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Factors Responsible for Inadequacy of Technical Skills/Competencies of Graduates from Technical Teacher's Institutions in South-South Geo-Political Region of Nigeria

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Abstract

This study was carried out in order to ascertain the factors responsible for inadequacy of technical skills/competencies of graduates from technical teacher's institutions. On research question was raised and two hypotheses formulated to guide the study. A survey research design was used for the study and the population for the study was made up of final year technical education students, while a sample size of 30 respondents was drawn from two universities and two colleges of education (technical),that were used for the study. A – 28 item statements questionnaire was used to elicit information from respondents. Mean statistic was used to answer the research question and t – test was used to test the hypotheses formulated at 0.05 level of significance. The findings of the study revealed that lack of instructional machines, tools, workshop consumables and much time spend on some educational courses are some of the factors influencing the inadequacy of technical skills/competencies of graduates from technical teachers institutions. Conclusion was drawn and some recommendations were made to include: Effort should be made to equip technical teacher's institution workshops with instructional machines, tools and workshop consumables, among others.

Keywords: Inadequacy of Technical skills and competencies
Technical Teachers institutions

Introduction

In the modern world of today, education is redefined in line with international best practice where excellence is the key requirement for success. Nations are now more concerned about the quality of education that would provide opportunities for employment and income generation for their citizens and the general wellbeing of their nations in general (Arubayi, 2011). Educational curriculum and policies in higher institutions are now being directed towards skills acquisition and competencies so that recipients can have a mind-set for self employment and being employer of labour.Although much stride has been made towards the expansion of education in Nigeria, but it is doubtful if the same is said about the quality of the products of the educational system in Nigeria (Baikie as in Gbenda, 2013).According to Gbenda (2013),the consensus of opinion of

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Nigerians is that the standard of education as it is currently offered is far below acceptance. A lot still needs to be done to make education an instrument of national development and a means of improving modern living. Low educational standard is a big problem in Nigeria and it is perhaps the most formidable threat facing the nation today. However due to the emphasis on paper qualification, students barely take their studies serious, all they want is the paper qualification; they do not acquire the appropriate skill and competencies required from them, they pass through the school without the school passing through them. This is because of the misconception attached to education, people think education is synonymous with the acquisition of certificates at the expense of quality training, and this has caused a lot of social problems in Nigeria.

The skills needed in our educational institutions are in tandem with the needs, problems and aspiration of the contemporary society and hence citizens can then be well equipped to contribute to social-political development of the country. However, if education is to continue to play this pivotal role in stimulating national development, then the organic nature of education must be taken into cognizance in its planning (Ifelunni, 2014). Ukeji 1986 as in Ifelunni (2014),asserted that the quality of teachers inevitably affect the quality of our educational outputs, therefore one of the urgent problem that need to be addressed in our educational system is the issue of teacher's education, as NPE (2017) posited that no nation can rise above the qualities of its teachers. Based on this premise, the issue of teacher's education is important to the factors affecting education in general.

However, in Nigeria technical teachers institution is a formal arm of Technical and Vocational Education and Training (TVET) which has the aim of training technical teachers that acquire technical skills to impact technological knowledge in Nigerian schools. This career is offered in faculty of education in universities and colleges of education (technical). TVET in Nigeria has been faced with a lot of challenges that range from inadequate infrastructure, poor funding, poor curriculum implementation etc. this is because according to Toby (2000), the meaning of TVET in Nigeria is not yet understood by the government and those responsible for the planning of TVET in Nigerian . Therefore it is extremely difficult to organize and manage a truly TVET programme.

The graduates of technical teacher's institution in Nigeria have been faced with

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the problem of inadequate technical skill and competencies to function effectively in their respective places of employment. According to the National Policy on Education (NPE, 2008), this type of education, is to provide technical knowledge and skills necessary for economic development of Nigeria to give exposure on professional studies in technology.Secondly,the National Commission for Colleges of Education (NCCE) minimum standard (2012),states that the aim of this type of education is to produce qualified technical teachers motivated to start the so much desired revolution in technological development right from the Nigeria school. Consequently, there is no way these objectives can be attained without adequate technical skills and competencies. Because for one to function or serve as a technical teacher, that person is expected to posses the needed skills and competencies for impacting technical knowledge and skills to learners. Based upon this premise, Dike (2013), asserted that TVET prepares learners for careers that are based on manual or practical activities that are related to specific trades, occupation or vocations. In other words, it is an education designed to develop occupational skills and competencies. According to Olawole (2014), unavailability of skilled and competent technical teachers will hindered the execution of occupational programme that is geared towards manpower need of the nation as teachers are prime factor in the quality of instructions; therefore quality and competence go a long way in equipping students in TVET institutions for the world of work. However, if technical teachers are not adequately trained with skills and competencies in their occupational areas, then the nation is yet to have a clear path to the desired technological development it is yearning for. To this end, this study is designed to investigate the factors responsible for inadequacy of technical skills/competencies of graduate from technical teacher's institutions in south-south geo-political region of Nigeria.

