical

education as the formal training of persons to become technicians in different occupations. Uwaifo (2009) posits that it is the training of technically oriented personnel who are to be the initiators, facilitators and implementers of technological development of a nation. For Uwaifo, this training of its citizenry on the need to be technologically literate, would lead to self-reliance and sustainability. Technical education has a direct impact on the national economy, growth and development more than any other aspect of education.

Industrialization is the process by which an economy is transformed from a primarily agricultural one to one based on the manufacturing of goods (Nduka, 2012). Individual manual labor is often replaced by mechanized mass production, and craftsmen are replaced by assembly lines. Characteristics of industrialization include economic growth, the more efficient division of labor, and the use of technological innovation to solve problems as opposed to dependency on conditions outside of human control.

Innovation and industrial development mean the process of building up a country's capacity to process raw materials and to manufacture goods for consultation or further production (Mumo, 2017). What readily comes to mind when industrialization and innovation development is mentioned is increased manufacturing activity. Truly, industrial development is an activity that is limited to only one sector of the economy manufacturing. Industrial development is the ability of a country to manufacture equipment and gadgets that will propel massive improvement in the quality of lives of individuals in the society (Okafor, 2012).

The relationship between technical education and industrialization and innovation development is not in doubt. In fact, several scholars have attested to the fact the technical education and training has been used by several developed nations as an instrument of industrial development and economic growth (Lawal, 2013; Okoricocha & Duru, 2014).

The contributions of technical education are widespread and visible, ranging from metal work technology, mechanical/automobile technology, electrical and electronic technology, to building and woodwork technology, etc. Consequently, it can serve as a change agent not only for technical systems but also for many other societal systems. The practical nature of technical education makes it unique in content and approach thereby requiring special care and attention. The inputs of technical education are so visible that even the illiterate knows when failures occur. In many African countries, because of the impact on human resource development, productivity and economic growth, there is a gradual shift of emphasis from general education to technical education which guarantees the growth of locally based mini, micro and macro industries.

Purpose of Study

The main purpose of this research work is to examine revamping technical education towards pathway for industrialization and innovation in Ogun State, Nigeria. However, the specific objectives are to:

- i. Ascertain technical education contributions for industrialization and innovation in Ogun State

- ii. Determine the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization.
- iii. Identify the challenges facing technical education in Ogun State Nigeria.
- iv. Ascertain government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State

Research Questions

Based on the problem mentioned, the following questions are developed.

- i. What are the contributions of technical education for industrialization and innovation in Ogun State?
- ii. What are the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization?
- iii. What are the challenges facing technical education in Ogun State Nigeria?
- iv. What are the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State?

Research Method

The researcher carried out the study through descriptive survey research design. This method was taken for easy collection of data from all the groups of the population by selecting samples from the chosen population. The population for this study consists of all male and female students of Secondary schools Odeda Local Government Area of Ogun State. The sample size for the study comprised of one hundred (100) respondents from students at secondary schools in Odeda Local Government Area. For the selection of the sample, stratified sampling technique was adopted for the selection of the four (4) schools.

Simple random sample technique was used to select twenty-five (25) students from each of the four (4) selected schools to make a total number of one hundred (100) secondary school students in Odeda Local Government Abeokuta, Ogun State. The research instrument adopted was questionnaire. Questionnaire is the easier and most flexible tool for data collection because is an economical way of accumulating information which permits wide coverage and puts less pressure on the respondents. Questionnaire items were used to facilitate a reliable study. The questionnaire consists of twenty (20) open ended questions.

A draft copy of the questionnaire was given to experts for corrections, suggestions, and modification before it was finally administered to the respondents. Pearson Product Moment Correlation Coefficient (PPMCC) method of reliability was adopted to ascertain the reliability of the research instrument of twenty (20) students from secondary school, that were not a part of the sample population and the value of 0.77 was obtained which is reliable enough for this study. The method of data analysis is simple percentage, mean and standard deviation statistical tools.

Results

Research Questions

Research Question One: What are the contributions of technical education for industrialization and innovation in Ogun State?

Table 1: Showing the contributions of technical education for industrialization and innovation in Ogun State.

