

## MECHANISMS FOR IMPROVING MANPOWER PRODUCTION IN VOCATIONAL AND TECHNICAL EDUCATION

By

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### Abstract

*This study was designed to identify mechanisms for improving the quantity and quality of manpower production in vocational and technical education in Kogi state. Four research questions and hypotheses guided the study. The study was carried out in Kogi state of Nigeria and the areas of study specifically are technical colleges, secondary schools, polytechnics and industries. Population of the study comprised two hundred (200) technology education teachers and seventy – five industrial personnel drawn from the area of study. A 30 – item questionnaire was used to collect the relevant data. The research questions and hypotheses were analyzed using mean standard deviation and t –test statistics. The hypotheses were tested at 0.05 level of significance. The results from the data showed that technology teachers and head of technical departments and units from the industries shared similar views with (30 or 73.4%) of the mechanisms proposed. Specifically it discovered that there is no strong tie between industries and training intuitions, students industrial work experience scheme is haphazardly organized, the training facilities and entrants into the training institutions are poor and the administration of these training institutions were left in the hands of non-vocational educators. Based on the findings, it was recommended, that government should immediately conduct a national survey on manpower needs in vocational and technical education, remunerations of technical teachers should be reviewed urgently; industries should go into partnership with training institutions in drawing up a training programmes and government should liaise with industries to ensure the remittance of 5% of their annual profit for the development of technical education.*

### Introduction

Vocational and technical education is the type of education received by learners towards self-reliance. Ekunke (2008) defined vocational and technical education as a type of training useful for employment in trade and industry, agriculture, business and home making among others. Vocational and technical education prepares manpower for the development of the society. Yaku (2007) stated that the goal of vocational and technical education is to equip youths with trainings that are psychomotor oriented so that they can live and at the same time contribute toward all round development of the society. To achieve this vocational and technical education programmes should be repositioned for self-employment. According to the Nigerian National Policy on Education (2004), technical education is that aspect of education which leads to the acquisition of practical skills, as well as basic scientific knowledge” It is against this background that most institutions including universities, polytechnics, technical colleges, secondary schools even at the primary schools now offer pre vocational, vocational and technical education courses.

In a broader perspective technical education aims at imparting to its recipients, skills and scientific knowledge or competences that can enable them work effectively in industrial and commercial ventures (Mbata, 2001). Again technical education is aimed at providing, among others, trained manpower in the fields of applied science, technology and commerce. One of the objectives of encouraging technical education in Nigeria by the Federal and state government is to enable youths become skilled craftsmen, technicians, auto mechanics, welders, stenographers, technologists and so on. All these are aimed at filling up the needed skilled personnel in the public and private sectors of the economy. For quite sometimes, since the formulation of the National Policy on Education, effective training and development of the right caliber of manpower in technical education has never been problem free. Olaitan (2001) lamented that the level of manpower production in vocational and technical education compared with the needs of the society for technological development has never been encouraging.

Olise (2012) observed that the central focus of vocational and technical education is to develop

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manpower for social and economic development of the nation. Technological development in the developed nations has shown that the developed nations has shown made achievement through skills of that country. Manpower development has been designed as efforts to stimulate more employment opportunities, to upgrade the skills and adaptability of workforce. (Olaitan, 1988), made the following suggestions for improving manpower production through vocational and technical education. These include a closer cooperation between industries and schools, vocational schools should be organized outside the directives of general education, qualified teachers should be posted to vocational schools, there is a need for guidance services in vocational school and teachers should be properly remunerated in order to remain in the job.

Ekuneke (2008) attributed the problem of manpower production in Nigeria to ineffective organization of industrial attachment, attitudes of industries and poor state of training institutions. It is evident to say that many Engineers, technicians, and technologists are roaming the streets without job because according to Ozoro (1990), the training received in vocational and technical education in Nigeria is inadequate or irrelevant to societal needs. Okwori (2012) pointed out that many vocational and technical education teachers in Nigeria cannot operate modern equipment in industries because it is not found in their schools. Supporting this claim is a re-emphasis in the FRN (2004) that employers generally consider the products of technical institutions unusable without further training. Against this background, the Primary Objective of this research is to identify strategies for ameliorating this situation.

