

Technical and Vocational Students' Attitude towards Palm Kernel Oil Extractive Industries in Government Technical Colleges, Enugu.

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Abstract

The study was carried out to determine the Technical and Vocational Students' Attitudes towards Palm Kernel Oil Extractive Industries in Government Technical Colleges (GTC), Enugu, based on assessment of Industrial Training (IT) in knowledge acquisition and manipulative skills of students for technological transformation and entrepreneurship in our developing nation. The study adopted survey research technique. Three research questions and one hypothesis were adopted for the study. The population of the study consisted of SSII students of the two main public-owned Government Technical Colleges in Enugu numbering 1,554 students. The researchers adopted stratified random sampling method to select 96 students as respondents from each of two of the Technical Colleges in the State. Thereafter, a sample of 192 student-respondents was selected for the study. Closed-ended questionnaire was constructed to obtain opinions of respondents. The instrument was face-validated by experienced educationists in Enugu State College of Education (Technical) and principals of the two Technical Colleges. The findings revealed that students have poor attitude because of little interest in Palm Kernel Oil Extractive Industry due to absence of compulsory internship through industrial training. One of the recommendations given is that, the school management should restructure their curricula to include compulsory Industrial Training at such industries in Enugu before graduating the students so as to enable them develop the necessary knowledge and skills and attitudes required in extractive industries.

Keywords: Extractive Industries, Industrial Training, Entrepreneurship, Internship, Curricula.

Introduction

From a global perspective, social and economic developments are increasingly driven by the advancements and application of knowledge. That knowledge and by extension skills can only be acquired through quality vocational and technical education programmes. Vocational and technical education in Nigeria has developed slowly over the years. As a very dynamic area, VTE is geared towards the production of individuals who are in addition to being knowledgeable, can effectively work with their head, heart and hands. This is because in addition to preparing individuals in general education, VTE involve studies in technologies and related sciences, the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sections of economic and social life, (Egbule, 2012).

According to Mkpozi (2008) the terms Technical and Vocational Training (Education) are generally referred to as technology education and are often used inter-changeably to refer to the same type of education. National Policy on Education (NPE) cited in Mkpozi (2008) defines Technical Education as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Vocational education is education for occupational preparation. It is any form of education whose primary purpose is to prepare persons for employment in recognized occupations. It provides the knowledge and attitudes necessary for effective employment in specific occupations. It is provided in special programmes offered at secondary and post-secondary levels. Technical and Vocational Education as used in the policy, therefore, can be classified thus; *Pre-vocational education* offered in senior secondary school technical colleges and vocational centers, *Craftsman education* offered in technical colleges and *Technical education* offered in Polytechnics and Colleges of Technology, (NPE Revised, 2004). Vocational and technical education refers to education and training geared towards the acquisition of practical skills, knowledge and understanding necessary for employment in particular occupations, trade or group of occupation or trades; UNESCO cited in Egbule (2012).

Government Technical College Enugu was established before as a works department in 1940 to serve the World War II soldiers and civilians. Later in 1950, the government took over the establishment and used it for Teachers Technical College (TTC). The purpose was to train technical teachers who will help to train students for technical service in the region. As from 1961 to 1963, two Government Technical Colleges were sited in Enugu and at Nsukka to admit students for three-year technical training after which they will be employed in technical industries across the country to produce goods and services to the citizenry. During that three year period of study the students are meant to go for two or three-month internship vocational experience in any of the technical and vocational industries in the Enugu, (GTC, Hand book, 2001).

Palm Kernel oil Factory in Enugu is an Extractive industry that produce oil from the raw material extracted from Palm Kernel seed harvested from the neighboring villages and states surrounding Enugu; Obollo-Afor, Abakaliki, Oha-ofia, Nsukka, etc. Established more than three decades ago at Railway Industrial location in Enugu main town, this extractive factory supply Palm Kernel Oil to Chemical and Livestocks producing companies that produce soap, vegetable/groundnut oil, pomade and livestock feeds (Pig, Rabbit, etc) to serve the basic needs of populace within the Eastern part of Nigeria, (Field Work, 2015).