S/N	ITEMS	AGREED		DISAGREED		Mean (\bar{x})	S.D
		Freq (N)	Percent %	Freq (N)	Percent %		
1.	Technical education can serve as an antidote to unemployment in Nigeria if well positioned	84	84%	16	16%	3.67	.77
2.	Technical education has prepared sufficient numbers of skilled and semi-skilled workers to satisfy the needs of Nigeria's workforce	78	78%	22	22%	3.68	.77
3.	Technical and vocational programme, are more suitable than regular academic school programme in responding to the rapidly changing nature of skills and new technology	88	88%	12	12%	3.77	.78
4.	Technical education contribute immensely to economic development of Nigeria	92	92%	08	08	3.75	.76
5.	Substantial financial investment in technical education is justified considering the high employment rate of the graduates	70	70%	30	30%	3.74	.77
Overall Total		Mean (\bar{x}) = 3.79 and STD = 0.77					

Results in table1 above shows the contributions of technical education for industrialization and innovation in Ogun State. This finding indicate that technical education can serve as an antidote to unemployment in Nigeria if well positioned ($\bar{x} = 3.67$, $SD = 0.77$), technical education have prepared sufficient numbers of skilled and semi-skilled workers to satisfy the needs of Nigeria's workforce ($\bar{x} = 3.68$, $SD = 0.77$), technical and vocational programme, are more suitable than regular academic school programme in responding to the rapidly changing nature of skills and new technology ($\bar{x} = 3.77$, $SD = 0.78$), technical education contribute immensely to economic development of Nigeria ($\bar{x} = 3.75$, $SD = 0.76$) and substantial financial investment in technical education is justified considering the high employment rate of the graduates ($\bar{x} = 3.74$, $SD = 0.77$). This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.79$, $SD = 0.77$) showing the contributions of technical education for industrialization and innovation in Ogun State.

Research Question Two: What are the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization?

Table 2: Showing the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization.

S/N	ITEMS	AGREED		DISAGREED		Mean (\bar{x})	S.D
		Freq (N)	Percent %	Freq (N)	Percent %		
1.	The government is committed to restructure technical education to meet the needs of Nigeria's industrialization	82	82%	18	18%	3.75	.78
2.	The government provides a clear direction on how to initiate partnerships or collaboration between technical institution and business/industry	94	94%	06	06%	3.83	.78
3.	The technical content of technical education curriculum is based on the needs in the labour market	88	88%	12	12%	3.78	.77
4.	The structure technical education is becoming more flexible in responding to the changing labour market	96	96%	04	04%	3.74	.78
5.	Public technical institutions would achieve greater efficiency and productivity if managed, administered like businesses.	80	80%	20	20%	3.85	.79
Overall Total		Mean (\bar{x}) = 3.89 and STD = 0.78					

Results in table 2 above shows the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization. This finding indicate that government is committed to restructure technical education to meet the needs of Nigeria's industrialization ($\bar{x} = 3.75$, $SD = 0.78$), government provides a clear direction on how to initiate partnerships or collaboration between technical institution and business/industry ($\bar{x} = 3.83$, $SD = 0.78$), technical content of technical education curriculum is based on the needs in the labour market ($\bar{x} = 3.78$, $SD = 0.77$), the structure technical education is becoming more flexible in responding to the changing labour market ($\bar{x} = 3.74$, $SD = 0.78$) and public technical institutions would achieve greater efficiency and productivity if managed, administered like businesses ($\bar{x} = 3.85$, $SD = 0.79$). This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.89$, $SD = 0.78$) showing the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization.

Research Question Three: What are the challenges facing technical education in Ogun State Nigeria?

Table 3: Showing the challenges facing technical education in Ogun State Nigeria.

S/N	ITEMS	AGREED		DISAGREED		Mean (\bar{x})	S.D
		Freq (N)	Percent %	Freq (N)	Percent %		
1.	Technical and Vocational Education and Training is not well funded in Nigeria	78	78%	22	22%	3.75	.77
2.	Inadequate facilities are a main challenge facing technical education.	82	82%	18	18%	3.77	.77
3.	Inadequate emphasis on prevocational subjects at the primary and junior secondary levels is another challenge.	74	74%	26	26%	3.74	.76
4.	Poor perception of the society towards technical education contribute to failure of technical education in Nigeria	84	84%	16	16	3.91	.79
5.	Shortfalls in the recruitment of skilful teachers affect technical education	90	90%	10	10%	3.90	.79
Overall Total		Mean (\bar{x}) = 3.90 and STD = 0.79					

