

# Innovative Management of Technical and Vocational Education for Attainment of Sustainable Development Goals in Technical Schools in Rivers State

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## ABSTRACT

The study investigated the innovative ways that technical and vocational education can be managed for the attainment of Sustainable Development Goals (SDGs) in technical schools in Rivers State. The study adopted a descriptive survey design. Three (3) research questions and three (3) hypotheses guided the study. The population of the study consisted of 5000 students from 4 Government Technical and Vocational Schools in Rivers State. Stratified random sampling technique was used to select a sample size of 500 out of 5000 students. A Self – structured questionnaire titled “Innovative Management of Technical and vocational Education Students Questionnaire (IMTVESQ)” was used to elicit responses from the respondents. Cronbach Alpha method was used to establish a reliability index of 0.78. Mean, standard deviation and rank order were used to answer research questions while Z-test was used to test the hypotheses at a significance level of 0.05. The findings of the study revealed among others; that the contributions of technical and vocational education towards the attainment of Sustainable Development Goals (SDGs) in technical schools in Rivers State include: promotion of skill development, employment generation, provision of training and capacity building for teachers, poverty reduction in the society through food production and improved standard of living, raising employers of labour, instead of job seekers etc. It was concluded that the provision of quality education and adequate funding according to reasonable percentage suggested by UNESCO from the total budget, expected to serve as impetus for technical and vocational education teachers/ lecturers towards becoming more productive in the attainment of Sustainable Development Goals (SDGs) in Rivers State’s technical schools. It was recommended that Government should evolve more policy directive and implement the existing ones to the later for the needed change. Non-Governmental Organizations (NGOs) should also be more involved, investing maximum resources in the educational system; in order to encourage skill development and entrepreneurship spirit among youths, and to improve motivational strategies among teachers/ lecturers in technical schools in Rivers State.

**Keywords:** Innovative management, Innovative education, Technical & Vocational Education (TVE), Sustainable Development Goals

## INTRODUCTION

Education is the principal instrument designed to promote all- round development of the society through skill development, empowerment generation, poverty reduction and revenue generation. The happiness of any contemporary society depends on how the output of educational system can transform an individual to be an employer of labour and not a job seeker. All these and more directly promotes the attainment of sustainable development goals among which include poverty reduction, zero hunger; quality education, decent work and economic growth; industry, innovation and infrastructure; sustainable cities and communities; among others. To ensure the objectives of the above are achieved, there is need for constant innovative practices in our Technical and Vocational Education system with the intent to promote positive changes and network of creative thinking. With these innovations, our technical and vocational education

can compete favourably at the international education system. Similarly, Career and Technical Education (CTE) as cited in Zite and Okwelle (2018) reveals that Technical and Vocational Education (TVE) is the planned programme of course and learning experience that begins with exploration of career options, supports basic academic and life skills, and enables the achievement of high academic standards, leadership preparation for industries and continuing education. The above assertion agrees with one of the goals of technical and vocational education which is to provide training and impart necessary skills for an individual to be productive and competitive oriented for the purpose of self-reliance and self-employment (National Policy Education, 2014). Innovative management of technical and vocational education seek to imbibe in the students with the spirit of entrepreneurship towards wealth creation and poverty reduction.

At the tertiary level of education, the quest for vocational skills has necessitated the establishment of Technical and Entrepreneurship Centre (TEC) with comprehensive and articulated curriculum model designed to sustain the vocational skills developed at the secondary school level. Okebukola (2011) acknowledges that the vision of the Technical and Entrepreneurship Centre (TEC) is to develop graduates of tertiary education to be highly competitive, production oriented in vocational skills and capable of generating employment opportunities, encourage food production and improve standard of living which are core mandates of sustainable development goals. Okebukola furthermore reveals that vocational skills in photography, interior and exterior decorations, fashion designing and fashion accessories; adire and textiles, block paste making; soap and detergent production; computer assembly/repair and GSM engineering; portable water and bread production; fish and meat production and packaging; season vegetable and juice production will equip the youths to wave out the social consequences associated with unemployment. All these when introduced and inculcated into the TVE system will yield more fruit which will extend into the tertiary level. Atep, Itough, Ewe & Ubleble (2017) submit that graduates with vocational skills and well-articulated plan can explore greater opportunities in Agricultural Education, Home Economics Education, Business Education Trade, Natural Sciences, Fine & Applied Art, Medicine, Engineering, and Fisheries & Aquaculture for self-production and sustainable societal development. Holistically, the federal Government acknowledged the significance of vocational skills with the establishment of a presidential committee on Entrepreneurship Education through Federal Ministry of Education by 2006. Their terms of reference include:

- developing a comprehensive Action Plan on formation of Technical and Entrepreneurship Education Centres in all tertiary institutions;
- creating awareness for all stakeholders;
- curriculum development;
- developing local teaching materials and case studies;
- developing strategies towards establishment of Technical and Entrepreneurship Study Centres (TESCs) and guidelines for operation of the centres;
- encouraging the development of National Clubs and events for the growth of an entrepreneurial culture in the country;
- seeking collaboration of development partners in bringing world best practices to the programme, among others (Uwani, 2010 & Okebukola, 2011), among others.

It is however imperative to note that with innovative management of TVE in secondary and up to the tertiary levels of education, students will be equipped with necessary skills capable of transforming the society to be highly competitive and production oriented.

### **The concept of innovative management**

Innovation connotes new ideas, knowledge, methods, principles, techniques and designs that will promote marketable policies and programmes in educational system. Chuu-Uzomah and Anya (2017) submit that a system that needs to survive the vagaries of existence must be ready to adjust and step up to the tide of

development and advancement. Pirus (2010) however defines innovation in education as a new idea or invention that arises and has future that promotes progressive and creative development in education. It is also a source of motivation for self and overall development. No system therefore exists in isolation especially with the new trend of globalisation and knowledge-driven economy.

Innovative management in education is the process of identification, planning, co-ordination and implementation of innovations in the education sector. Innovation in education therefore refers to the positive changes that occur in educational system for the purpose of improvement and achievement of pre-determined goals. With innovation in education, objectives are altered, updated and adopted to meet up with the world's best practices.

Halyna, Oksana & Lesia (2018) revealed the different areas of educational innovations to include:

**Pedagogical innovation:** It is the change of style in teaching and organization of the educational process. It further includes the introduction of innovative models that turn the education character into its essence. It further refers to the nature of the interaction of the teacher with the students and their position in the learning process and effective organization of the educational process using modern information and communication technologies et cetera;

**Methodological innovation:** It is the process that deals with updating the content of educational programmes in accordance with local and international best practices. With methodological innovations, new courses are introduced, modern content of teaching materials (new textbooks, program, scientific) are created.

**Scientific and Technological innovation:** This is the use of new and improved scientific technological applications such as distance education or online learning like WhatsApp, Zoom, Teams; Internet technology, project technology, etc, in providing students and teachers with access to electronic libraries; creating ACS of educational process and Secondary Education Information System(SEIS), lectures and so on. With all these, learning is made easier and teachers can teach from the comfort of their offices or homes and learners can attend their lectures from anywhere. The learners can also save their lectures or practical work for listening and viewing at a later date.

With innovation in education, teachers and students become more proactive, and highly competitive towards self- development. The teachers become more productive, and the job becomes easier and more interesting; and the students find learning more interesting, which results to their becoming more skilful, productive and versatile. When education is innovative, the content, methods, goals and policies, become more comprehensive, deliberate and healthy, thereby creating and initiating positive changes and desirable improvement in goal achievement on educational experiences of the people and society (Nigerem, 2016).

### **Technical and Vocational Education (TVE)**

Technical and Vocational Education is the educational system that equips an individual with technical and vocational skills for gainful employment towards meeting productive demands of the 21st century. Seyi (2014), Muhammad & Fatima (2016) defined technical and vocational education as the educational system that deals with acquisition and application of practical knowledge and skills in productive activities in order to become self-reliant and reduce unemployment and poverty within the society. Azalahu, Ngozi, Jane & Grace (2013), Muhammad & Fatima (2016), see Technical and Vocational Education as:

- An integral part of general education
- A means of preparing for occupational fields and for effective participation in field work
- An aspect of life-long learning and a preparation for responsible leadership.

- An instrument for promoting environmentally sound sustainable development, and
- A method for facilitating poverty alleviation and employment generation (p.56).

Technical and Vocational Education promote professional skills with active preparation, participation and engagement of life- long learning process to produce responsible leaders equipped with the skills to generate employment opportunities and improve the standard of living. Osaat (2016) defined Technical and Vocational Education as the educational system that is built on basic practical skills, attitude and application of scientific knowledge to improve the standard of living which necessitated an individual to be self-sufficient and self-reliant. Therefore, introduction of management strategies such as provision of leadership skills, resources and development of curriculum as well as co-ordination of resources serve as innovation to sustain the quality of secondary education which engage and prepare students to be equipped with practical skills which promote self-employment, self-sustenance and self-reliance. With the quality of secondary education, students are equipped with vocational skills; and social vices are minimized.