This extractive factory has three machines with three divisions of labor; the Toaster/Drying machine help to dry the Palm Kernel seeds in a day and get it ready for crushing. Each *Toaster Basin* contains twenty one bags of extracted seeds. Each of the bags cost ₦6,200.00 and can be scarce during raining season. The *Crushing Machine* crushes the seeds to produce Palm Kernel Oil and a waste product called the Palm Kernel Cake is used to produce feed mostly for piggery. Each bag of the 50kg waste product cost ₦1,300.00. The third machine is the *Separation Machine* that separates chaff from the crushed seeds and filters the oil in a drum. And each day, three or more drums of Palm Kernel Oil are produced for sale. Not much human labor is involved as machines do most of the major job for production. The labor strength is three mainly technical staff and casual workers who sometimes work overnight if there is high demand for the oil, (Machine Manual Guide, 1999).

In Enugu, GTC students' attitude towards Palm Kernel Extractive Industry is very poor. Some students do not know anything about the Industry. Others still know but they view it as something that has nothing to do with their studies. While others are willing to be trained, lack of technical know-how with respect to internship service in the Industry militates against this. Teachers are not empowered technically/professionally to impart these knowledge and skills to the students while management of GTC in Enugu lacks adequate funding to provide equipment and other facilities for teaching and learning purpose. The Palm Kernel Oil Extractive Industry needs skillful manpower from technical schools like GTC to help facilitate the production of oil for making pomade, soap, other related chemicals used to provide fundamental needs of the society.

Cyril (2012), stated that the way mechanical craft theory is taught in schools has recently gain the attention of policy makers, parents and other stake-holders as a result of massive failure rate in the National Technical Certificate (NTC) Examination and the acquisition of the wrong skills from technical colleges in Northern Nigeria. The incident rate of failure and lack of skill among graduates of technical colleges inform the use of constructivism advocated by John Dewey in the late 19th century. Behavioral psychology has a strong influence on education to such an extent that teachers' plan and teach their lessons based on the design and production of textual material. An attempt is made to look at the child-centered constructivism theory pertaining to students' achievement in mechanical craft theory/practice where teachers are only facilitators rather than givers of knowledge.

Vocational Technical education helps in providing people with industry specific skills and knowledge which makes school-to-work transition easy. These skills are acquired for different trades of which palm kernel oil is one of them. People who are skilled in palm kernel oil extraction and processing engage in different trainings like crushing skills, toasting skills, drying skills, etc. This calls for adequate understanding of skills required for palm kernel oil by electrical technology, chemical technology, production technology, etc, by students to enable them engage in full production of palm kernel oil. Skills include preparation of the former for processing, (Ohanu and Eze, 2012).

Technical education programme also expects students to pass through its learning process with adequate knowledge and practical know-how needed in the industry for technological development. It was against this perception that the Industrial Training Fund (ITF) during its formative years introduced students Industrial Work Experience Scheme (SIWES) to provide students with the opportunity of exposure to industrial equipment and machinery in the industry to enable them acquire pre-requisite practical knowledge and skills through the SIWES programme; Nwoji cited in Tunba, Yaduma and Umar (2012). Technical education students are exposed to industry, operation and use of industrial machinery, management structure of industrial organization and good work habit in their special areas through industrial attachment. The current situation in school-industry partnership of Polytechnics and Colleges is that, students are given SIWES form from school SIWES coordinating unit, to be taken to prospective industries. This is to allow industries indicate their willingness to accept the students on SIWES. A committee responsible for placement and other related matters sits to consider the posting of students to identified industries based on students' area of specialization, (Tumba, Yaduma and Umar, 2012).

Methodology

The study was carried out to determine the industrial training students' attitude on Enugu Palm Kernel Oil Extractive Factory: a study of Government Technical Colleges, Enugu. The study adopted survey research method with structured questionnaire to obtain data for the study.

Population of the Study

The population of the study consisted of senior secondary school year two (SSII) students of Government Technical Colleges, Enugu as shown in table 1.

