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ADEQUACY OF WORKSHOP FACILITIES IN COLLEGES OF EDUCATION (TECHNICAL) FOR TRAINING OF TRADE TEACHERS OF TECHNICAL COLLEGES IN NORTH EASTERN STATES OF NIGERIA

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ABSTRACT: *The purpose of the study was to determine the adequacy of workshop facilities to facilitate effective teaching and learning process in Colleges of Education (Technical) in north eastern States of Nigeria. Two research questions guided the study. The research adopted a descriptive survey design. The study was conducted in Bauchi, Gombe, Taraba and Yobe States of Nigeria. The population of this study consisted of forty-five (45) workshop instructors. Data were collected through the use of checklist and questionnaire. The instrument has a reliability coefficient of 0.76. The findings showed that Workshops space in Colleges of Education (Technical) in North eastern States of Nigeria were inadequate.. Most of the equipment, tools, and machines available in the colleges were not enough to cater for increasing population of students' enrolment. The study recommended that the Federal and States owned Colleges of Education (Technical) should be provided with adequate workshops and training facilities to cater for the increasing students' population. This will in turn promote teaching and learning.*

KEYWORDS: Adequacy, Workshop Facilities, training , Trade Teachers

INTRODUCTION

Technical education is considered as one of the most effective means of bringing about technological change that would ensure accelerated technological development of any nation. There is therefore a need for qualitative teaching and learning facilities in Colleges of Education (Technical) for effective training to produce graduates that can perform competently in their chosen vocation without a need for pre-employment training. This condition can be achieved through a curriculum that is relevant, comprehensive, and well equipped workshop with relevant training facilities. Uzoagulu (1992) warned that where facilities, equipment and tools are not adequate for use by the teeming number of Technical and Vocational Education (TVE) students, acquisition of skills in technical training programs will suffer and will lead to the production of unskilled personnel who are unemployable and unproductive. Therefore, inadequate workshop facilities in TVE institutions deter skill acquisition. The goal of developing the educational system is to provide conducive environment capable of imparting skills necessary to exploit it to the fullest and this can achieved through good utilization of natural resources of the country which makes it imperative for facilities to be available in Universities, Polytechnics and Colleges of Education.

The acquisition of practical skills relating to occupations as part of the 2008 National Commission for Colleges of Education's objectives require that technical teachers should be provided with intellectual and professional background adequate for teaching technical trades

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in technical colleges. In order to achieve this, technical institutions are expected to focus on workshop practices in addition to their classroom lectures with adequate practical demonstration which is generally considered to be the key for concrete learning. Hallack (1990) stressed that the availability, relevance and adequacy of these facilities promote academic achievement in the school system; which of course results in the production of quality graduates. According to Muthamia (2009), teachers can only be effective and productive in their work if they have adequate and relevant teaching and learning facilities. There are several problems facing vocational and technical education and these include: inadequate quantities of equipment, machines, tools and instructional materials (Osuala, 2004). Ike, Nwamuo, and Ojukwu, (2011) pointed out that there is the need for adequate facilities in school workshops. They suggested that the only way of determining the level of facilities in the workshop is to check the tools, machines and materials available in the workshop. They also emphasized that sustainable technological development cannot be achieved if school workshops are in the mist of inadequate facilities.

The major aim of Colleges of Education (Technical) according National Commission for Colleges of Education NCCE, (2008) is to produce qualified technical trade teachers and practitioners of technology capable of teaching introductory technology in junior secondary schools and to produce National Certificate of Education (NCE, (Technical) trade teachers who will be able to inculcate scientific and technological attitudes and values into the society.