### Statement of the problem

With the increase in the number of graduates of technical institutions that are unemployed and the persistent outcry from industries and employers of labour generally about the inability of the graduates of technical institutions to take up employment without retraining is a matter of concern to teachers of technology. The situation prevails because Ozoro (1990) noted with a serious concern that to great extent vocational and technical education in Nigeria has remained uncoordinated, unplanned, inadequate and to a large extent irrelevant to the needs of the society, paucity of data on manpower needs, non-commitment of industries to skill development, defective organization of students industrial attachment programme and the deplorable state of our training institutions. Technology education equips youths and adults with skills and knowledge necessary for employment and help workers to

update and upgrade their job skills, but in a situation where resources abound yet many technicians, craftsmen including university graduates roam the streets in search of jobs calls for a serious worry among concerned citizens. Therefore, there is a need to consolidate vocational and technical education in order to provide graduates with knowledge, skills and training needed in the world of work. Hence the need for this study.

### Research Questions

The following research questions were formulated to guide the study.

1. What is the commitment of industries to manpower production through vocational and technical education?
2. How are the students industrial work experience scheme carried out towards manpower production?
3. What are the quality of entrants and facilities used for manpower production in vocational and technical training institutions?
4. How effective is the administration of vocational and technical education towards effective manpower production?

### Hypothesis

- H0<sub>1</sub>: There is no significant difference in the mean response of technology teachers and heads of units in industries on commitment of industries to manpower production.
- H0<sub>2</sub>: There is no significant difference in the mean responses of technology teachers and heads of units in industries on how students industrial work experience is carried out towards quality manpower production.
- H0<sub>3</sub>: There is no significant difference in the mean responses of technology teachers and heads of units in industries on the quality of entrants and facilities used for improved manpower production?
- H0<sub>4</sub>: There is no significant difference in the mean responses of technology teachers and heads of units in industries on the administration of vocational and technical education towards quality manpower production.

### Methodology

The study adopted survey research design this is because the study has to do with sampling of opinions of stakeholders in manpower production. The study was carried out in Kogi state of Nigeria.

Relevant data were collected from technology education teachers teaching in the secondary schools, technical colleges, polytechnics and heads of units in relevant industries. The population of the study comprised of two hundred technology education teachers in Kogi State. They were drawn from technical colleges, secondary schools, polytechnics and engineering departments and units of industries in Kogi state. There was no sampling since the population isn't too large to be used for the study (Aloysius, 1998).

A structured questionnaire was used for data collection. It consisted of 30 items divided into sections. Section A sought information from respondents on the commitment of industries to manpower production. Section B. solicited for information from respondents on students industrial work experience scheme towards improve manpower production. Section C, addressed issues that boarder on the quality of entrants and facilities used in training institutions responsible for manpower production, section D, sought for information on the administration of vocational and technical education programmes in the training institutions. A four point rating scale of Strongly Agree (SA) 4, Agree (A) 3, Disagree (DA) 2, and Strongly Disagree (SD) 1 point was used. The instrument was subjected to face and content validation by three experts in vocational and technology education. The experts were drawn from the Department of industrial and Technology Education, Federal University of Technology, Minna, Nigeria. The questionnaire was administered by the

Atsumbe, B. N., Robert, O., Raymond, E. & Igwe, C. O. researcher with the help of two research assistants. The entire copies of the questionnaire distributed to the respondents, two hundred and seventy five (275) in number were completed and returned.

The analysis of the data for the four research questions and the hypotheses were accomplished using mean, standard deviation and t-test. Acceptance level for items was 2.5 and above. Any item that attracted up to 2.5 and above was considered agreed and below 2.5 was regarded as disagreed. The null hypotheses were tested at 0.05 level of significance ( $P=0.05$ ). An item was considered significant and hypothesis rejected if the calculated t calculated exceeded the table t value of 1.96 and not significant when the calculated t is below or equal to the value of 1.96 at 0.05 level of significance.