Table 1: Population Distribution Rate of Year-2 (SSII) GTC Students, Enugu

Sections	Population	Male	Female
Mechanical Crafts	121	119	2
Fabrication & Welding	89	89	–
Motor Mechanic	145	145	–
Foundry Craft	14	13	1
Agricultural Equipment	45	45	–
Plumbing & Pipe Fitting	16	16	–
Painting & Decoration	67	61	6
Furniture Making	94	94	–
Carpentry & Joinery	53	53	–
Bricks & Block Laying Concrete	76	76	–
Electronics (Television/Radio)	110	110	–
Electrical Installation & Maintenance	164	164	–
Air-conditioning & Refrigeration	177	177	–
Computer Craft	197	175	22
Business Studies	86	46	40
Hospitality Trade	100	43	57
Total	1554	1426	128

Source: Vice-principals Administration GTC, 2014.

Thereafter, to obtain a 95% reliability status of the study, the Taro Yamane formulae (1968.280) were used to determine the sample size. A sample of 192 student respondents was selected for the study. The instrument was face-valid by experienced lecturers in department of

vocational and technical education in Institute of Management and Technology (IMT) and University of Nigeria, Nsukka (UNN). Structured questionnaire was administered to the respondents and they were used to answer research questions. Reliability coefficient of 0.87 was obtained which suggested acceptance. Mean and frequency percentages were used with mean scores of 2.5 as the criterion for acceptance or rejection. Analysis of Covariance (ANCOVA) techniques was used to test the hypothesis at 0.05 Alpha (a) level.

Statement of the Problem

Technical and Vocational education is designed to meet the complex technological needs of modern society and industry. This type of education is considered to be of immense importance to post-primary school levels and is intended to produce a category of workers referred to as technicians. Government Technical Colleges in Enugu have main objective to produce students who will serve as technicians in these industries. However, students' attitudes toward these extractive industries have affected their technical know-how and they are unemployable in these industries which may negatively slow the technological transformations in the nation. However, the questions posed in the study are the attitudes of Government Technical College students in Palm Kernel Oil Extractive Industry in Enugu and the effects of these attitudes in technological transformation of the economy. These are what the researcher intends to find out in the study.

Purpose of the Study

The specific purpose of the study is:

1. To determine Government Technical Colleges students' Attitudes on Palm Kernel Oil Extractive Industry in Enugu.
2. To find out the causes of Government Technical Colleges student attitudes on Palm Kernel Extractive Oil Industry in Enugu.
3. To find out the effects of Government Technical Colleges students Attitudes on Palm Kernel Oil Industry in Enugu.

Research Hypothesis

There is no significant difference on the opinions of students between Government Technical College (GTC), Enugu and Government Technical College, Nsukka on students' Attitudes towards Palm Kernel Extractive Industry in Enugu.

Results/Findings

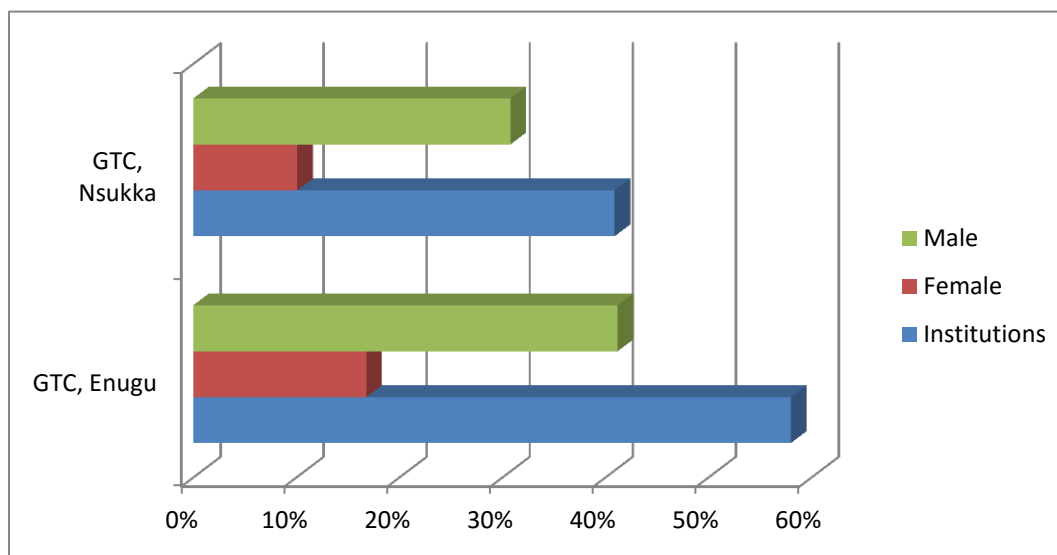
Table 2: Distribution of Data

Institutions		Percentages (%)		
1.	GTC, Enugu	58.0%	Female 16%	Male 41.2%
2.	GTC, Nsukka	40.9%	Female 10.1%	Male 30.8%