The NCE (Technical) programme which was established over two and half decades today, with this objectives still lack the necessary facilities to produce technical trade teachers with adequate practical skills in most of our technical institutions (Moja, 2000). There is need for well-equipped workshops with adequate facilities to provide the required training and impart the necessary skills leading to the production of technical trade teachers and other skilled personnel who will be enterprising and self-reliant. The NCCE minimum standard (2012) stated that another important aspect for training of competent teacher is the provision of office facilities; this is because the comfort of staff and provision of relevant facilities such as computers, printers, photocopiers, etc makes teaching and learning effective. The Provision of these facilities play pivotal role in the actualization of the educational goals and objectives . The facilities in schools are material resources that enhance teaching and learning thereby making the process meaningful and purposeful. Arowolo (2003) pointed out the availability of equipment and facilities aid memory by making abstract concepts concrete. Equipment and facilities make it possible for the students to interact with the learning materials (Benjamin, 1990). The Federal Republic in Nigeria (FRN, 2004) in its National Policy on Education affirmed under "the Philosophy of Nigeria education that educational and training facilities will be multiplied and made more accessible, to afford the individual a far more efficient and flexible choice. In most of our colleges of education today, there are no enough equipment and materials neither for teachers to conduct practical activities nor for students to carry out investigative activities or practical work on their own in order to discover things and improve their practical skills. Adequancy of Workshop and training facilities cover wide variety of issues such as programmes, facilities, workshop floor area, storage facilities, lighting, ventilation, machines and heating system. This must be provided because functional facilities enhance quality learning.

Research Questions

The following questions guided the researchers in carrying out the study:

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1. What is the level of adequacy of workshop spaces in Colleges of Education (Technical) in the North eastern States of Nigeria?

2. What is the adequacy level of hand tools, equipment and machinery for training in colleges of education (technical) workshops in North eastern States of Nigeria?

METHODOLOGY

The study adopted a survey research design that employed the inventory method to collect data on the availability and adequacy of facilities for use in teaching technical trades and a questionnaire to collect data adequacy of in the workshops. The study was conducted in North-eastern states of Nigeria. The study was delimited to the facilities used in various technical trades in the Colleges of Education (Technical) in the States. These trades include: Automobile, Building, Electrical/Electronics, Woodwork and Metalwork Technology respectively. The population of the study comprised of forty-five (45) instructors in the four (4) colleges of education (Technical) in North eastern states of Nigeria. Based on the size of the population of workshop instructors for the study, the entire population was used as a sample because it was relatively manageable.

The instrument used for data collection was checklist and questionnaire. Standard checklist for assessing school shop facilities modified from Ohio school shop facilities commission (OSFC) Master planning activities (2007) in conjunction with excerpt from Beynon (1997) was used. A questionnaire with a four point rating scale developed by the researcher . The instrument was face validated by three experts: one expert from Abubakar Tafawa Balewa University, Bauchi and two experts (2) from Federal College of Education (Technical) Gombe, Gombe State. The internal consistency of the instrument was established using Cronbach alpha, and SPSS package was utilized for the reliability test. The questionnaire instrument yielded a reliability index of 0.76. Checklist and questionnaire were used as instruments to collect relevant data on available hand tools, equipment and machines. Research question 1 was answered using the mean and standard deviation. Research question 2 was answered analysed using simple percentage. Any item with a mean rating of 2.50 and above was regarded as adequate, and any item with mean rating below 2.50 was regarded as inadequate respectively.

RESULTS

The results were presented in the order in which the research questions were raised as follows

1 What is the level of adequacy of workshop spaces in Colleges of Education (Technical) in the North eastern States of Nigeria?

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Table 1: Mean Responses of Instructors on Level of Adequacy of Available Workshop Spaces in Colleges of Education (Technical) in the North eastern States of Nigeria?

S/N	Items	x_T	Remark
1	Adequacy of Floor space in` Automobile workshop	2. 69	A
2	Adequacy of floor space in Building workshop	2. 59	A
3	Adequacy of floor space in Elect/electronic workshop	2. 27	NA
4	Adequacy of floor space in Metalwork workshop	2. 28	NA
5	Adequacy of floor space in Wood workshop	2. 31	NA
6	Space for consumable Materials and supplies	2. 37	NA
7	Bench work space	2. 37	NA
8	Space available for exhibition in the school workshop	2. 04	NA
9	Space for instructions	2. 66	A
10	Adequacy of Auxiliary Spaces	2 .43	NA
	` **X_G**	**2. 37**	**NA**

Key: A= Adequate, NA = Not Adequate. X_T = Mean for four colleges X_G = Grand mean

Results presented in Table 1 shows that the Colleges of Education (Technical) have adequate floor space in only Automobile, Building and instructions with mean rating of 2.69, 2.59 and 2.66 respectively. The colleges have inadequate workshop space for electrical electronics, metalwork, wood work , materials and supplies, bench work and auxiliary with mean rating ranged between 2.04 -2.43 respectively. The grand mean rating of 2.37 explains that that the colleges have inadequate workshop space because it is below the decision point of 2.50.