Results in table 3 above shows the challenges facing technical education in Ogun State Nigeria. This finding indicate that technical and vocational education and training is not well funded in Nigeria ($\bar{x} = 3.75$, $SD = 0.77$), inadequate facilities is a main challenges facing technical education($\bar{x} = 3.77$, $SD = 0.77$), inadequate emphasis on prevocational subjects at the primary and junior secondary levels is another challenge ($\bar{x} = 3.74$, $SD = 0.76$) poor perception of the society towards technical education contribute to failure of technical education in Nigeria ($\bar{x} = 3.91$, $SD = 0.79$), shortfalls in the recruitment of skilful teachers affect technical education ($\bar{x} = 3.90$, $SD = 0.79$). This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.89$, $SD = 0.79$) showing the challenges facing technical education in Ogun State Nigeria.

Research Question Four: What are the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State?

Table 4: Showing the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State

S/N	ITEMS	AGREED		DISAGREED		Mean (\bar{x})	S.D
		Freq (N)	Percent %	Freq (N)	Percent %		
1.	The government allocates sufficient funds to upgrade and expand technical and vocational programme	64	64%	36	36%	3.78	.78
2.	The government provides adequate facilities equipment. and resources to technical and vocational institutions	62	62%	38	38%	3.68	.77
3.	Input from joint public and private sector advisory committees is vital forte improvement of technical and vocational programme	74	74%	24	24%	3.79	.78
4.	The government policy is focused on expanding technical and vocational programme	84	84%	16	16	3.75	.76
5.	Exchange of technical expertise between technical and vocational institution and business/industry is beneficial for both parties	86	86%	14	14%	3.74	.78
Overall Total		Mean (\bar{x}) = 3.79 and STD = 0.78					

Results in table 4 above shows the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State. These findings indicate that government allocates sufficient funds to upgrade and expand technical and vocational programme ($\bar{x} = 3.78$, $SD = 0.78$), government provides adequate facilities equipment. and resources to technical and vocational institutions ($\bar{x} = 3.68$, $SD = 0.77$), input from joint public and private sector advisory committees is vital forte improvement of technical and vocational programme ($\bar{x} = 3.79$, $SD = 0.78$), government policy is focused on expanding technical and vocational programme ($\bar{x} = 3.79$, $SD = 0.78$) and exchange of technical expertise between technical and vocational institution and business/industry is beneficial for both parties ($\bar{x} = 3.74$, $SD = 0.78$). This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.79$, $SD = 0.78$) showing the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State.

Discussion of Findings

Results from research question 1 shows the contributions of technical education for industrialization and innovation in Ogun State. This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.79$, $SD = 0.77$) showing the contributions of technical education for industrialization and innovation in Ogun State. Results of the study revealed that technical education have prepared sufficient skilled and semi-skilled workers for

the nation's workforce; technical education responds to the changing nature of skills and new technology and contributes immensely to economic development of the nation. The results are in line with what Gazi (2008) who stated that schools should prepare and supply future workers with appropriate knowledge and skills to enhance their productivity and therefore promote economic development.

Results from research question 2 shows the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization. This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.89$, $SD = 0.78$) showing the factors that facilitate the restructuring of technical education in serving the need of Nigeria's industrialization. The findings are in line with what Shamim, Aktaruzzaman and Clement (2011) who stated that technical education systems are expected to produce a new breed of competent workforce who can compete and excel in a rapidly changing environment.

The results from research question 3 shows the challenges facing technical education in Ogun State Nigeria. This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.89$, $SD = 0.79$) showing the challenges facing technical education in Ogun State Nigeria. This finding agreed with Gazi (2018) who said that the problems facing technical education include: inadequate emphasis on prevocational subjects at the primary and junior secondary levels, inadequate facilities, shortfalls in the recruitment of teachers, low student morale, poor funding, and examination-oriented approaches to curricula implementation.

Finally, results from research question 4 show the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State. This reveals that the mean and standard deviation of the items listed above is very high ($\bar{x} = 3.79$, $SD = 0.78$) showing the government responsiveness to the needs of technical education towards the pathway for industrialization and innovation in Ogun State. Results of the study indicated that government allocates sufficient funds to upgrade and expand technical education programme provides adequate facilities. Equipment and resources to technical education institutions. The finding relates to the views of UNESCO & ILO (2012) and Nwaokolo (2011) who stated that technical education institutions should have adequate facilities. Equipment and resources and there should be exchanging of technical experts between technical institutions and industries.

