

Strategies for Enhancing Production Skills and Capacity Building of Pre-service Technical Teachers in Nigerian Colleges of Education

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Abstract

The study investigated the production skills possessed by pre-service NCE technical teachers, the strategies for capacity building and the possible problems confronting to this capacity building. Two hundred pre-service NCE technical teachers were drawn from the two Colleges of Education (Technical) in the North East zone of Nigeria. The questionnaire used for the study was content validated by experts in the field of technical education and reliability was established on 0.87. Three research questions were analyzed using means and standard deviation. The results of the study suggest that, exposing pre-service teachers to productive entrepreneurial skills and re-designing of the curriculum to include more occupational activities and process of production are powerful strategies for building capacity in pre-service technical teachers. It was recommended that all the suggested strategies should be explored by teacher trainers for the capacity enhancement of pre-service technical teachers.

Keywords: *Production skills, Capacity building, Pre-service technical teachers.*

1. Introduction

Presently in Nigeria the scenario in our education sector is the inclination of expressing strongly held opinions in a way that suggest they should be accepted without question. Learners are more interested in reading courses and subjects they think are professional and will earn quick money, to the extent that an average Nigerian student at any level of education is thinking of the money a subject or course will earn for him after graduation and not how the course will help him contribute to the development of the nation (Farauta, 2010). Nigeria is one of the African countries faced with economic problems, these problems have given rise to the depreciation of the currency, high rate of unemployment, crime of different kinds, poverty, hunger and frustration (Atsumbe, 2011). This present situation has occasioned increased awareness in Nigerians of the need for self-employment and self-reliance (Okeke, Egbuonu and Ugbaja, 2009). These challenges have led

Nigeria to search for new world order by redefining their social economies, policies and priorities in order to meet up with the above challenges.

However, among the 192 United Nations members that accepted the Millenium Development Goals Nigeria has established certain programmes such as National Economic Empowerment Development Strategy (NEEDS) in 2004 in order to achieve the MDGs and surmount her environmental challenges. NEEDS, is a plan for prosperity and a way to overcome the deep and pervasive obstacle to progress that government and people have identified. Hence it focused on the following four strategies:

- Wealth creation
- Poverty reduction
- Employment generation
- Value re-orientation (National Planning Commission 2004)

MDGs, and NEEDS focus on youth capacity building, development and empowerment using education. Their primary objectives are mainly to equip the youth with scientific and technological skills, which will transform the youths and graduates from institutions to become:

- Job creators and not job seekers
- Employers and not employees
- Transform government from a haven corruption to an institution that spurs development and service to people.
- To make Nigeria socially and economically developed with equal opportunity for her citizenry (Ejiogu, 2006).

The trend now in the society, according to Oladimi (2002) and Okolocha (2006), shows that the level of one's education does not have a significant effect on one's growth; rather the effect is more pronounced on the level of skills possessed and ability to apply the skills in the real world of work. This is why Lawal (2009) posited that Nigerian education system at all levels must be geared towards equipping future generation with necessary skills, knowledge and attitude for coping with the ever demanding world of science and technology.

2. Capacity Building

It is evident that education of the youths should be focused more on capacity building rather than on the mere acquisition of scientific facts and principles. Capacity building, according to Okeke et.al., (2009) is given individual training to enable them perform entrepreneurial tasks. It enables the individuals become more creative and thus sees opportunities where none seems to exist (Okeke 2007). Therefore, capacity building means an integration of both entrepreneurial and occupational skills. While occupational skills are technical production skills (process skills) that lead to the manufacturing of goods. Entrepreneurial skills according to Olutoyin (2009), are business management skills like creative thinking, decision making, marketing etc. The Nigerian Certificate in Education minimum standards for Vocational and Technical Education (FRN, 2012) identified the entrepreneurship knowledge required in vocational and technical education teacher training to include; form of business ownership, conditions for establishing a business, venture growth, opportunity recognition and exploitation, types of risk and their management, as well as matters and problems confronting business and technology. Furthermore, technical production skill required for technical teacher training includes; maintenance and repair of mechanical equipments, identification of various electrical and electronic symbols, interpret and convert circuit diagram to block diagram, conversion of CCT diagram to block diagram, engine reconditioning and testing, carry out simple repairs and services in the workshop (cylinder boring and honing, valve re-facing and re-grinding, injector testing and carburetor repairs). Others include; machine shop practice (lathe turning, screw cutting, milling and grinding) pattern development, cutting list, fabrication of simple engineering components and appropriate finishing process.