Statement of the Problem

Technical teacher's institutions are saddled with responsibility of training technical teachers for duration of three years for the Nigeria Certificate of Education (NCE) programme and four years for a Bachelor of Science (B.Sc) in technical education from the university with areas of specialization such as mechanical, building and electrical technologies. During the cause of training, students take courses in education, technology and workshop practice that would enable them to acquire skills in their respective trades or options.

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However, it is expected that after the duration spent in school with the skills acquired during the period of training, they should be practically competent in their respective chosen trades. But there have been worries by employers that the graduates of technical teacher's institutions are not competent in practical skills as some of them could not operate instructional machines in their places of employments. Thus Adavbiele (2013), confirms that inadequate practical skills/ competencies of the graduate of technical teachers institutions has created a skill gap in technical teaching careers, that technical teachers institutions should look inwards. This skill gap is currently having a wide-spread negative influence on both the teachers and the graduates in terms of functions and productivity in their places of work. Lack of attention to tackle this gap could make the young graduates less attractive to employers and this could create higher unemployment that could cause negative effect on our economy and quest for technological development. Based upon this, it has become necessary to investigate the factors responsible for inadequacy of technical skills and competencies of graduate from technical teacher's institutions in south-south geopolitical region of Nigeria.

Purpose of the Study

The major purpose of this study is to find out the factors responsible for inadequacy of technical skill/competencies of graduate from technical teachers institutions. Specifically, the study intend to:

1. Find out if lack of instructional machines, tools and workshop consumables for practical exercise are responsible for inadequacy of technical skills/competencies of graduate from technical teacher's institutions.
2. Find out if much time spend on educational courses affect the time for practical exercise that cause inadequacy of technical skills and competencies of graduates from technical teacher institutions

Research Questions

The following research question was raised to guide the study.

1. How does lack of instructional machines, tools and workshop consumables for practical exercise responsible for inadequacy of technical skills/competencies of graduates from technical teachers institutions?

Hypotheses

The following hypotheses were formulated to guide the study.

1. There is no significance difference in the mean response of technical

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education students in universities and colleges of education (technical) on lack of instructional machines, tools and workshop consumable that is responsible for inadequacy of technical skills/competences of graduate from technical teacher's institutions.

2. There is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on much time spend on educational course that affect the time for practical exercise that cause inadequacy of technical skills /competencies of graduate from technical teachers institutions.

Significance of the study

The findings of this study should be of immense benefit to educational institutions such as universities and colleges of education and their agencies, so as to make available adequate instructional machines, tools and consumable materials and to plan their curriculum considering the adequacies of technical skill competencies of students in their institutions. The findings will also be of immense benefit to students as it will enhance their practical skill/competencies. Finally, the study would be a database for future researchers in the field of education and other related studies.

Scope of the study

This study was focused on the factors responsible for inadequacy of technical skills/competencies of students in technical teacher's institutions. Therefore, technical education students from Delta State University Abraka, University of Benin, Benin-city and technical education students from the Federal Colleges of Education (Technical) in Asaba and Federal college of education (technical) Omuku, were used to determine the outcome of the study.

METHODOLOGY

The research design adopted for this study is a descriptive survey; this study involves the collection of data from a sample of final year technical education students from universities and colleges of education (technical).A stratified random sampling technique was used to select 15 students from the colleges of education (technical) and 15 students from the universities, making it a sample size of 30 respondents that was used for the study. The instrument used for data collection was a questionnaire that was developed by the researcher and it contains a 28 item statements and the questionnaire was structured to have four point rating scale of: Strongly Agree (SA) = 4, Agree (A) = 3,

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Disagree (D) =2 and Strongly Disagree (SD) = 1. The instrument was subjected to face and content validity by two experts, the validats criticism; advice and suggestions form part that guided the structuring of the instrument. However, to ascertain the internal consistency of the instrument, a split-have reliability technique was used as pilot study involving 15 respondents outside the study sample. The instrument was administered once to the respondents and the data obtained was computed using the spearman Rank order correlation coefficient and a coefficient (r) of 0.92 was established.

In administering the instrument to the respondents, the researcher with the aid of an assistant personally administered the questionnaire to the respondents in the various institutions. A total of 30 copies of the questionnaire were distributed in all the institutions and all the questionnaires were found useable and this represents a 100% return rate.

The data obtained from the administered questionnaire were analyzed using mean and standard deviation to answer the only research question, therefore 2.5 and above was set as the bench mark to accept any item statement and 2.49 below is to reject an item statement, while t-test was used to test the hypotheses at 0.05 level of significance.

