ALTERNATIVE FUNDING STRATEGIES FOR REPOSITIONING TECHNOLOGY EDUCATION FOR SUSTAINABLE SKILL DEVELOPMENT AND ECONOMIC DEVELOPMENT IN SOUTH-EAST STATES OF NIGERIA

[*1]Mbah, Chidozie Onyekachukwu,
[1] Department of Automobile Technology Education, Fed. College of Education Umunze

[2]Nnadi, K. J., [3]Nwachukwu, C. C.
[2&3]Department of Building Technology Education, Fed. College of Education (Tech.),Umunze.

[4]Prof. C.E. Onoh
[4]Department of Technology and Vocational Education, Enugu State University, Enugu doziembah@yahoo.com

Abstract
Funding tertiary education in Nigeria has been a challenge bedeviling the quality of education offered in this country. It seems that the government can no longer fund technology education adequately to provide the desired skills development training needed for sustainable economic development. The study focused on determining the alternative funding strategies for repositioning technology education for sustainable skills development and economic development in South-East Nigeria. Two research questions guided the study and two null hypotheses that were tested at 0.05 level of significance. Survey research design was adopted. The area covered was the five states in the South East. The population of the study was 112 respondents (lecturers of technical education in tertiary institutions in South East). Structured questionnaire with 20 items which was validated by three experts was used for data collection. The reliability of the instrument was determined with the measure of internal consistency method and the analysis of data with Cronbach Alpha reliability yielded a reliability coefficient of 0.86.Mean and standard deviation was used to answer the research questions while t-test was used to test the null hypotheses. Findings showed that the respondents agreed with all the alternative funding strategies listed. There was no significant difference between the mean rating of the respondents in federal and state tertiary institutions on the alternative funding strategies. Based on the findings conclusion was made and it was recommended that institution management should restructure technology education workshops to a mini industry in order to generate funds, technology education lecturers should attract grants and patronage for research and innovations while government should encourage non-governmental organisations to support technology education through monetary and non-monetary interventions among others.

Key words: Technology education, funding, alternative funding strategies, skill development, economic development.

Introduction

Technology education is designed to equip recipients with appropriate knowledge, saleable and manipulative skills as well as desirable work attitude for gainful employment. Technology education, according to Mbah (2016) is designed to prepare individuals to acquire skills for an occupation, trade or job. Nwankwo, Obeta and Nwangbo (2013) opined that technology education has been a major part of national development in many developed nations because of its positive effect on national industrial productivity and economic growth. It is connected with the practical use of machinery and scientific principles in performing specific engineering and technological jobs. It is offered as a vocational education programme. Vocational technology education, according to Alegbemi (2010), provides the recipients with skills, knowledge and attitude necessary for effective employment in specific occupations. Technology education assumes that a choice of an occupation has been made and that appropriate and specific training is needed to enable the individual enter or advance in the chosen occupation. The graduates of this programme are seen as technical educators or technologists who can be self-employed by using their head, heart and hand to respond to the needs of the society. Technology education is not genders sensitive as both gender are trained on the skills in the programme.

Technology education is offered in public tertiary institutions with options in automobile/mechanical technology, Building/ Woodwork technology and electrical/electronics technology programme. Each of these areas provides specialized skill area for students to acquire for economic development. Skills development in technology education programme is faced with lack of equipment, human resources and other facilities for its training as a result of poor funding. This condition has affected the industrialization of the South-East as the quality skills required are not available. South-East is one of the six geo-political Zones in Nigeria with five States and viable industrial and technological development activities that call for quality skills development. The zone has states and federal tertiary institutions offering technology education to students in universities and colleges of education.

Funding of technology education programmes in the Zone is imperative due to its place in the technological, economic and sustainable industrial skill development. It is also needed because of the cost involved in the purchase of facilities, running the programme and skills development activities. According to Okeke (2015) poor funding of vocational technology education has affected the quality of skilled human resource for Nigeria technological development. Nwangwu (2005) in Femade, Omiyale and Adebola (2015) stated that the foundation of education is weak when education is not well funded and the products of such foundation are illiterate intellectuals. As the problem of funding has become a challenge where skill requirements have become more complex, it becomes necessary that alternative funding be sourced to augment the public (government) funding for effective skills development in public tertiary institutions.

