

NEEDED SYNERGY BETWEEN POLYTECHNICS AND ELECTRICAL AND ELECTRONIC TECHNOLOGY INDUSTRIES FOR ENHANCING STUDENTS' SKILLS PERFORMANCE IN SOUTH WEST, NIGERIA

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Abstract

The study sought to investigate the Needed Synergy between Polytechnics and Electrical and Electronic Industries for enhancing students' skills performance in South West, Nigeria. Two research questions guided the study. The research design adopted for the study was descriptive survey. This is because the items questionnaire seeks the views, opinions and information of the respondents for data collection. The population for the study was one hundred and fifty (150) respondents which comprises of seventy five (75) electronic instructors from Polytechnics and seventy five (75) managers from Electrical and Electronic Technology Industries cutting across South West States in Nigeria. Multi sampling technique was used for the study. The states that were involved for the study are Lagos, Oyo, Osun, Ondo and Ekiti. There was no sample for the study because of small size in population. The instrument for the study was questionnaire tagged: Needed Synergy between Polytechnics and Electrical and Electronic Industries for enhancing students' skill performance in South West, Nigeria Questionnaire (NSBPETIQ).used for data collection. The questionnaire was validated by three experts from Electrical and Electronic technology education unit of Technical Education Department of Emmanuel Alayande College of Education, Oyo, Oyo State using content validity. Test-retest method was conducted in Kwara State's Polytechnics as pilot study at an interval of two weeks to determine reliability of the instrument using Pearson Moment Correlation Coefficient in which 0.70 reliability coefficients was obtained indicating that is reliable for the study. Mean and Standard Deviation were used to analysis the data from the two research questions at a cutoff point above 3.00 and 0.75 as Highly Needed (HN) and below 3.00 and 0.75 as Not Needed (NN) for the data analysis. It was revealed from the discussion of findings among other that synergy between Polytechnics and Electrical and Electronic Industries should provide safety precaution training needed for enhancing the students' performance because of adequate modern instructional facilities available in Industries. Federal and States Government Polytechnics should collaborate with Industries so as to give the needful training needed by the students of nowadays so as to enable them to be gainful employed among others.

Key Words: Polytechnics, Skill, Performance, Electrical and Electronic Technology Industries, Synergy.

Introduction

Polytechnics in Nigeria are tertiary institutions saddled with the responsibility of training middle level manpower for industrial and technological development. Polytechnics are post-secondary institutions with the mandate of providing manpower of different cadres in Science, Engineering, Technology, Commerce and Management for self-reliance and paid employment (Federal Republic of Nigeria (FRN), 2013).. The goals and objectives of Polytechnic institutions are pursued through two tiers of programme namely National Diploma (ND) which is a two year programme along with one year of Students Industrial Work Scheme (SIWES). The SIWES programme having acquired would serve as a pre-requisite for gaining admission into the second Higher National Diploma (HND) programme. The mandate of Polytechnic institutions includes Research, Skills development among students and also contributing to Community Development (National Board for Technical Education (NBTE), 2013).

Skill specifically refers to expertise and ability which has an economic value or has potential of being utilized for generating income and employment (Ayoola & Busari, 2012, Alao, Akor & Udensi, 2019). Skills acquisition according to National Council on Skills Development (NCS), (2010) refers to education, training and development activities designed to help trainees' gainful knowledge, and attitudes that would improve their performance in the positions that they currently occupy and their future prospects such as electrical and electronic technology.

Electrical and Electronic Technology or Engineering is one of the programme offered at National Diploma (ND) and Higher National Diploma (HND) levels in Polytechnics which is in lines with the National Board for Technical Education (2013) Minimum Standards guidelines. For the trainers to acquire the objectives of HND in Electrical and Electronic programme. The trainees are expected to: design and construct simple Electrical and Electronic circuit, erect, assemble and install simple Electrical and Electronic equipment, gadgets among others. (National Board for Technical Education (NBTE), 2013). In trying to achieve this, the need for synergy between Electrical and Electronic Industries and Polytechnic would bridge the gap between theory and practical as many of the institutions do not have adequate of instructional facilities, materials, modern tools and equipment that can provide competitiveness with that of Electrical and Electronic industries (Idris & Rajuddin, 2012). Consequence upon the lacking of modern instructional facilities therefore, the need for synergy between Polytechnics and Electrical and Electronic Technology Industries in South West, Nigeria is paramount.