Result

The results are presented based on the research questions raised and the hypotheses formulated.

Research Question 1:

How does lack of instructional machines, tools and workshop consumables for practical exercise causes inadequacy of technical skills/competencies of graduates from technical teachers institutions.

Table 1: Mean ratings and standard deviation of respondent's response on lack of instructional machines, tools and workshop consumables for practical exercise that causes inadequacy of technical skills and competencies of graduates from technical teacher's institutions.

S/N	Item Statements	SA	A	D	SD	X	SD	Remark
1.	There is no metal lathe to practice with in our workshop.	14	8	6	4	3.00	1.1	Accept
2.	No drilling machine to practice with in our workshop.	8	6	12	6	2.50	0.86	Accept
3.	There is no flat sheet of mild steel metal for fitting exercise	13	8	7	4	2.93	0.80	Accept

4.	We have no welding transformer in our workshop to practice arc welding.	10	8	6	8	2.62	1.96	Accept
5.	There is no gas welding equipment and accessories.	9	11	7	5	2.53	1.01	Accept
6.	There is no pedestal grinding machine in our workshop.	12	9	5	6	2.84	0.55	Accept
7.	We have no welding electrodes in our workshop	8	9	7	8	2.53	0.71	Accept
8.	There are no work benches in our workshop for fitting exercise	5	7	11	9	2.25	0.37	Reject
9.	We have no wiring board to practice electrical wiring.	8	14	6	4	3.12	0.60	Accept
10.	There is no galvanize sheet of metal to practice pattern development in our workshop.	9	10	8	5	2.71	1.02	Accept
11.	We have no shaping machine in our workshop.	14	5	9	4	2.90	0.38	Accept
12.	There are no electrical cables to practice electrical wiring in our workshop.	7	19	4	2	2.96	0.76	Accept
13.	Our workshop is not equipped with wood lathe	8	13	6	5	2.75	1.00	Accept
14.	There is no wood planning machine in our workshop.	7	12	7	6	2.60	1.02	Accept
15.	We have no log of wood to practice wood work exercise with.	11	10	4	7	2.78	1.13	Accept
16.	Our workshop is not equipped with blow lamps for brazing.	5	8	12	7	2.34	0.43	Reject
17.	Our work shop store room is not equipped with hack saw and files for fitting exercise	9	14	5	4	2.67	0.95	Accept
18.	No marking out equipment in our workshop	8	15	5	4	2.84	0.55	Accept
19.	There is no measuring instrument in our workshop.	9	13	6	4	2.84	1.03	Accept
20.	Our workshop is not equipped with oven for heat treatment	9	11	5	7	2.68	1.10	Accept
21.	We have no spanners and the necessary equipment to dismantle an engine	10	7	8	7	2.62	1.13	Accept
22.	There is no power saw machine in our workshop	7	12	6	7	2.59	1.05	Accept
23.	There is no wheel balancing machine in our workshop	13	7	7	5	2.85	1.09	Accept
24.	We have no cement and sand to practice block setting	9	8	8	7	2.59	1.11	Accept
25.	There is no CNC machine tool in our	14	13	0	0	3.43	0.19	Accept

	workshop							
26.	We have no band saw machine in our workshop.	12	10	6	4	2.93	1.02	Accept
27.	There is no wood pattern use for casting in our workshop	9	7	11	5	2.62	1.03	Accept
28.	There is no milling machine and milling cutters in our workshop	8	10	8	6	2.62	1.05	Accept

Source: Field survey 2017

Table 1 show that the respondents accepted 26 items as factors responsible for inadequacy of technical skills /competencies of graduates from technical teacher's institutions as they were 2.50 and above. Items 8 and 16 were rejected because they were below 2.50.The table show that item 9 has the highest score of 3.12 while item 8 has the lowest score of 2.25 respectively. However the calculated grand mean for all the item statements was 2.75 while the grand standard deviation for all the items was 0.89 and this show a consensus of opinion by the respondents.

Hypothesis: 1
There is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on lack of instructional machines, tools and workshop consumables that causes inadequacy of technical skills and competencies of graduates from technical teacher's institutions.

Table 2:

The t-test of mean response of technical education students from universities and colleges of education (technical) on lack of instructional machines, tools and workshop consumables that causes inadequacy of technical skills/competencies of graduates from technical teachers institutions.