### **Sustainable Development Goals**

Sustainable development is the development process that focuses on management of basic human necessities within the society. Lawal, Aniah, Uche & Animashaun in Omordu (2011) defined sustainable development as “development strategy that manages the physical assets, natural and human resources as well as provision of available funds in most rational manner that ensure increasing wealth and health for both the present and future generation”. Similarly, Brundland Commission defined “Sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment & Development in Omordu, 2011, & Obanya, 2014). Omordu further added that from the above definition, sustainable development can be classified into three major components – environment, society and economy which are inter-connected. This implies that, for any meaningful citizen to be willing and ready to live in any stimulating environment, society and economy, there should be provision of social amenities to enhance improved quality of life. Goals are the blue print of action designed to accomplish organizational development. Sustainable Development Goals (SDGs) is an improvement on the Millennium Development Goals (MDGs) with the intention to transform the whole world into a better place for human existence. SDGs were the brain child of the United Nations established on January 1st, 2016 with the constitution of 193 member states. It was established to achieve aspirations and global demands of the United Nations.

Omordu (2011) puts forward the principles of sustainable development which are summarized below:

1. People are entitled to healthy and productive life in harmony with nature.
2. Development today must not undermine the development and environment needs of present and future generation.
3. A nation has the sovereign right to exploit their own resources without causing environmental damage beyond their border.
4. A nation shall reduce and eliminate unsuitable patterns of production and consumption, and promote appropriate demographic policies.
5. A nation should cooperate to promote an international economic system that will lead to economic growth and sustainable development in all countries.
6. Sustainable development encourages nations to share knowledge and innovative technologies to achieve the goal of sustainability.
7. Peace, development and environmental protection are interdependent and indivisible and so on.

The above principles are the building blocks that can integrate, sustain necessary innovation and transformation in sustainable development of secondary education toward manpower development and demand of the society. The sustainable development goals of secondary education as well as TVE can only

be achieved when it is geared towards the provision of quality education, skills development, production, poverty reduction and improved standard of living which are the building blocks of Sustainable Development Goals (SDGs).

### **Importance of Technical and Vocational Education**

Technical and vocational education enables individual learners to participate actively towards directly developing the society. It provides individuals with various skills which enable them to live, learn and work as productive citizens; also skills that can necessitate development. It provides training for both men and women which is the key to poverty reduction. When technical skills, knowledge and entrepreneurial skills are lacking, the natural resources tend to remain unutilized or under-utilized. TVE has the capacity to reduce high rate of depression and unemployment especially among men, women and youths as it offers the needed skills to develop the informal sectors in Nigeria. Through these skills acquired from Technical and Vocational Education (TVE), individuals become self-reliant and self-employed, thereby reducing the pressure on the few available white collar jobs in the formal sector. TVE also has the capacity to accommodate out-of-school persons and also serve as an alternative to those who drop out of general academic circle especially migrant fishermen and students who are more comfortable with practical skills (Allen, 2012 & Kehinde, 2016).

### **Challenges of Technical and Vocational Education**

Technical and Vocational Education (TVE) have not been without difficulties and obstacles which undermined the actualization of Sustainable Development Goals (SDGs). These are seen in the quality of education rendered, provision of adequate manpower and development, and insufficient food production for continuous existence. Comfort (2013), Seyi (2014) & Serumu (2014) opine that Technical and Vocational Education (TVE) has been seen as one of the best means to achieve employment generation, self-reliance and national development in Nigeria like many other countries in the world, but unfortunately, our TVE system is merely a theoretical institution which lacks practical and functional illustrations. There exists shortage of qualified manpower in the TVE system leading to a case of round peg in a square hole, not employing the relevant teachers in the subject areas and teachers teaching what they did not study. Okebukola (2012), Seyi (2014), as well as Akogun & Lawal (2016) reveal teachers' inadequacies, under funding, gross inadequacies in facilities including unconducive classrooms and lack of readiness among TVE teachers. This they attributed to lack of motivation, unavailability of resources, problem of social vices, and poor remuneration of staff. Abdulehamid & Fatima (2016) enjoined ineffective institutions, negative perception of TVE as career path for academically weak or disadvantaged individuals; discrimination against graduates of technical education; poor implementation of staff development policy; among others. It is natural that when there are persistent challenges within a given sector, there should be a policy redirection to revamp the sector towards functionality and productivity. These policy redirections should begin with integration of skill development through improved learning methods, improved curriculum development, provision of modern training facilities, equipped machinery and instructional facilities and adequate funding. This is as recommended by UNESCO – 26%, provision of training and retraining programme, workshop/ conference and seminars, provision of workable collaboration through Public-Private Sector Participation to promote sound training of the students on skill related programmes within Nigeria and developed Nations (Akinteye & Folarium, 2016).