Electrical and Electronic Technology Industries are public organizations or establishments for the production of wires and cables, equipment and other which includes radio television set, hand set, electric cookers and a host of others Electrical/Electronic devices or components such as diodes, transistors, resistors, cathodes, capacitors, for consumptions and commercial activities by the business men (Ibe, 2009). All these required skill on safety precaution training that needs constant practices and probably handling for the production of electrical and electronic products to be achieved. Therefore, Idris and Rajuddin (2012) reported that the skills required for employment particularly on safety in industries cannot be provided by the institutions alone simply because the equipment and tools in the school workshops are not up to the standards of industries for the implementation and actualizing the skills required by students in industries and where they are available, they are obsolete. This necessitates for the introduction and inclusion of SIWES through Industrial Training Fund (ITF) in an effort to bridge the gap between theory and practice, (ITF, 2011).

The need for improving students' skills through partnership or synergy between Polytechnics and Electrical and Electronic Technology Industries in South West, Nigeria becomes paramount. Synergy is often used interchangeably with collaboration or partnership which involves co-operation, work or act together between people or organizations in the public or private sector for the purpose of mutual benefit. The partners must have agreed to set up and manage a business outfit with the sole aim of making profit, having common interest, objectives and goals. (Ande, 2012). Therefore, synergizing in the area of skills and safety precaution training would enhance students' performance required for the job performance in industries and self-sustainability. This can be achieved through collaboration between Polytechnics and Electrical and Electronic Industries.

Statement of the Research Problem

Electrical and Electronic technology programme in Polytechnics is expected to prepare and provide students with technical knowledge and skills for the purpose of securing employment in Electrical and Electronic Technology Industries and in compliance with the National Board for Technical Education (2013) Minimum Standards. This was however observed on the graduates' non-performance on safety precaution training in Industries. To achieve these objectives, the Polytechnics need to partner with Electrical and Electronic Technology Industries for providing relevant technical skills and knowledge needed by students in order to meet up with the challenges of bridging the gap between theory and practice which the industries stand for. Hence, SIWES was introduced to play the roles of students' industrial attachment. This is because of inadequate of instructional facilities and materials in most of the tertiary institutions of learning particularly Polytechnic and where available, such are obsolete for the used.

Also, the research study by Niche, (2010) shows that the students always secured wrong placement of Industrial Attachment This may be a challenge towards providing skills needed in Industries which eventually necessitate training and retraining of employed graduates by the industries before they can be fitted into assigned jobs. In view of these and among others, there is need for synergy between Polytechnics and Electrical and Electronic Technology industries for enhancing students' skills

performance, reducing the overhead cost of training and restraining of graduates when employed and finally preparing the students for the world works in South West, Nigeria.

Purpose of the Study

The purpose of study is to determine needed synergy between polytechnics and electrical and electronic technology industries for enhancing students' skills performance in South West, Nigeria.

Specifically the study examined:

- Needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of safety precaution training necessary for enhancing' skills performances of Polytechnic students
- needed synergy on provision of instructional facilities and materials necessary for enhancing skills performance of Polytechnics students

Research Questions

Two research questions were formulated for the study thus:-

- ❖ What is the needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of safety precaution training necessary for enhancing skills performance of polytechnics students?
- ❖ What is the needed synergy between Polytechnics Electrical and Electronic Technology Industries required in the provision of instructional facilities and materials necessary for enhancing skills performance of polytechnics students?