The demand of technology education and its skill development programme are becoming high because of current technological innovation, human capital development and economic development. Udoh (2008) opined that Nigeria as a developing nation is witnessing increased number of tertiary institution students, which demand corresponding increase in funding for quality training. Funds allocation to institutions does not increase to meet the demands of funds occasioned by the enrolment increase, and quality skills development activities. Public tertiary institutions in Nigeria have witness reduction in the budget allocation in the last three years and this is having a serious impact on the technology education skill development. This has affected the quality of skill development programmes and consequently, the economic development of the recipients after graduation. Underfunding of education has become persistent in Nigeria as the funds released cannot meet the wage bill, facility demand and growth in education. Inadequate funding deters growth in tertiary institution and also reduces the quality of training given to students. Ekundayo (2008) posited that most of the capital projects being undertaken to meet the increasing number of students have been abandoned due to lack of funds. Experience of the past years has shown that government can no longer shoulder the entire financial responsibility for the development of education. As a result of this, efforts have to be made to better utilize available resources by removing existing inefficiencies, applying stricter accountability, improving organizational structure, boosting institution internally generated revenue and proper application of information technology. It is necessary to identify alternative funding strategies that would effectively reposition skill development in technology education programme. This will enable the programme to remain flexible with the ability to adapt to the skills needs and changing social, economic, technological and human resources needs in the contemporary situation.

Economic development and development of any nation is dependent on the human infrastructure and their mind-set. Economic development is the act or process of gaining a sustainable economic activity that would promote growth and development. According to Hornby (2006) economic development is to renew growth after a slump economy. To achieve economic development, education and skill development must be given its place for sustainability. Hence the need to seek alternative funding strategies apart from school fees and government subventions to meet the challenges of proving quality training.

The challenges facing policy makers and administrators are to introduce new and different ways for funding technology education programme for sustainable skills development and economic development. This is imperative as government funding is no longer sustaining the needs for quality training in technology education, workshop practical and other activities aimed at equipping the students adequately. Alternative strategies could be planned actions or techniques used in doing something or accomplishing a goal. Alternative funding strategies like the institution funding strategies and non-governmental organizations strategies need to be adopted to

augment the government funding and improve the quality of training. According to Okeke (2015) institutions can develop special revenue generating system that would sustain the financial needs of the institution with proper management. The technology education workshop may be structured to undertake research, projects, manufacture and maintain technological products (within and outside the institution) that can generate money for the school and boost the functionality of the workshop and other skill development activities. The institution could still generate more funds through renting of equipment, maintaining the school machines, organizing in-service training programmes, printing of textbooks and practical manuals among other activities. These would guarantee a viable skills development programme that will make the school workshop a replica of the work environment outside the school.

Furthermore, non-governmental organizations (NGOs) have a role to play in ensuring that technology educational programmes are properly funded. The involvement of NGOs in vocational training is pertinent in developing economy like Nigeria as more than 60% of graduates of the programme are employed in private enterprises or even become self-employed. According to Bolina (1996), NGOs and voluntary organization have a role to play in up-lifting the poor or weaker sections of the society like vocational skills development, general education and health education. They may be encouraged to partner in technological skill development of students through vocational technology programmes in institutions of learning in Nigeria. Also, members of the society and the NGOs need to understand that technology education programme may be sponsored through non-monetary contributions in the form of equipment and improving the learning facilities for effective skills development of the students. With diversification of funding mechanisms in technology education, enormous resource would be generated for creating functional skill development for economic development. It is a concern that the resuscitation, recovery or revitalization of the economy is dependent on the human capacity development that will respond to labour market demand. Against this background, it became necessary to determine the alternative finding strategies for repositioning technology education for the sustainable skills development and economic development in the South- East and Nigeria in general.

Statement of the Problem

Higher education programmes in Nigeria have been criticized for poor quality, inefficiency and ineffectiveness as a result of poor management, inadequate funding and politicizing of education issues. The pressure on inadequate resources and funding has led to a decline on the number of staff, staff welfare package and remuneration as well as unconducive working environment. This situation has contributed to low quality graduates who do not possess the requisite skills to job performance in the labour market. This skill gap in graduates performance could be attributed to complexity in technological development, innovations and scientific breakthrough as most institutions cannot afford the required contemporary facilities for skill development. This has created a skill mismatch and affected the

technological and economic situations in the country as the students are not properly trained on the needed skills for successful living. The researchers wonder why most of the higher institutions (public) depend on school fees and government subventions to run the institution. This situation is crippling the higher education in Nigeria.