### **Statement of the problem**

It is the quest for empowerment, self-reliance and employment generation that necessitated the introduction of technical and vocational education in order to promote skills development. With skills development among students, young school leavers will be self-reliant, generate employment, and contribute immensely towards nation building. Unfortunately, there are not enough technical and vocational schools in Rivers State, and the available few are seen to be associated with a lot of challenges which includes – obsolete and

poor educational facilities, uncondusive learning environment, outdated curriculum content, lack of funding, inadequate provision of development programmes and lack of motivation for staff and graduating students. With these, our TVE system lack compliance with the 21<sup>st</sup> century practices. The above assertion has necessitated the need to promote technical and vocational skills development through improved innovation in technical and vocational schools in order to motivate young school graduates to be productive and minimize association with societal vices. This paper however, examined innovative ways in the management of TVE for the attainment of sustainable development goals in technical schools in Rivers State.

### **Aim and objectives**

The study investigated the innovative ways technical and vocational education can be managed for the attainment of sustainable development goals in technical schools in Rivers State. Specifically, the objectives include;

- Examine the role of technical and vocational education towards attainment of sustainable development goals in technical schools in Rivers State
- Identify the challenges of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State
- Ascertain innovative management strategies for improvement in technical and vocational towards attainment of sustainable development goals among technical school students in Rivers State.

### **Research Questions**

The following research questions guided the study

- What is the role of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State?
- What are the challenges of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State?
- What are the innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State?

### **Hypotheses**

The following hypotheses were formulated to guide the study

- There is no significant difference between the mean ratings of male and female students on the contributions of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers state.
- There is no significant difference between the mean ratings of secondary school students in urban and rural areas on the challenges of technical and vocational towards the attainment of sustainable development goals in Rivers State.
- There is no significant difference between the mean ratings of secondary school students in urban and rural areas on innovative management strategies towards improvement of technical and vocational education for attainment of sustainable development goals in Rivers State.

## **METHODOLOGY**

The study adopted the descriptive survey design. The population of the study consisted of 5000 (4000 males and 1000 Females) students in 4 Government Technical Schools in Rivers State. The sample size of 500

(400 males and 100 females) was drawn through stratified random sampling representing 10% of the population. A thirty-item questionnaire titled “Innovative Management of Technical and Vocational Education among Technical School Students Questionnaire (IMTVEATSSQ)” was designed for the study. The reliability of the instrument was determined using Cronbach alpha method. The research questions were answered using mean and standard deviation while z-test was used to test the hypotheses at a significance level of 0.05.

## RESULTS

**Research Question One:** What is the role of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State?

**Table1:** Mean and standard deviation on the role of TVE towards attainment of sustainable development goals

S/N	Items	400 males			100 females		
		Mean	Std	Decision	Mean	Std	Decision
1	Technical and vocational education promotes skills development among public senior secondary school students in Rivers State.	2.80	.72	Agreed	2.65	.70	Agreed
2	With technical and vocational education promotes employment generation among men and women.	2.64	.83	Agreed	2.67	.67	Agreed
3	Technical and vocational education provides training and capacity building among public senior secondary school students in Rivers State.	2.84	.65	Agreed	2.83	1.03	Agreed
4	Technical and vocational education encourage poverty reduction in the society through food production.	2.69	.86	Agreed	2.70	.70	Agreed
5	Raising employer of labour instead of job seekers.	2.61	.85	Agreed	3.28	.87	Agreed
6	Technical and vocational education has the capacity to reduce high rate of depression among citizenry through self-reliance as well as creative thinking.	2.90	.71	Agreed	2.53	.81	Agreed
7	Technical and vocational education has the capacity to accommodate those out of school children to be productively engaged in water treatment and packaging.	2.86	.96	Agreed	2.71	.48	Agreed
8	Technical and vocational education seek to prepare public senior secondary school students to imbibe the spirit of entrepreneurship.	3.05	.80	Agreed	2.78	.66	Agreed
9	Technical and vocational education equip the youths with skills to be competitive relevant and shun social vices.	3.20	.81	Agreed	2.52	.83	Agreed
	<b>Aggregate mean and standard deviation</b>	<b>2.84</b>	<b>0.79</b>	<b>Agreed</b>	<b>2.74</b>	<b>0.75</b>	<b>Agreed</b>