Methodology

The research design adopted for the study was descriptive survey. This is because the items of the questionnaire seek the views, opinions and information of the respondents based on the items of questionnaire for data collection. The population for the study was one hundred and fifty (150) of the respondents which comprises of seventy five (75) electronic work instructors from Polytechnics and seventy five (75) other managers from Electrical and Electronic Technology Industries, cutting across South West States in Nigeria. Multi sampling techniques was used for the study to allowing the full participation of the respondents before harvesting their responses in the questionnaire. The states involved for the study are Lagos, Oyo, Osun, Ondo and Ekiti State all from South West of geo-political zone. There was no sample for the study because of small size in population. The instrument for the study was questionnaire tagged: Needed Synergy between Polytechnics and Electrical and Electronic Industries for enhancing students' skill performance in South West, Nigeria Questionnaire (NSBP EEIQ) used for data collection. The questionnaire was validated by three experts in Electrical and Electronic technology education unit of Technical Education, Department of Emmanuel Alayande College of Education, Oyo, Oyo State using content validity to ensure items contains all the subjects matter in the questionnaire. Test-retest method was conducted in Kwara State's Polytechnics as pilot study at an interval of two weeks. To determine reliability of the instrument Pearson Moment Correlation Coefficient was used and 0.70 reliability coefficients were obtained, indicating that the instrument is reliable for the study. Mean and Standard Deviation were used to answer the two research questions at a cutoff point above 3.00 and 0.75 as Highly Needed (HN) for mean value and standard deviation while below 3.00 and 0.75 as Not Needed (NN) for mean value and standard deviation for the data analysis.

Results

Research Question 1: What is the needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of safety precaution training necessary for enhancing skills performance of polytechnics students?

Table 1: Mean ratings and Standard deviation of instructors and the manager of industries as regards to the needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of safety precaution training necessary for enhancing skills performance of Polytechnics students

S/N	Items	X	SD	Remarks
1	Understanding the general safety of the school workshop.	4.50	0.85	HN
2	Observing personal safety while carrying out practical in the school Workshop	3.85	0.83	HN
3	Observing the use of tools, equipment and machines for safety rules and Regulations.	3.75	0.80	HN
4	Observing General safety rules of electronic circuit diagrammes.	3.65	0.77	HN
5	Identifications of scalarules used in radio, television electronic working drawing for for y precautions.	4.50	0.78	HN
6	Identifications of cablerating, rules on maximums loads demand and ambient emperature for safety precaution	3.68	0.75	HN
7	Understand the safety rules on how to read the values of the components such as the e, tyristors, resistors and host of other electronic through measuring I rume instrument meters	3.75	0.75	HN

Key: X=Mean ratings, SD= Standard Deviation, NN= Not Needed and HN= Highly Needed.

Table 1 shows the students' skills required for synergizing Polytechnics and Electrical and Electronic Technology Industries particularly on electronic work are ranging from high mean ratings and standard deviation of 4.50 with 0.85 and 0.78 on item 1 and 5 while 3.75 with 0.75 on item 10 but low mean ratings and standard deviation fell between 3.68 and 0.75 on items 7 indicating that all items based on the research study on question 1 are highly needed for the students' skills needed for synergy between Polytechnics and Electrical and Electronic Technology Industries on safety precaution training needed for electronic work for successful performance in industries as well as to be self-reliant as indicated by response above 3.50 and 0.75 of mean value and standard deviation of the respondents.

Research Question 2: What is the needed synergy between Polytechnics Electrical and Electronic Technology Industries in the area of provision of instructional facilities and materials necessary for enhancing skills performance of polytechnics students?

Table 2: Mean ratings and Standard deviation of instructors and manager as regards to the needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of provision of facilities band materials necessary for enhancing skills performance of Polytechnics students.