This situation needs to be checked by identifying alternative funding strategies for repositioning skill development programmes in technology education in South-East Nigeria. There is need to identify institutions alternative strategies for funding technology education for quality skill development for sustainable economic development. Higher institutions need to explore alternative means of funding and become less dependent on government allocation. Neglecting this approach might lead to total collapse of technology education and skill development public institutions in the country. The stakeholders in education which include school management, parents, guardians, general public, non-governmental agencies, private sector developers and international partners need to contribute in ensuring that technology education programmes in higher institutions are properly funded. Based on the foregoing, the study sought to determine the alternative funding strategies for repositioning technology education for sustainable skills development and economic development in South-East States of Nigeria.

Purpose of the Study

The main purpose of the study was to determine the alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria. Specifically, the study sought to determine;

1. The institution alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria.
2. The non-governmental organization alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria.

Research Questions

The study was guided by the following research questions:

1. What are the institution alternative funding strategies for repositioning technology education for sustainable skill development and economic development South-East States of Nigeria?
2. What are the non-governmental organization alternative funding strategies for repositioning technology education for sustainable development and economic development South-East States of Nigeria?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. Significant difference does not exist on the mean responses of technical educators in Federal and State institutions on the institution funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria.
2. Significant difference does not exist on the mean responses of technical educators in the Federal and State institutions on the non-governmental organization funding strategies for repositioning technology for skill development and economic development in South-East States of Nigeria.

Method

This study adopted a survey research design. According to Nworgu (2015) survey research design is one in which a group of people or items are studied by collecting and analyzing data from only a few of them the entire group. This design was adopted due to the instrument used and the wide distribution of the respondents. The population comprised 112 technology education lecturers in six (three State owned tertiary institutions and three Federal owned tertiary) institutions in three purposively sampled States out of the five States in South-East. The population comprised 40 technology education lecturers in State owned tertiary institutions and 72 technology education lecturers in Federal owned tertiary institutions (Source; Field survey July, 2017). The number was manageable and as such, there was no further sampling.

The data collection was carried out using 20 item questionnaire developed by the researchers from literature review. The instrument was structured in four point response scales of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with numerical values of 4, 3, 2, and1respectively. The instrument was validated by three experts from the Department of Technology and Vocational Education, Enugu State University of Science and Technology, Enugu. Their corrections and suggestions were used to produce the final instrument. The instrument was trial tested using 15 technical education lecturers in Delta State who were not part of the population of the study. The reliability coefficient yielded 0.86 using Crombach Alpha method. This is in-line with Uzoagulu (2011) that reliability index of 0.80 to 1 shows that the instrument is highly reliable.

Four research assistants were used in the administration of the questionnaire and out of 112 copies distributed 104 copies were returned giving 92.86% return rate. Weighted means and standard deviations were used to answer the research questions. Decisions were made using the lower and upper limits of the real numbers 1 to 4 on a four point scale as follows:

Strongly Agree (SA)	-	3.50- 4.00
Agree (A)	-	2.50– 3.49
Disagree (D)	-	1.50 – 2.49
Strongly Disagree (SD)	-	0.50 – 1.49

The standard deviation was used to determine the homogeneity or otherwise of the opinions of the respondents. The t – test statistics of no significance difference was used to test the null hypotheses. The t- calculated was compared with the t- table value at .05 level of significance and at appropriate degree of freedom. The null hypothesis was not rejected where the calculated t-value was less than the t-table value at appropriate degree of freedom; otherwise the null hypothesis was rejected.

Results

The results of the study obtained were presented in Tables based on the research questions and hypotheses that guided the study (see table 1-4).

Research Question 1

What are the institution alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria?