Conclusion

Based on the findings, for sustainable industrialization and economic development of Nigeria, technical education and training must be given its right of place as no nation can develop without a competent workforce. Nigeria is under -industrialized because of lip services being paid to technical education. Underfunding of technical education programme at all levels has drastically affected adequate provision of reasonable workforce needed for industrialization and economic development in the country. Hence, the presence of foreign experts who are paid in high currencies which is detrimental to nation's economic growth.

Recommendations

Based on the findings of this study, the following recommendations are hereby presented:

1. There is need for adequate funding of technical and vocational education and training as well as setting out a workable educational policy toward skill acquisition, entrepreneurship and industrialization.
2. Vocational education should be accorded a separate legal recognition for its role in national development instead of being covered under the umbrella of science and technology.
3. There should be exchange of technical expertise between institutions and industry
4. There should be technical and vocational education board in every state of the federation for proper administration of technical education programme.
5. The government should reintroduce the federal government sponsored Technical Teacher Training Programme (TTTP).
6. There should be adequate funding of technical programme by the government at all levels
7. There should be public private partnership for an effective co-ordination and management of technical education programme in the country.
8. Vocational education teacher training institutions should be redesigned for competency-based teacher training involving the use of information communication technology.
9. Government should do everything within its power to ensure steady power supply in the country or provide appropriate standby generators to all vocational education programmes for the operation of machines and tools involved in skills acquisition.

References

- Akpakpan, E. B. (2016). *Developing technological capability for a virile economy: A way forward for Nigeria*, In Proceedings of the Nigerian Economic Society Annual Conference on Beyond Adjustment: *Management of the Nigerian Economy*. Ibadan: NES.
- Aliyu, F. & Dabban, H. (2009). Innovating science education for technical entrepreneurship, *The Curriculum Dimension. J. Bus. Entrepr.* 2(2).
- Daso, P. O. (2012). Vocational and technical education in Nigeria: Issues, problems and prospects dimensions, *Journal of Educational and Social Research*, 2 (9).
- Gazi, M. A. (2008). The role of technical and vocational education in the national development of Bangladesh, *Research and Evaluation Division, BRAC*, Dhaka, Bangladesh.
- Gazi, M. A. (2018). The role of technical and vocational education in the national development of Bangladesh, *Research and Evaluation Division, BRAC*, Dhaka, Bangladesh.

- Ibritam, K. S. & Bassey, I. B. (2013). *The development of vocational and technical education in Nigeria in Introduction to Vocational and Technical Education*. Etuk, L. A. (Ed.) Uyo: Dorand Publishers
- Lawal, A.W. (2013). Technical and vocational education, a Toor for national development in Nigeria, *Mediterranean Journal of Social Sciences*. 4(8):85-89
- Mumo, N. (2017). Africa's industrialization debate: A critical analysis. *The Journal of Language, Technology & Entrepreneurship in Africa*, 2.(1).
- Nduka, O. (2012). *Western education and the Nigerian cultural background*. Ibadan: University Press Limited.
- NPF (2004). *National Policy on education*. Lagos: Federal Ministry of Education, Nigeria.
- Nwaokolo. P. O. (2011). Redirecting technical education to meet the manpower needs of Nigeria, *National Association for the Advancement of Knowledge*, 9(6) 65-70.
- Okafor, E. E. (2012). *Corruption and implications for industrial development in Nigeria*, NASA Conference Proceedings. 138-147
- Okoricocha, C. N. & Duru, F. C. (2014). Technical vocational education and training for industrial development and economic growth, *International Journal of Innovative Education Research*. 2(1):37-44
- Okoro O. M. (2013). *Principles and methods in vocational and technical education*, Nsukka: University Trust Publication.
- Shamin. R. H., Aktamzzaman. M, & Clement. C. K. (2011). Factors influencing use of ICT in technical & vocational education to make teaching. learning effective & efficient; Case study of polytechnic institutions in Bangladesh, *International Journal of Basic & Applied Sciences*. II (3), 164-170
- UNESCO & ILO (2012) *Tee/mica/ and vocational education and training for the twenty first century*, Recommendations parts; UNESCO.
- Uwaifo, V. O. (2009). Technical education and its challenges in Nigeria in the 21st century. *International NGO Journal*, 5(2).