3. Statement of the Problem

This study focused on capacity building in pre-service NCE technical teachers in colleges of education. These pre-service NCE technical teachers need to be exposed to both entrepreneurial and occupational skills while still receiving their NCE educational training as teachers. The acquisition of these skills will not only prepare them as effective technical teachers for primary and secondary schools, but will also equip them with appropriate skills and competencies for self-employment and self-reliance. Unfortunately, Akpomi (2008), conducted a study on 500 final year student in the tertiary institution, and concluded that A staggering percentage of 73.2 (366 out of 500) was expected to queue for jobs in public and private sectors of

the economy after completing their studies, He further affirmed that lack of saleable occupational skills and entrepreneurial skills are the reason for this high unproductive expectation. A study by Aderanmu (2015) declared that there are entrepreneurial skills and attitudes which the graduates-to-be need to acquire during training, which unfortunately the education system has not been able to instill in them.

Thus, there is a need to ascertain the level of production skills possessed by pre-service technical teachers and also identify strategies for building capacity in them during their training period in the colleges. It becomes therefore necessary to carry out empirical studies to ascertain the level of production skills possessed by pre-service NCE technical teachers, the possible problems confronting capacity building in pre-service technical teachers and strategies for building capacity in them. To achieve the purpose of the study, the following research questions were drawn:

1. To what extent do pre-service NCE technical teachers possess production skills?
2. What are the strategies for enhancing production skills and capacity building in pre-service NCE technical teachers?
3. What are the possible problems confronting capacity building in pre-service technical teachers?

4. Methodology

The study was a descriptive survey carried out in the North-East zone of Nigeria, which is made up of six states (Gombe, Bauchi, Yobe, Borno, Adamawa and Taraba). The Population of the study comprised of all the final year NCE technical students from two colleges of education (technical) in the zone which amount to 580 students. The sample was made up of two hundred (200) randomly selected respondents; one hundred from the Federal College of Education (Technical) Gombe, and one hundred from the Federal College of Education (Technical) Potiskum.

A structured questionnaire was used to elicit information from the respondents on: the level of production skills possessed by pre-service technical teachers; the strategies for capacity building in pre-service technical teachers in colleges of education and finally the possible problems confronting to this capacity building in pre-service technical teachers. The instrument was validated by three experts in technology education, two from the Federal College of Education (Technical) Gombe and one from the Federal College of Education (Technical) Potiskum. The

analysis of the data for the three research questions was accomplished using mean and standard deviation. All items with a mean rating of 2.5 and above were considered, agreed and below 2.5 was regarded as disagreeing.

5. Results and Discussions

Research Questions 1: To what extent do pre-service NCE technical teachers possess production skills?

Table 1: Mean scores on production skills possessed by pre-service NCE technical teachers in colleges of education

S/No	Production skills	\bar{X}	SD	Remark
1	Design and fabricate of 100 – 500 watts inverters	3.03	1.10	Disagreed
2	Construction of touch activated security system	2.39	1.05	Agreed
3	Production of wall Bricks/Blocks	2.84	0.92	Agreed
4	Casting of aluminium Pots, and cutleries.	2.00	1.12	Disagreed
5	Construction of office table and chair	2.74	0.89	Agreed
6	Construction of the executive cushion chair	2.28	1.22	Disagreed
7	Design and fabrication of Bottle opener	3.05	0.73	Agreed
8	Design and construction of an electric arc welding machine	2.30	1.07	Disagreed
9	Computer planed troubleshooting for automobile system	2.30	1.07	Disagreed
10	Construction of light activated switches for security light	2.61	1.00	Agreed
11	Production of P.O.P. Ceiling	2.39	1.05	Disagreed
12	Construction of automatic water level pump controller	2.18	0.98	Disagreed
13	Fabrication/Construction of wheel chair	2.10	1.06	Disagreed
14	Construction of public address system	2.45	1.32	Disagreed
15	Construction/Fabrication of kerosene stove	2.35	1.17	Disagreed