From the table 2, it indicated that GTC, Enugu has higher percentages of effect on the attitudes of students toward Palm Kernel Oil Extractive Industry in Enugu. While the table also

indicated that there are more percentages of male than female in GTC, Enugu. The data was further illustrated in graph 1;

Figure 1: Distributions of Data



Source: Fieldwork 2014. Distribution of data of GTC students Enugu.

Research Question 1: What are the Government Technical Colleges students’ Attitudes on Palm Kernel Oil Extractive Industry in Enugu?

Table 3: Mean Analysis of GTC Students’ Attitudes

S/N	Item Statement	\bar{X}	Decision
1.	GTC students visit Enugu Palm Kernel Oil Extractive Industry often.	1.45	Rejected
2.	GTC students acquire their vocational training at Palm Kernel Oil Extractive Industry in Enugu.	1.80	Rejected
3.	GTC students like to work at Enugu Palm Kernel Oil Industry after graduation.	1.79	Rejected
4.	GTC students work at Palm Kernel Oil Industry in Enugu before school enrolment.	1.97	Rejected
5.	GTC students <i>do not</i> have flair working at Palm Kernel Oil Industry.	3.05	Accepted

The table 3 has mean scores of 1.45, 1.80, 1.79, 1.97 and 3.05 from 1-5 items. Items 1 to 4, the respondents rejected that GTC students visit, acquire vocational skills, like and work at Palm Kernel Oil Industry, Enugu. While in item 5, they accepted that GTC students do not have passion working at Palm Kernel Oil Industry.

Research Question 2: What are the causes of Government Technical Colleges student attitudes on Palm Kernel Extractive Oil Industry in Enugu?

Table 4: Mean Analysis of Causes of GTC Students' Attitudes

S/N	Item Statement	\bar{X}	Decision
6.	Inadequate excursion method of teaching GTC students in Enugu caused students' Negative Attitudes to Palm Kernel Industry.	3.15	Accepted
7.	Inadequate infrastructural development in GTC, Enugu affected students' Negative attitudes to Palm Kernel Industry.	3.15	Accepted
8.	Poor GTC students' orientation on relevance of extractive industries by the school management.	3.09	Accepted
9.	Lack of Vocational and Technical skills in school Curriculum affected students' attitudes in Palm Kernel Oil Extractive Industry, Enugu.	3.27	Accepted
10.	Inadequate Educational Technologies for teaching and learning in GTC, Enugu.	3.20	Accepted

Table 4 has item 6-10 with mean scores of 3.15, 3.15, 3.09, 3.27 and 3.20 respectively. The respondents agreed that inadequate excursion method and infrastructural development, poor orientations on relevance extractive industries in Enugu, lack of vocational and technical skills practical and inadequate educational technologies in the institutions contributed immensely to the causes of GTC students' attitudes towards Palm Kernel Extractive Oil Industry, Enugu.

Research Question 3: What are the effects of students Attitudes on Palm Kernel Oil Industry in Government Technical Colleges, Enugu?

Table 5: Mean Analysis of Effects of GTC Students' Attitudes

S/N	Item Statement	\bar{X}	Decision
11.	Poor acquisition of knowledge and skills in industry among students in Government Technical Colleges, Enugu	2.95	Rejected
12.	Lack of practical knowledge and Application in Science and Technologies among students in Government Technical Colleges, Enugu.	2.95	Rejected
13.	Unemployment in technical skills among graduating Students in Government Technical Colleges, Enugu.	2.78	Rejected
14.	Lack of manpower in major Extractive Industries in Enugu.	3.33	Rejected
15.	Lack of interest on Industrial Training among students in Government Technical College, Enugu.	2.84	Rejected

Table 5 contained items 11-15 with mean scores of 2.95, 2.95, 2.78, 3.33 and 2.84 respectively. The mean scores are above 2.5 mean score of acceptance showing that respondents accepted the whole items statement that poor acquisition of Knowledge and skills among GTC students, lack of knowledge application, unemployment, lack of manpower in industries and low interest in Industrial Training (IT).