Research Question 2

2 What is the adequacy level of hand tools, equipment and machinery for training in colleges of education (technical) workshops in North eastern States of Nigeria?

Table 2: The Percentage of Adequacy of Hand Tools in Colleges of Education (Technical) In North eastrn States of Nigeria.

S/N	Type of Facility	Programme	X_{HT}	Remark
1.	Hand Tools:	Automobile	34.62%	NA
		Building	38.90%	NA
		Electrical/Electronics	35.20%	NA
		Metal work	27.50%	NA
		Wood work	35.80%	NA
	Mean Percentage		**34.50%**	**NA**

Key: NA = Not Adequate, X_{HT} = Mean Percentage of adequacy of Hand tools in the four Colleges.

Results in Table 2 shows that the programmes in the colleges of education (Technical) had a percentage mean rating ranged between 27.50% to 38.90% and a grand mean rating of 34.50% respectively. Any items with a percentage mean rating below 50% were regarded as inadequate. Thus, Colleges of Education (Technical) in North eastrn States of Nigeria have inadequate workshop hand tools.

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Table 3: The Percentage of Adequacy of Equipment in Colleges of Education (Technical) In North eastrn States of Nigeria.

S/N	Type of Facility	Programme	X_E	Remark
1.	Equipment:	Automobile	34.40%	NA
		Building	35.90%	NA
		Electrical/Electronics	44.80%	NA
		Metal work	39.50%	NA
		Wood work	36.20%	NA
	Mean Percentage		**38.00**%	**NA**

Key: NA= Not Adequate. X_E = Mean Percentage of adequacy of Equipment in the four Colleges.

Table 3 presents level of adequacy of workshop equipment per programme in the colleges of education (Technical) in North eastrn States of Nigeria. The result shows that the programmes in the colleges had a percentage mean rating ranged between 34.40% to 44.80% and a grand mean rating of 38.00% respectively. Any items with a percentage mean rating below 50% were regarded as inadequate. Therefore, Colleges of Education (Technical) in North eastrn States of Nigeria have inadequate workshop equipment for effective teaching and learning.

Table 4: The Percentage of Adequacy of Machines in Colleges of Education (Technical) In North eastrn States of Nigeria.

S/N	Type of Facility	Programme	X_M	Remark
1.	Machines:	Automobile	34.40%	NA
		Building	54.60%	A
		Electrical/Electronics	37.80%	NA
		Metal work	37.70%	NA
		Wood work	32.90%	NA
		Mean Percentage	**43.10%**	**NA**

Key: A= Adequate, NA= Not Adequate, x_M = Mean Percentage of adequacy of Machines in the four Colleges

Table 4 revealed that Building programme has a percentage mean rating of 54.60% which is higher than decision point of 50.00%. This shows that the Building has adequate machines for effective teaching and learning. Similarly the other programme as presented in Table 4 had a percentage mean rating less than 50.00%. This shows the other programme have inadequate machines in the workshop for effective teaching and learning.

FINDINGS

1. The grand mean rating of 2.37 as presented in Table 1, revealed that the National Certificate in Educational (Technical) institutions in the North Eastern States of Nigeria do not have adequate workshop spaces for the trades.

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2. The mean percentage of 34.50% as presented in Table 2, for level of adequacy of workshop hand tools revealed that the National Certificate in Educational (Technical) institutions in the North Eastern States of Nigeria do not have adequate workshop hand tools.

3. The mean percentage of 38.00% as presented in Table 3, for level of adequacy of workshop equipment revealed that the National Certificate in Educational (Technical) institutions in the North Eastern States of Nigeria do not have adequate workshop equipment.