Data on table 1 revealed that items with serial numbers 1 to 9 have their various mean values above the criterion mean of 2.50 and were agreed by the respondents as the role of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State. The role of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State are to promote skills development, promotes employment generation among men and women, provides training and capacity building, poverty reduction in the society through food production, raising employer of labour instead of job seekers, reduce high rate of depression among citizenry through self-reliance as well as creative thinking, capacity to accommodate those out of school children to be productively engaged in water treatment and packaging, helps students to imbibe the spirit of entrepreneurship and equip the youths with skills to be competitive relevant and shun social vices.

**Research Question Two:** What are the challenges of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State?

**Table2: Mean and standard deviation scores on the challenges of technical and vocational towards the attainment of sustainable development goals in Rivers State.**

S/N		Males			Females		
		Mean	Std	Decision	Mean	Std	Decision
11	There is shortage of qualified manpower.	2.51	0.62	Agreed	3.25	0.72	Agreed
12	Technical and vocational education is characterized with poor training and ineffective institution to accommodate other areas of specialization.	2.81	0.86	Agreed	2.97	0.82	Agreed
13	There is shortage of equipment and facilities among technical and vocational education institutions.	2.5	0.77	Agreed	3.24	0.57	Agreed
14	There is poor implementation of staff development policy among technical and vocational education institutions.	2.79	0.65	Agreed	3.13	0.51	Agreed
15	There is negative perception of recipients of technical and vocational education institution as weak or disadvantage individuals.	2.6	0.8	Agreed	3.1	0.72	Agreed
16	Brain drain is experienced among teachers /lecturers of technical and vocational education due to poor condition of service.	2.46	0.93	Disagreed	2.23	0.89	Disagreed
17	There is inadequate funding among technical and vocational education institutions.	2.56	0.56	Agreed	3.08	0.35	Agreed
18	Lack of motivation among technical and vocational education teachers and lecturers as a result of poor salary.	2.71	0.54	Agreed	3.28	0.53	Agreed
19	Technical and vocational education is associated with the problem of social vices which affected the performance of public senior secondary school students in Rivers State.	2.89	0.83	Agreed	2.99	0.89	Agreed
20	Poor remuneration	2.54	0.98	Agreed	2.55	0.97	Agreed
	<b>Aggregate mean and standard deviation</b>	<b>2.64</b>	<b>0.75</b>	<b>Agreed</b>	<b>2.98</b>	<b>0.69</b>	<b>Agreed</b>

Data on table 2 revealed that items with serial numbers 11 to 15 and 17 to 20 have their various mean values above the criterion mean of 2.50 and were agreed by the respondents as the challenges of technical and vocational education towards attainment of sustainable development goals among technical school students



in Rivers State. The challenges of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State are shortage of qualified manpower, poor training and ineffective institution to accommodate other areas of specialization, shortage of equipment and facilities, poor implementation of staff development policy, negative perception of recipients of technical and vocational education institution as weak or disadvantage individuals, inadequate funding, lack of motivation among technical and vocational education teachers and lecturers as a result of poor salary, social vices which affected the performance, and poor remuneration of lecturers.

**Research Question Three:** What are innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State?

**Table 3: mean and standard deviation on the innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals**

S/N	Items	Male			Female		
		Mean	Std	Decision	Mean	Std	Decision
21	Provision of quality education that will meet the basic needs of the citizens.	2.68	.66	Agreed	2.98	.50	Agreed
22	Provision of adequate funding in line with UNESCO recommendations of 26% to improve the standard of education.	2.65	1.01	Agreed	3.21	.63	Agreed
23	Provision of training and retraining programme for teachers and lecturers of technical and vocational education.	2.74	.73	Agreed	3.15	.64	Agreed
24	Provision of workshop/conference and seminars for teachers and lecturers of technical and vocational education for updating existing skills.	3.15	.90	Agreed	3.35	.64	Agreed
25	Integration of skills development through improved learning method and life skill programme.	3.43	.89	Agreed	3.28	.62	Agreed
26	Provision of workable collaboration through public – private sector participation to promote the good training of the students on skill related programme within Nigeria and the developed nations.	2.64	.49	Agreed	3.26	.67	Agreed
27	Provision of improved curriculum development to promote necessary changes in technical and vocational education system.	2.76	.76	Agreed	3.31	.61	Agreed
28	Provision of modern training facilities and instructional facilities in technical and vocational education system.	3.13	.85	Agreed	3.20	.54	Agreed
29	Regular payment of salaries and allowances to teachers/lecturers of technical and vocational education.	2.89	0.79	Agreed	2.62	0.61	Agreed
30	Provision of motivation to technical and vocational education teachers/lecturers through rewards and incentives.	2.77	0.99	Agreed	2.69	0.60	Agreed
	<b>Aggregate mean and standard deviation</b>	<b>2.88</b>	<b>0.81</b>	<b>Agreed</b>	<b>3.11</b>	<b>0.61</b>	<b>Agreed</b>