**Keys:**

- $N_1$  = total population of technology teachers
- $N_2$  = total population of industrial personnel
- $\bar{X}_1$  = mean score of technology teachers
- $\bar{X}_2$  = mean score of industrial personnel
- $SD_1$  = standard deviation of technology teachers
- $SD_2$  = standard deviation of industrial personnel
- $t_{cal}$  = calculated t value

**Data presentation and Analysis**

**Research Question 1:**

What are commitments of industries to manpower production through vocational and technical education? Data required for answering this research question is presented in table one below.

Table 1: Mean, Standard Deviation and t-test Analysis on Commitment of Industries to Manpower Production through Vocational and Technical Education.

S/NO.	ITEMS	$\bar{X}$	$\bar{X}_2$			N1 = 200, N2 = 75	
				SD <sub>1</sub>	SD <sub>2</sub>	t-cal	REMARK
1	There is no reliable statistics on manpower needs in technical education	3.70	3.75	0.53	0.50	1.60	Accept
2	The 3 <sup>rd</sup> and 4 <sup>th</sup> national development plans are mere projections rather than real manpower needs	2.82	2.27	0.72	0.66	2.1	Reject
	NUC/NBTE should be commissioned immediately to conduct a National manpower survey in technical education.	3.84	3.65	0.36	0.47	1.16	Accept
	Government should commit industries to remit 5% percentage of their annual profits for the funding of technical education.	3.66	2.27	0.53	0.66	-0.57	Accept
	Industries should once in a while send expendable materials such as metal scraps, cut offs from wood, grounded Vehicles, generators for practical in the workshops.	2.66	2.90	0.86	1.05	1.85	Accept
	Industries should be invited to participate/planning and revision of technical education curriculum.	3.42	3.40	0.72	0.67	0.18	Accept
7	Head of technical units or professional from the industries should serve as resource person in schools.	3.06	3.08	0.54	0.58	0.22	Accept
	New technology "ALARM" raising committee should be set up to intimate schools on new innovations.	3.92	3.68	0.27	0.34	0.45	Accept
	Industries should organize technology base refresher course for technology teachers.	3.66	2.27	0.53	0.66	-0.57	Accept

In table 1, items 1, 3, 4, 5, 6, 7, 8, 9 were accepted while item 2 was rejected.

**Research Question II.**

How is the Students Industrial Work Scheme Organized for Improved Manpower Production through Vocational Technical Education?

**Table 2:** Mean, standard deviation and t-test analysis of students industrial work experience toward manpower production  
 $N_1 = 200, N_2 = 75$

S/NO.	ITEMS	$\bar{X}_1$	$\bar{X}_2$	$SD_1$	$SD_2$	$t_{-cal}$	REMARK
10	ITF/School SWES co-coordinator should help students secure placement in industries relevant to their course before time.	3.05	2.46	0.87	1.05	1.36	Accept
11	The schools, ITF officials and industries training managers should ensure through supervision of students during SIWES.	3.05	2.36	0.54	1.03	1.07	Accept
12	Students should be paid 1/3 of graduate salary by the industries while on attachment to enhance their performance.	2.69	2.02	0.79	0.92	1.94	Accept
13	Funds needed for traveling and hotel accommodations should be released long before the exercise.	2.69	2.54	0.82	1.01	1.88	Accept
14	Students should be made to present comprehensive report of the exercise at end of the scheme.	3.03	2.02	0.77	0.96	1.45	Accept
15	Training institutions and industries should agree on appropriate coordination methods to avoid lapses.	2.86	2.96	0.79	0.92	1.94	Accept
16	Students without placement relevant to their course of study should not be allowed to proceed on SIWES.	3.05	2.36	0.54	1.03	1.07	Accept
17	Industries should in the interest of the nation expose students to relevant experiences in the course of attachment.	2.69	2.02	0.79	0.92	1.94	Accept
18	Schools in conjunction with ITF staff should hold an orientation programme for the students before the exercise	3.05	2.45	0.82	1.04	1.86	Accept

With reference to table 2, all the items were accepted.

**Research Question IV**

How effective is the administration of vocational and technical education programmes for effective manpower production?