S/N	Items	X	SD	Remarks
08	Provision of modern schools' workshop for radio, television and electronic.	3.54	0.77	HN
09	Equipping the school electronic workshop with modern tools for skill acquisition.	3.65	0.76	HN
10	Provision of all the necessary materials for the radio, television electronic skills acquisition.	3.60	0.75	HN
11	Provision of modern communications facilitate for radio, television and electronic skills acquisition.	3.58	0.78	HN
12	Provision of adequate supply of electricity for skills acquisition.	3.57	0.78	HN
13	Provision of radio, television and electronic machines for skills acquisition.	3.75	0.84	HN
14	Provision of electric equipment for the use of skills acquisition.	3.65	0.76	HN
15	Provision of net-work roads to facilitate skills acquisition in radio, television and electronic	3.55	0.75	HN
16	Adequate provision of automatic generators as alternative to main power failure.	3.65	0.76	HN
17	Welfare and incentives packages should make available for the categories of staff	3.75	0.84	HN
18	Adequate supply of health care facilities to cater emergency injuries	3.65	0.76	HN
19	Clean and decent environment for conductive learning	3.85	0.78	HN
20	Provision of accommodation to all categories of staff	3.85	0.78	HN

Key: X=Mean ratings, SD= Standard Deviation, NN= Not Needed and HN= Highly Needed.

Table 2 shows the highest mean ratings and standard deviation response by the instructors and managers of industries on the provision of instructional facilities needed for synergizing Polytechnics and Electrical and Electronic Technology Industries particularly for the training of graduates of electronic repairs' skills fell between 3.85 and 0.78 on the item 19 and 20 while the lowest mean ratings and standard deviation fall between 3.54 and 0.77 on the item 08 showing that adequate provisions of facilities were needed for the effective and adequate training of graduates before a functional education on repair of electronic can be meaningful to the need of society as all the respondents have indicated above 3.00 and 0.75 on mean values and standard deviation.

Discussion of Findings

Finding on Table 1 shows that all items concerned with safety precautions training are highly needed for synergizing Polytechnic and Electrical and Electronic Technology Industries which serves as a means of improving the existing safety precaution among polytechnic students in South West, Nigeria. This is juxtaposed by the research findings of Lasisi, Adedeji and Oyedola (2017) on electronics works skills acquisition in Government Technical Colleges: An impetus towards entrepreneurship for poverty alleviation and sustainable development in Oyo State.

Table 2 shows the findings on instructional facilities and materials in modern schools workshop was revealed that all were highly needed for synergizing Polytechnics and Electrical and Electronic Technology Industries as many of the items questionnaire are vital for enhancing student' skills performance either in Industries and to be self-reliant. This was however, supported by Idris and Rajuddin (2012) on the research study on influence of Teaching Approaches among Technical and Vocational Education Teachers towards Acquisition of Technical Skills in Kano State-Nigeria.

Conclusion

The research study had shown that all the items questionnaire in the instrument particularly on instructional facilities and safety precautions training were highly needed as observed by the respondents into the preparation towards the students' skills acquisitions for the use of industries as well as for self –sustainability on electronic work. Therefore, there is need for partnership between Polytechnics and Electrical and Electronic Industries that would gear towards effective students' training performance before hand and reduce the cost of training and retraining of employed graduates while at work.

Recommendations

The following recommendations were made with the respect to outcome of the research work thus:

- The needed synergy between Polytechnics and Electrical and Electronic Technology Industries in the area of safety precaution for enhancing skills performance of Polytechnics students should be strictly emphasized and implemented in Industries to compliment the efforts of the school for self-sustainable and gainful employment..
- Federal and States Government Polytechnics should collaborate with Industries so as to give the training needed by the students that would enable them to be gainfully employed.
- Federal and States Government Polytechnics should provide all instructional facilities and materials needed in all Electrical and Electronic Technology of tertiary institutions' workshops for the use of student' skills training in their areas of specialization.
- The philanthropists should also assist the Government at every level to provide them with instructional facilities and materials needed by Electrical and Electronic Technology educational courses programmes so as to boost the functionality of a career chosen.

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