Data on table 3 revealed that items with serial numbers 21 to 30 have mean values above the criterion mean value of 2.50 and were agreed as the innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State. The innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State are the provision of quality education that will meet the basic needs of the citizens, Provision of adequate funding in line with UNESCO recommendations of 26% to improve the standard of education, Provision of training and retraining programme for teachers and lecturers, workshop/conference and seminars for teachers and lecturers, integration of skills development through improved learning method and life skill programme, Provision of workable collaboration through public – private sector participation, Provision of improved curriculum development to promote necessary changes, Provision of modern training facilities and instructional facilities, Regular payment of salaries and allowances to teachers/lecturers and Provision of motivation to technical and vocational education teachers/lecturers through rewards and incentives.

**Hypothesis 1:** There is no significant difference between the mean ratings of male and female students on the contributions of technical and vocational education towards attainment of sustainable development goals among technical schools in Rivers state.

**Table 4: T-test of the mean difference between the ratings of male and female technical school students on the contributions of technical and vocational education towards attainment of sustainable development goals**

Gender	N	Mean	Std. Deviation	Df	z-cal	Sig. value	Alpha level
Male students	400	2.84	0.79	498	2.05	.04	.05
Female students	100	2.74	0.75				

Table 4 revealed that male students have mean and standard deviation scores of 2.84 and 0.78 while female students have mean and standard deviation scores of 2.74 and 0.75 respectively. With a degree of freedom of 498, the hypothesis is rejected because the significant value of 0.04 is less than the alpha value of 0.05. Therefore, there is a significant difference between the mean ratings of male and female students on the contributions of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers state.

**Hypothesis 2:** There is no significant difference between the mean ratings of male and female technical school students on the challenges of technical and vocational towards the attainment of sustainable development goals in Rivers State.

**Table 5: T-test of the mean difference between the ratings of male and female technical school students on the challenges of technical and vocational towards the attainment of sustainable development goals**

Gender	N	Mean	Std. Deviation	Df	z-cal	Sig. value	Alpha level
Male students	400	2.64	0.75	498	1.99	.00	.05
Female students	100	2.98	0.69				

Table 5 revealed that male students have mean and standard deviation scores of 2.64 and 0.75 while female students have mean and standard deviation scores of 2.98 and 0.69 respectively. With a degree of freedom of 498, the hypothesis is rejected because the significant value of 0.00 is less than the alpha value of 0.05.

Therefore, there is a significant difference between the mean ratings of male and female technical school students on the challenges of technical and vocational towards the attainment of sustainable development goals in Rivers State.

**Hypothesis 3:** There is no significant difference between the mean ratings of male and female technical school students on innovative management strategies towards improvement of technical and vocational education for attainment of sustainable development goals in Rivers State

**Table 6: T-test of the mean difference between the ratings of male and female technical school students on the innovative management strategies towards the improvement of technical and vocational education for attainment of sustainable development goals**

Gender	N	Mean	Std. Deviation	Df	z-cal	Sig. value	Alpha level
Male students	400	2.88	0.81	498	2.35	.00	.05
Female students	100	3.11	0.61				

Table 6 revealed that male students have mean and standard deviation scores of 2.88 and 0.81 while female students have mean and standard deviation scores of 3.11 and 0.61 respectively. With a degree of freedom of 498, the hypothesis is rejected because the significant value of 0.00 is less than the alpha value of 0.05. Therefore, there is a significant difference between the mean ratings of male and female students of technical schools on innovative management strategies towards improvement of technical and vocational education for attainment of sustainable development goals in Rivers State.