**Table 4:**

Standard deviation and t-test analysis on administration of vocational technical education towards manpower production

		N1 = 200, N2 = 75					
S/NO.	Items	$\bar{X}_1$	$\bar{X}_2$	SD <sub>1</sub>	SD <sub>2</sub>	t-cal	Remark
28	With the present level of Technological advancement, courses should be merged to have a broad base. For instance; <b>Mechanical Technology</b> Welding/Fabrication, Automobile, Agric Mechanization and Machining.	3.70	3.75	0.54	0.50	1.60	Accept
29	<b>Construction Technology</b> Furniture craft, building Technology, painting and Decorating and carpentry & joinery	3.42	3.14	0.53	0.68	1.47	Accept
30	<b>Electrical/electronics</b> Radio and television, Refrigeration And Air-conditioning, basic Telecommunication	3.70	3.75	0.54	0.50	1.60	Accept
31	Programme accreditation should be done at least every 5 years	3.60	3.42	0.52	0.55	1.07	Accept
32	Only administrators with Technical background Or qualification should be allowed to head technology Base institutions.	3.60	3.42	0.52	0.55	1.07	Accept
33	Technical institution should run or embark on consultancy Services as a means of fund generation.	3.28	3.10	0.53	0.64	01.80	Accept
34	With the support of government Schools should lunch Technology endowment fund.	3.42	3.14	0.53	0.68	1.47	Accept
35	A reasonable percentage of Ministry of education budget be committed to technical Education	3.70	3.75	0.54	0.50	1.60	Accept
36	Since technical education is a veritable vehicle to national development every taxable adult Should be made to pay N50 levy For the development of technical Education.	2.62	2.05	1.35	0.77	2.37	Accept

In table 4, all the items were accepted

**Hypothesis**

H0<sub>1</sub>: There is no significance difference in the mean responses of technology teachers and heads of units in industries on commitment of industries to manpower production and data on manpower needs.

With reference to commitment of industries to manpower production, the result indicates that both group of respondents expressed positive response to all the items (1-6) and

showed no significant difference in their mean responses so the null hypothesis was accepted. The null hypothesis was accepted for all the items at 0.05 level of confidence.

H0<sub>2</sub>: There is no significant difference in the mean responses of technology teachers and heads of units in industries on how students industrial work experience is carried out towards manpower production.

Research Question III

What is quality of entrants and facilities used in the training institutions for manpower production?

Table 3: Mean, Standard deviation and t-test analysis on the quality of entrants and facilities used for manpower production.

S/NO.	Items	N1 = 200, N2 = 75					
		$\bar{X}_1$	$\bar{X}_2$	SD <sub>1</sub>	SD <sub>2</sub>	t <sub>cal</sub>	Remark
19	Left over or mediocre who could not get fixed up in general education should not be pushed to technology based courses In the name of "remedial".	3.66	3.71	0.65	0.51	-0.57	Accept
20	There should be an aptitude exam to streamline students into commercial, secondary and technical colleges based on their potentials.	3.06	3.8	0.54	0.58	0.22	Accept
21	In most institutions, there are sufficient facilities and they are all in good conditions (tools, equipments, etc)	2.62	2.05	1.35	0.77	2.37	Reject
22	All the equipment and machines Supplied to schools are properly house In the workshops.	2.72	2.14	1.42	0.95	1.98	Reject
23	Most of the text books in our school libraries are out dated and carrying belated information.	2.36	2.31	0.55	0.66	1.47	Reject
24	Only qualified technology base teachers should be allowed to teach in such institution.	3.70	3.75	0.53	0.50	1.60	Accept
25	Technical teachers' remunerations should be reviewed to forestall future drift of the best teachers to industries and business sector	3.42	3.14	0.53	0.68	1.47	Accept
26	There should be provision for staff development by way of study leave (further studies)	3.92	3.68	0.33	0.50	1.07	Accept
27	Financial provisions should be put in place to enable teachers attend workshops, conferences and seminars to refresh their knowledge	3.52	3.79	0.31	0.49	1.75	Accept

The table 3 above shows that items 13, 14, 18, 19, 20, 21, were accepted while items 15, 16 and 17 were rejected.

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