Table 1

Mean and standard deviation of the respondents opinion on the institution alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria

S/N	**Institution alternative funding strategies**		**SD**	**Remarks**
1.	Establishing technological development fee to fund technology related courses.	3.12	0.71	Agree
2.	Repositioning technology education workshops to a medium scale manufacturing industrial workshop.	3.24	0.73	Agree
3.	Encouraging exhibition of students projects to attract patronage	3.45	0.61	Agree
4.	Establishing bookshop to generate money from the sale of practical manuals/work book.	3.48	0.64	Agree
5.	Renting technological equipment to interested people.	3.10	0.79	Agree
6.	Developing a special trust fund for improving individual programmes in institution.	3.34	0.71	Agree
7.	Establishing short term training programme on skills development with the aim of raising more money for the school.	3.32	0.73	Agree
8.	Allocating more funds to technology education programme from the central account.	3.38	0.70	Agree
9.	Publicizing technological innovations in technical education to attract grants.	3.19	0.68	Agree
10.	Adopting market oriented approaches in delivering essential services to institution and it‘s environ.	3.25	0.78	Agree
11.	Restructuring technology education workshop management for improved performance.	3.51	0.52	Strongly Agree
	Cluster Mean	**3.31**		**Agree**

Data in Table I indicates that item 10 out of the 11 items have mean rating ranging from 3.10 to 3.45 which means that the respondents agreed that they are suitable institution alternative funding strategies for repositioning technology education. The last item has a mean rating of 3.51 showing that the respondents strongly with. The cluster mean of 3.31 shows that the respondents unanimously agreed with the strategies for the purpose of repositioning technology education for repositioning technology education for sustainable skill development and economic development in South-East Nigria. The standard deviations for all the items are within the same range showing that the respondents were homogeneous in their rating.

Research Question 2

What are the non-governmental organizations alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria?

Table 2

Mean with standard deviation of the respondents opinion on the non-governmental organizations alternative funding strategies for repositioning technology education for sustainable skill development and economic development in South-East States of Nigeria

S/N	Non-governmental organizations alternative funding strategies	SD	Remarks
12	Non-governmental organisations can contribute through the provision of equipment as non-monetary items.	3.37	0.67	Agree
13	They should undertake building of infrastructural facilities	3.26	0.86	Agree
14	Sponsoring retraining of technology education teachers through their intervention programme packages.	3.51	0.70	Strongly Agree
15	Employing industrial experts to assist in skill development of the students.	3.64	0.62	Strongly Agree
16	Through payment of education tax.	3.31	0.76	Agree
17	Through effective partnership with institution on the provision of infrastructure for skills development.	3.22	0.84	Agree
18	Extending philanthropic accountable gestures to higher institutions.	3.39	0.56	Agree
19	Through voluntary contributions by individuals or groups.	3.39	0.68	Agree
20	Contributions from alumni of the institution	3.15	0.81	Agree
	Cluster Mean	**3.36**		**Agree**

Results from Table 3 indicate that item 14 and 15 have means of 3.51 and 3.64 which implies that the respondents strongly agreed to the items as the non-governmental organizations funding strategies for repositioning technology education. The other six items with mean ratings ranging from 3.15 to 3.39 shows that the respondents agreed that the items are the non-governmental organizations alternative funding strategies for repositioning technology education for sustainable skill and economic development. The standard deviation for all the items are within the same range indicating that the respondents have consensus in opinions.

Hypothesis 1
Significant difference does not exist on the mean responses of technical educators in the federal and State public institutions on the institution funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria.

Table 3
Summary of t- test comparison of the opinions technical educators in the federal and State public institutions on the institution funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria.

Variable		SD	N	df	t-cal	t-table	Decision
Federal	3.35	0.70	67	102	0.654	1.98	NS
State	3.24	0.66	37				

t-cal. (0.654) < t- table (1.98) Not significant (NS)

The result in Table 2 reveal that t- calculated of 0.654 is less than the t-tabulated of 1.98 at 0.05 level of significance and 102 degree of freedom. Hence there is no significant difference between the mean rating of the technical educators in federal and state institutions in South- East states with respect to institution alternative funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria.

Hypothesis 2
Significant difference does not exist on the mean responses of federal and State technical educators on the non-governmental organizations alternative funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria

Table 4
Summary of the t- test comparison of the opinions technical educators in the federal and State public institutions on the non-governmental organizations alternative funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria

Variable		SD	N	df	t-cal	t-table	Decision
Federal	3.39	0.71	67	102	0.40	1.96	NS
State	3.32	0.72	37				

t-cal. (0.40) < t- table (1.96) Not significant (NS)

The result in Table 4 reveal that t- calculated of 0.404 is less than the t-tabulated of 1.98 at 0.05 level of significance and 102 degree of freedom. Hence there is no significant difference between the mean rating of the technical educators in federal and state institutions in South- East states on the non-governmental organizations alternative funding strategies for repositioning of technology education for sustainable skill development and economic development in South-East States of Nigeria.