4. The mean percentage of 34.50% as presented in Table 4, for level of adequacy of workshop machines indicated that the National Certificate in Educational (Technical) institutions in the North Eastern States of Nigeria do not have adequate workshop machines.

DISCUSSIONS

The Findings related to the research Question one presented in Table 1 found that workshop space in Colleges of Education (Technical) in north eastern States of Nigeria required for effective acquisition of skill were inadequate, and students carry out practical activities at an in-inconvenient space for training of technical trade teachers. Facilities such as; bench space. Spaces for consumable materials, adequacy of floor space, and adequacy of auxiliary spaces were inadequate. Thus, the inadequacy in workshop space had effect on skill acquisition and practical skills necessary to operate machines that can technically impact skills training to students.

This findings is in support of Puyate (2007), who observed that in some schools, workshop equipment items are not spaced enough to accommodate students and hence the students are either overcrowd together or have to be outside the workshop during practical work and this resulted to lack of acquisition of skills. This also is in-line with the view of Yoloye (1989), who noted that most technology courses are thought without adequate workshops space and facilities. The findings also in-line with the view of Oryem, (2005), who indicated that only 40% of institutions of Higher Education in Nigeria have laboratory or workshop space for technical education programmes. The others, 60% do not have laboratory or workshop space and that this reflects the low quality of technology programmes in higher institutions.

The findings relating to research question two of the study as shown in Table 2 to 4 revealed that hand tools, equipment and machines for training in Colleges of Education (Technical) in north eastern States of Nigeria were inadequate. This finding further revealed that, practical class could not be carried out done adequately and demonstrated as a result of shortage in supply of hand tools, equipment and machines, which affect the practical skills acquisition of the students.

The findings are in agreement with the findings of Oghuvbu, (2009) who submitted that the quality of education and learning achievement of students depends on the facilities available in schools. Hence, the availability or non-availability of facilities (hand tools, equipment and machines) in colleges affects the academic performance of students. The finding also in support of Industrial Training Fund, (2007), which stated that a well-equipped workshop and training materials is a pre-requisite for effective skill acquisition in colleges. The findings is in

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agreement with the view of (Owoeye and Yara, 2011) who posited that, .the Facilities and equipment constitute a strategic factor in organizational functioning and determine to a very large extent the smooth functioning of any social organization or system including education. He further stated that availability and adequacy of instructional facilities promote effective teaching and learning activities in schools while their inadequacy or unavailability may affect the academic performance of the learner negatively.

Implications

The implication of these findings in teaching of technical students is that, the performance of learners is seriously affected due to over crowdedness and inadequate workshop practice and workshop facilities for necessary training to take place as observed by Yoloye (1989), Aguisibo (1998) and Arowolo (2003). They indicated that poor performance of science and technical students is an indicative of the fact that the students were taught poorly due to inadequate availability of workshop floor area which cannot accommodate all the students during practical, inadequacy of training facilities and training materials, lack of these has cause the death of practical skills among NCE (Technical) students.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn: The study has found that there is inadequacy of workshop space areas and hand tools, equipment and machines, the distribution of workshop space in the sampled Colleges identify some factors as major contributors to low performance and unnoticeable impact of the training skill received. For instance, many materials needed for the necessary training are lacking. One would therefore conclude that facility is not the only factor. Other factors may include workshop space areas, adequacy of space for instruction, inadequacy of workshop floor space in some trades are among the major obstacles which the study revealed as inadequate. To avert this, the National Commission for Colleges of Education should make fund available to Colleges of Education to encourage and improve the performance of students which is seriously affected due to inadequate workshop facilities for necessary training to take place.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. Improving and maintaining schools' physical facilities should not be limited to government alone, instructors, workshop attendance, and the school managers should take good care of the facilities.

2. National Commission for Colleges of Education in charge of evaluating Colleges of Education in Nigeria should take issue of facility very serious if not the objectives of the programme will not be achieved

3. Federal and state colleges of education (technical) should be provided with adequate workshop and training facilities to meet the challenges of the new world order of science and technology.

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