### Summary of Findings

The findings of the study are summarized as shown below:

1. The role of technical and vocational education towards the attainment of sustainable development goals among technical school students in Rivers State include: to promote skills development, promotes employment generation among men and women, provides training and capacity building, poverty reduction in the society through food production, raising employer of labour instead of job seekers, reduce high rate of depression among citizenry through self-reliance as well as creative thinking, capacity to accommodate those out of school children to be productively engaged in water treatment and packaging, helps students to imbibe the spirit of entrepreneurship and equip the youths with skills to be competitive relevant and shun social vices. The hypothesis testing showed that there is a significant difference between the mean ratings of male and female students on the contributions of technical and vocational education towards attainment of sustainable development goals among technical schools in Rivers state. The hypothesis revealed that there is a significant difference between the mean ratings of male and female students of technical schools on the challenges of technical and vocational towards the attainment of sustainable development goals in Rivers State.
2. The challenges of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State include shortage of qualified manpower, poor training and ineffective institution to accommodate other areas of specialization, shortage of equipment and facilities, poor implementation of staff development policy, negative perception of recipients of technical and vocational education institution as weak or disadvantage individuals, inadequate funding, lack of motivation among technical and vocational education teachers and lecturers as a result of poor salary, social vices which affected the performance, and poor remuneration of lecturers.
3. The innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State are the

provision of quality education that will meet the basic needs of the citizens, provision of adequate funding in line with UNESCO's recommendations of substantial percentage of the total annual budget, to improve the standard of education, provision of training and retraining programme for teachers and lecturers, workshop/conference and seminars for teachers and lecturers, integration of skills development through improved learning method and life skill programme, Provision of workable collaboration through public – private sector participation, Provision of improved curriculum development to promote necessary changes, provision of modern training facilities and instructional facilities, regular payment of salaries and allowances to teachers/lecturers and provision of motivation to technical and vocational education teachers/lecturers through rewards and incentives. The hypothesis revealed that there is a significant difference between the mean ratings of male and female technical school students on innovative management strategies towards improvement of technical and vocational education for attainment of sustainable development goals in Rivers State.

## DISCUSSION OF THE FINDINGS

The findings of the study showed that contributions of technical and vocational education towards attainment of sustainable development goals among technical schools in Rivers State include, the promoting skills development, employment generation among men and women, provides training and capacity building for teachers, poverty reduction in the society through food production and improved standard of living, raising employers of labour instead of job seekers, reduce high rate of depression among citizenry through self- reliance as well as creative thinking, capacity to accommodate those out of school children to be productively engaged in water treatment and packaging, helps to imbibe the spirit of spirit of entrepreneurship and equip the youths with skills to be competitive relevant and shun voices. In line with the above findings, Allen (2012) and Kehinde (2016) revealed that technical and vocational education also has the capacity to accommodate out of school persons and also serve as an alternative to those who drop out of general academic circle especially migrant fishermen and even students who are more comfortable with practical skills.

In agreement with the above scholars, the findings of the study showed that technical and vocational education has the capacity to reduce high rate of depression among men, women and youths as it offers the needed skills to develop the informal sector in Nigeria. Therefore, the hypothesis on table 4.2 revealed that male students have mean and standard deviation scores of 2.84 and 0.78 while female students have mean and standard deviation scores of 2.47 and 0.75 respectively. With a degree of freedom of 498, the hypothesis is rejected because the significant value of 0.04 is less than the alpha value of 0.05. By implication, there is no significance between the mean ratings of male and female students on the contributions of technical and vocational education towards the attainment of sustainable development goals among technical schools in Rivers State.

Furthermore, the findings of the result revealed that the challenges of technical and vocational education towards attainment of sustainable development goals among technical school students in Rivers State are shortage of qualified manpower, poor training and ineffective institutions to accommodate other areas of specialization, shortage of equipment and facilities, poor implementation of staff development policy, negative perceptions of recipients of technical and vocational institution as weak or disadvantage individuals, inadequate funding , lack of motivation among technical and vocational education teachers / lecturers as a result of poor salary and social vices which affected the performance of teachers in line with above findings, Okebukola (2012), Seyi (2014), Akogino & Lawal(2016) revealed that teacher inadequacies, under funding, gross inadequacies in facilities including lack of conducive learning environment, lack of motivational strategies among TVE teachers, unavailability of resources, problem of social vices and poor remuneration of teachers serve as challenges which undermine the actualization of sustainable development goals in Rivers State. Therefore, hypotheses on table 5.2 revealed that male have

mean and standard deviation scores of 2.64 and 0.75 while female have mean and standard deviation scores of 2.98 and 0.69 respectively. With degree of freedom of 498, the hypothesis is rejected because the significance value of 0.00 is less than the alpha value of 0.05. Interestingly, there is no significance between the mean ratings of male and female technical school students on the challenges of technical and vocational education towards the attainment of sustainable development goals in Rivers State.