Discussion of Findings

The result of the study showed that the respondents agreed with the listed items on institution alternative funding strategies for repositioning technology education programmes in tertiary institutions in South East Nigeria. Some of the items include Establishing technological development fee to fund technology related courses, repositioning technology education workshops to a medium scale manufacturing industrial workshop, encouraging exhibition of students projects to attract patronage, restructuring technology education workshop management for improved performance, encouraging exhibition of students projects to attract patronage among others. The findings of the research question agrees with the submission of Okeke (2012) that institution can overcome the funding challenges through the exhibition and selling of students project works and publishing research findings to attract grants and patronage from public and private investors. Okeke opined that apart from school fees, institution can build collaboration with private sectors in funding their skill development programme which they will benefit from. The findings of the study are also in-line with assertion of Famade, Omiyale and Adebola (2015) that the benefactors (students and employers of labour) should contribute towards the funding of institutions of learning. This could be in form of caution fees (against the possibility of damage to school properties), development fees for skill acquisition, admission fees, registration and examination fees. The identified alternative funding strategies could be used to remove the financial constraints of institutions in providing quality technology education to the people as the nation economic situation needs more skill oriented and competent individuals.

Furthermore, the result of the study showed that the respondents agreed with the listed items on non-governmental organizations alternation funding strategies for repositioning technology for skill development and economic development. Among the identified alternative strategies under this research question include; through payment of education tax, Non-governmental organizations should provide non-monetary items for teaching technology education programme, sponsoring technology education through their intervention programme packages, extending philanthropic gestures to higher institutions and contributions from alumni of the institution. The findings of the study were in agreement with Udeoye (2013) that effort should be geared towards accepting equipment and other teaching aids from non-governmental bodies. Udeoye further noted that parental/community involvement, interventions from alumni association and international organizations likes Ford Foundation of New York, World Bank and the European Union could be properly utilized to improve the funding of technology education for quality skill development. Parental involvement in tertiary education should be made more vibrant and result oriented especially in the area of relevant projects, decision about fees outside the tuition fees and provision of facilities. The finding also agreed with Famade, Omiyale and Adebola (2015) that external support in form of technical assistance, grants, credits, and loans could be used to fund education. The non-governmental organisations should be encouraged to support technology education through non-monetary and monetary means in order to boost the quality of skill development through technology education for sustainable economic development.

The finding according to the variables showed that there is no significant difference between the mean rating of technical educators in Federal and State institutions on the institution alternative funding strategies for repositioning technology education for skill development and economic development. -This means that Federal and State institutions lecturers share the same view towards the institution alternative funding strategies.

Moreover the finding on the two variables showed that there is no significant difference in the responses of technical educator in Federal and State institutions on the non-governmental organizations alternative funding strategies for repositioning technology education programme. This implies that Federal and State institutions can utilize the identified non-governmental organization alternative strategies to reposition technical education programme for sustainable skill development and economic development.

Conclusion

Alternative funding of technology education programme in tertiary institutions needs to be devised. This could be done through proper management of available funds, design of institution alternative strategies of funds sourcing and involvement of non-governmental organizations and international bodies for promoting education. Parent/community involvement and alumni associations could be stimulated and relied upon to generate substantial fund or non-monetary facilities to boost skill

development of the institutions. Since government's funds can no longer sustain educational institutions, efforts must be made to diversify funding sources to encourage quality training in Nigerian tertiary institutions. It is pertinent to note that if the identified strategies are properly utilized, it will enhance the revenue base of the institutions, promote research and innovations and reduce the over dependence on the government. It is the submission of the researchers that funding of technology education should be improved through the alternative strategies identified in order to reposition it in meeting the contemporary skills needed for economic development.

Recommendations

Based on the findings of the study, the following recommendations were made;

1. Technology education workshop should be restructured to a mini industry by the institution administrators and technical educators in order to generate fund to technology education programmes.
2. Institution administrators and technical educators should make research and innovations to attract grants and patronage to the institutions
3. Non-governmental organisation should be encouraged to support technology education programmes through monetary and non-monetary interventions.
4. Alumni associations should be encourage to assist the institutions in facilities provision and donations to reduce the funding challenges faced by institutions

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