Institutions with technical education Programme	N	X	SD	df	Difference between mean	T - cal	T - crit	Decision
Universities	15	17.86	4.24	28	2.46	1.67	1.70	Retain
Colleges of Education (technical)	15	15.40	3.58					

Source: Field survey 2017

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Table 2 present the t – test analysis of data from the comparison of the mean responses of technical education students from universities and colleges of education (technical) on lack of instructional machines, tools and workshop consumables that causes inadequacy of technical skills/competencies of graduates from technical teachers institutions. Results in the table shows that the calculated value of 1.67 is less than the table value of 1.70 at an alpha level of 0.05 at 28 degree of freedom. Therefore the null hypothesis is retained. In conclusion, there is no significance difference in the mean responses of technical education students in universities and colleges of education (technical) on the perception of lack of machines, tools and workshop consumables that causes inadequacy of technical skills/competencies of graduates from technical teachers institutions

Hypothesis: 2
There is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect the time for practical exercise that causes inadequacy of technical skills/competencies of graduates from technical teacher's institutions.

Table 3:

The t-test of mean responses of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect the time for practical exercise that causes inadequacy of technical skills/competencies of graduates from technical teacher's institutions.

Institutions with technical Education Programme	N	X	SD	df	Difference between mean	t – cal	T – crit	Decision
Universities	15	17.53	4.86	28	2.27	1.29	1.70	Retain
Colleges of Education (Technical)	15	15.26	4.57					

Source:Field survey 2017

Table 3 present the t – test analysis of data generated from the comparison of the mean responses of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect the time for practical exercise that causes inadequacy of technical skills/competencies of graduates from technical teachers institutions. Results in the table shows that calculated value of 1.29 is less than the table value of 1.70 with 28 degree of freedom at an alpha level of 0.05.Therefore the hypothesis that states that there is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect time for practical exercise is therefore retained. The

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implication of this is that both groups agreed that much time spend on educational courses affect practical exercise that cause inadequacy of technical skills from graduates of technical teacher's institutions.

Discussion of Findings

The result of the study with respect to the only research question of the study in table 1 shows that lack of instructional machines, tools and workshop consumable materials are factor responsible for inadequacy of technical skills/competencies of graduates from technical teacher's institutions and table 2 shows that technical education students from universities and colleges of education (technical) reaffirm their stand about lack of instructional machines, tools and workshop consumables as there was no significance difference about their opinion in the hypothesis formulated. This findings was corroborated by Audu etal (2007),that the production of skilled oriented graduates for the labour market required available physical and material resources for teaching of TVET students which is presently inadequate.Ogbuanya and Okoli (2014),further asserted that dependable and sustainable TVET programme demand huge and enormous resources to succeed, that having understudied the effect of equipment and facilities inadequacy on the skill acquisition of learners in TVET institutions, that the problem will not be allowed to persist for the assurance of sustainable development of Nigeria.

In table 3, the hypothesis that states that there is no significance difference in the mean responses of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect the time for practical exercise that causes the inadequacy of technical skills/competencies of graduates from technical teacher's institutions was upheld. Students from both institutions agreed that much time spend on educational courses affect the time for practical exercise. However in affirmation of this assertion, taking a cursory glance at the National Commission for Colleges of Education minimum standard (2012),there are certain educational courses that are segmented into different semesters, for example educational psychology (human learning, child development, and adolescent psychology) and curriculum I and curriculum II. From the view of this researcher, these courses can as well be compressed into a semester each to give room for practical exercise to strengthen the skill/competencies of students considering the nature of TVET programme.On the basis of this Okoro (1998) earlier warned that all technical courses irrespective of their level and objective, must stress on skills acquisition/competencies that must be attained through practical activities, because any TVET course in which a large proportion of allotted time is not devoted to practical work, experiment and projects, it is not likely to be very successful as mere theoretical technical information can not serve the demand of the need of would be technical teachers.

On the basis of the data collected and analyzed, the following major findings were made;

(a) Lack of instructional machines, tools and workshop consumables are responsible for inadequacy of technical skills/competencies of graduates from technical teacher's institutions.

(b) The study shows that there is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on lack of instructional machines, tools and workshop consumables that is responsible for inadequacy of technical skills/competencies of

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students from technical teacher's institutions.

(c) The study also shows that there is no significance difference in the mean response of technical education students from universities and colleges of education (technical) on much time spend on educational courses that affect the time spend for practical exercise that courses the inadequacy of technical skills/competencies of students from technical teachers institutions.

Conclusions

Based on the findings of this study, the following conclusions are made: Lack of instructional machines, tools and workshop consumables are responsible for inadequacy of technical skills /competencies of students from technical teachers institutions and much time given to educational courses affect the time technical education students are suppose to spend on workshop exercise. Though technical education programme involves pedagogical knowledge and skills, but much time should be given to core technological skills and competencies.

Recommendations

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

1. Technical teacher's institutions workshops should be fully equipped with instructional machines, tools and workshop consumables; this will help to facilitate teaching and learning of practical exercise.
2. Some educational courses for technical teachers programme should be review to ascertain that those segmented into semesters should be compress into a semester to give room for practical's considering the nature of technical education programme.

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