Research Hypothesis

Table 5: Summary of T-test Analysis (95% Confidence Interval)

Variables	N	DF	X	SD	alpha. Level	T-Cal	T-Cri	Decision Rules
GTC, Enugu	113		0.59	0.35				
		190			0.05	0.18	1.97	Not Sign.
GTC, Nsukka	79		0.41	0.79				

Since the $P-V (0.18) \leq T\text{-cri} (1.97)$, at $\alpha(0.05)$ with **190** degrees of freedom, null hypothesis is accepted. This implies that there is no significant difference in the opinions between GTC, Enugu and GTC, Nsukka students respondents on the attitudes of vocational and technical education students towards Palm Kernel Oil Extractive Industry in Enugu.

Discussion of Findings

Findings of the study revealed that GTC students between Enugu Town and Nsukka in Enugu State have poor attitudes towards Palm Kernel Extractive Industry located at Railway Industrial layout, Enugu. They have never gone for internship and/or visited the industry during their studies. Some do not have passion for working at the industry while others do not know any thing about it. These challenges were caused by inadequate equipment in the schools, poor orientation given to students by the teachers and school management and poor application of excursion method in teaching and learning purpose. This calls for adequate understanding of skills required for palm kernel oil by electrical technology, chemical technology, production technology, etc, by students to enable them engage in full production of palm kernel oil. Skills include preparation of the former for processing, (Ohanu and Eze, 2012).

The findings further showed that these attitudes of GTC students towards Palm Kernel Oil Extractive Industry have led to poor acquisition of knowledge and skills and their applications in extractive Industries, employment, entrepreneurship and/or self-reliance among youths after graduations. These challenges have led to lack of manpower in these extractive industries and can partly affect nation building through technologies.

The hypothesis table showed that the opinions of GTC, Enugu Urban and GTC, Nsukka are not significantly differing when rating the causes and effects of GTC, students' attitudes towards Palm Kernel Oil Extractive Industry in Enugu. GTC students' attitude towards Palm Kernel Extractive Industry is very poor. Some students do not know anything about the industry. Others still know but view it as something that has nothing to do with their studies. While others who are willing to be trained, lack the technical know-how to work or do their internship service in the Industry. This is because some of the teachers are not technical/professional to impact these knowledge and skills to the students, management of GTC in Enugu lacks adequate funding to provide equipments and other facilities for teaching and learning purpose. This Palm Kernel Oil Extractive Industry needs skillful manpower from technical schools like GTC to help

facilitate the production of oil for making pomade, soap, other related chemicals used to provide fundamental needs of the society

Conclusion

From the results of the findings analyzed and discussed, the following conclusion has been deduced in the study:

Vocational and Technical is a form of education whose, primary purpose is to prepare persons for employment in recognized occupations. It provides the knowledge and attitudes necessary for effective employment in specific occupations in Industries. Vocational and Technical education students' attitude towards Palm Kernel Oil Extractive Industries in Enugu is very poor because they lack interest and knowledge of the Industry during their studies. This is caused by inadequate educational technologies, inadequate infrastructure, lack of students' visit and internship at the Oil Extractive industry. These challenges have affected manipulative skills acquisition among students necessary for technological transformation of the economic.

Recommendations

From the findings of the study and conclusion drawn, the following recommendations should be observed critically in the study:

1. Curriculum reform should be dominated with vocational and technical education at all level of Government Technical Colleges nationwide. This should include practical work at the classroom, practicum, to enable GTC students experience and manipulate equipments in the training workshops.
2. Compulsory Internship at Palm Kernel Oil Extractive should be made available to year II students of GTC before they are promoted to SS III. This will enable them to acquire relevance knowledge and skills and develop positive attitudes towards the industry.
3. Training and re-training of technical teachers should be funded by government and other stakeholders in education sector to make the training more viable and robust in equipping the teachers to be dedicated to duties.
4. Students can be encouraged to show more interest in such extractive industries if they are motivated financially during their industrial training. Though this is applicable to tertiary institutions, a lot of foundational progress will be made if SIWES could extend such to post-primary schools.

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