The results of the findings furthermore, revealed that innovative management strategies for improvement in technical and vocational education towards attainment of sustainable development goals among technical schools in Rivers State include, provision of quality education that will meet the basic needs of the citizens, provision of adequate funding in line with UNESCO recommendations of reasonable percentage from the annual budget, to improve the standard of education, training and retraining programme for teachers/lectures, workshop/ conferences and seminars for teachers and integrations of skills development through improved learning method life skill programme. It also include provision of improved curriculum development to promote necessary changes, provision of modern facilities, and regular payment of salaries and allowances of teachers / lecturers. In line with the above findings, Akinteye & Folarinum (2016) upheld that 26% recommendations of UNSECO, provision of training and retraining programme, workshop/conference and seminars, provision of workable collaboration through public – private sector participation to promote sound training of the students on skill related programme within Nigeria and developed Nations.

In agreement with the scholarly views, there is need for policy redirection to revamp educational sector towards functionality and productivity. Therefore, the hypotheses on table 6.2 revealed that male students have mean and standard deviation scores of 2.88 and 0.81 while female students have mean and standard scores of 3.11 and 0.61 respectively. With degree of freedom of 498, the hypotheses is rejected the significance value of 0.00 is less than the alpha value of 0.05. However, there is no significance difference between the mean ratings of male and female students of technical schools on innovative management strategies towards improvement of technical and vocational education for attainment of sustainable development goals in Rivers State,

## CONCLUSION

In of the above, and despite the fact that government's innovative policy intervention of birthing a number of entrepreneurship subjects that are capable of turning around the fortune of the country through vocational and technical education promotion and the establishment of Innovation Enterprise Institutions and Vocational Enterprise Institutions, there are still lamentations. It is evident that the problem is not that the country does not know what to do, but the lack of commitment to policy implementation. FRN (2014) highlighted a total of 25 trade and entrepreneurship subjects for the secondary schools' students, including: 1. Horology 2. Shoe making and repairs 3. Tailoring 4. Carpentry and joinery 5. Bricklaying/mason 6. Auto-mechanics 7. Auto-Electrician 8. Fishery 9. Poultry farming 10. Welding/metal fabrication 11. Painting 12. Catering 13. Photography 14. Bicycle repairs 15. Apiculture 16. Horticulture 17. Electronic repairs 18. Computer/GSM Repairs 19. ICT 20. plumbing 21. Hair dressing 22. Manicure/pedicure 23. Printing 24. Marketing 25. Packaging.

It must also be made known that TVET under the supervision of an agency of government – National Board for Technical Education (NBTE) while the informal system works mainly through apprenticeships, Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IELs) by (NBTE 2011). A major recent initiative in Nigeria TVET system is the introduction of IELs and VEIs, these are private sector established institutions aimed at targeting areas of skills shortages and market needs. Therefore, non-implementation of this aspect of the national policy and showing no commitment are the reasons why there are still lamentations in the theory and practice of Technical and Vocational Education and Training. Building teachers' capacities, upgrade of equipment and facilities are lacking; consequently, becoming a

toll on the students and the growth of the society. To a large extent, the manifestations, resulting from poor handling of TVET in Rivers State have direct effect on sustainable development goals achievement in the state, more on the state's security, economy and generally the environment.

## RECOMMENDATIONS

From the foregoing, there are clear policy directions for Technical and Vocational Education and Training. Regrettably, the training aspect, even in the name of the programme is played down on and the teachers of the discipline are left unattended to, consequently the students suffer. The followings are therefore recommended, thus:

1. Government should consider implementing the beautiful policies for the programme of TVET in Nigeria, not just having them on papers.
2. Government should pump more resources into TVET programmes and ensure that equipment and facilities are upgraded to meet the reality of modern society
3. Non-Governmental Organizations should realize that the societies stand to benefit more when skills are developed and citizens are empowered, therefore, they are encouraged to invest maximum resources in educational system, serving as a strategy of motivation to technical and vocational teachers/lecturers towards attainment of sustainable development goals in Rivers State.
4. Government should encourage skills development and build spirit of entrepreneurship among the youths to become employers of labour, instead of job seekers.
5. Government should improve the motivational strategies of technical and vocational teachers/ lecturers in Rivers State.

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