The result that emerged from table 1 shows that respondents disagreed to all items as the production skills possessed by pre-service NCE technical teachers in colleges of education with means ranging from 2.00 - 2.45 except for items (2, 3, 5, 7 and 10) construction of touch activated security system, production of wall Bricks/Blocks, construction of office table and chair, design and fabrication of Bottle opener and construction of light activated switches for security light, which is agreed with a mean rating of between 2.61- 3.05.

Research question 2: What are the strategies for enhancing production skills and capacity building of pre-service NCE technical teachers in colleges of education?

The data in table 2 shows that respondents agreed that all the strategies presented could be adopted as means for enhancing production skills and building capacity in pre-service NCE technical teachers in colleges of education, except for encouraging the students to procure/buy materials for practical where necessary and construction of common basic technology laboratory equipment/teaching aids should be made compulsory and part of their graduation requirements (item 5 and 9) which disagreed.

Table 2: Mean scores on strategies for enhancing production skills and capacity building of pre-service NCE technical teachers in colleges of education

S/No	Strategies for enhancing production skills and capacity building	\bar{X}	SD	Remark
1	Organize regular visits to technology center and manufacturing industries for skills acquisition.	2.61	1.00	Agreed
2	Encourage active participation in group discussions and activities to enable them develop team spirit.	3.03	1.10	Agreed
3	Curriculum should be redesigned to include more occupational activities and process of production.	2.84	0.92	Agreed
4	Link college activities to community and societal problems for them to always see opportunity where one seems not to exist	2.63	0.97	Agreed
5	Encourage students to procure/buy materials for practical where necessary	2.00	1.12	Disagreed
6	Expose pre-service teachers on how to produce and market some common consumer goods	3.05	0.73	Agreed
7	Make attendance to workshops, seminars and conferences compulsory during the period of their training	2.74	0.89	Agreed
8	Expose them on how to produce and sell common basic laboratory equipments and teaching apparatus to nearby secondary schools	2.71	0.84	Agreed
9	Construction of common Basic Technology laboratory equipment/teaching aids should be made compulsory and part of their graduation requirements	2.30	1.07	Disagreed
10	Encourage them on how to collect materials from local communities and transform them into useful products	2.61	1.00	Agreed

Research question 3: What are the confronting problems associated with capacity building of pre-service technical teachers in colleges of education?

Table 3: Mean scores of pre-service technical teachers on confronting problems associated with capacity building.

S/No	Confronting problems associated with capacity building	\bar{X}	SD	Remark
1	Insufficient time allocated for the production skills to be acquired	3.34	0.94	Agreed
2	Lack of cooperation among students when it involves group work	2.60	1.10	Agreed
3	Poor knowledge of production skills on the part of teacher trainers in colleges of education	2.50	1.12	Agreed
4	Non-availability of functional machine tools and modern equipments for production work in the college workshops	2.65	1.08	Agreed

5	Pre-service students' unwillingness to learn the skills involved	2.61	1.08	Agreed
6	Project design consumes a lot of money	2.68	0.94	Agreed
7	Inadequate provision of project design textbooks for referencing	2.96	0.82	Agreed
8	Lack of materials needed for the construction of usable project.	2.59	0.92	Agreed
9	Unwillingness on the part of some teacher trainers in colleges to conduct practical activities with the students	2.55	1.04	Agreed
10	Lack of time for visiting technology centers and proper industrial training in industries	2.54	1.10	Agreed

The result that emerged from table 3 above shows that respondents agreed to all the items posed to them as confronting problems associated with capacity building of pre-service technical teachers in colleges of education.

6. Discussion

The study showed that pre-service NCE technical teachers in colleges of education lack production skills that are required to build capacity and entrepreneurship in them. This finding is in agreement with Ejiogu (2006) who posited that Nigerian education system lacks functionality and focus, rendering the education of our youths hopeless because they lack vital skills needed to ignite the latent talents in them. Supporting this argument, Atsumbe (2012) lamented that Nigeria fifty-two (53) years after independence can hardly boast of a community of manpower that are skill oriented.

The study also reveals that exposing pre-service technical teachers to entrepreneurial skills and re-designing of the curriculum to include more occupational activities and process of production are powerful strategies for building capacity in pre-service technical teachers. Aderinto and Fashoyin (1999) as well as the contribution of Onwuegbuna (2009) supported the above assertion with emphasis that availability of skilled manpower is a major determinant of the pace of a country's socioeconomic development and indicator of great technological advancement.

On the strategies for enhancing production skills and capacity building of pre-service NCE technical teachers, the result has it that, encouraging active participation in group discussion and teamwork activities will enable the development of team spirit, sharing of ideas, knowledge and competencies. Organizing regular visits to technology centers and manufacturing industries was also emphasized, linking college activities to community and societal problems will avail the pre-service teachers to see

opportunities where one seems not to exist. Supporting this finding, Atsumbe (2001) and the recent work of Tijjani (2013) advanced the reasons for strong cooperation between industry and the training institutions for quality vocational and technical education programmes. Furthermore, the result presents an overwhelming support for adequate inclusion of entrepreneurship courses at an early stage of the programme for better training rather than at the final year as it is now obtainable. Other study upholding similar views is (Ayanda and Laraba, 2011; Aderonmu, 2015).

Examining the problems confronting capacity building of pre-service NCE technical teachers, numerous tribulations were recorded, which include; the students factor such as (1) lack of cooperation among students when it involves group work, (2) Pre-service students' unwillingness to learn the skills involved, (3) truancy, lateness and skipping of activities. Others include Poor knowledge of production skills on the part of teacher trainers in colleges of education and Unwillingness on the part of some teacher trainers in colleges to conduct practical activities with the students. This finding confirms the assertion of Aderanmu (2015), that there are entrepreneurial skills and attitudes which the graduates-to-be need to acquire during training, which unfortunately the education system has not been able to instill in them. However, the system also was identified to have had its own share of problems, insufficient time are allocated for the production skills to be acquired, this means that the time scheduled for courses requiring practical activities cannot be sufficient for the activities to be carried out successfully talk more about visiting technology centers. Non-availability of functional machine tools and modern equipments for production work in the college and inadequate provision of project design textbooks hindered the acquisition of the optimum skills required for capacity building of the pre-service technical teachers.

7. Conclusion

Education for sustainable development encourages a system of education that teaches citizens to engage in activities that will keep the economy viable and competitive in world markets. This will rule out laziness and dependence on others. The findings of this study scribed that our current educational system, especially in the technical teacher education program does not give room for the acquisition of the required skills needed for production, entrepreneurship and capacity building, and does not encourage job creation, wealth generation and good neighborliness without which societal achievement cannot be sustained. The expectation coming as a result of the paradigm move in Technical and Vocational Education and Training (TVET) in Africa and specifically in Nigeria is that of promotion of skills acquisition through competency based training. In the quest to achieve that, this study recognized the need to re-orient the strategies used in technical education to enable the NCE technical graduate teachers fit into the changing situation in the country in order to create alternatives to their teaching jobs. This re-orientation to teaching strategies is very crucial, particularly now that employment into teaching is no longer automatic like in the good old days when the teaching job awaits pre-service teachers once they leave school.

Recommendations

In order to achieve the enhanced production skill and capacity building of pre-service technical teachers in Nigerian colleges of education, the following recommendations are made;

1. Technical teachers should be encouraged to attend seminars, conferences, workshops, and short term training within and outside the country especially the industrialized nations.
2. A better commitment in the form of partnership should be established between colleges and industries to fin succor to the dilapidated facilities and obsolete training tools and equipment.
3. Field trips and excursions to manufacturing industries and technology centers should be encouraged and career oriented teaching as instructional strategy be adopted.
4. A complete re-organization of Students Industrial Attachments Programme (SIWES)

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