Adequacy of Technology Education Programme in Nigerian Universities in Compliance with the Benchmark for Academic Standards (BMAS)

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ABSTRACT

The study was carried out to assess the adequacy of technology education programme in Nigerian Universities in compliance with the Benchmark for Academic Standards (BMAS). Two research questions were developed to guide the study. Descriptive survey research design was used and the Academic Brief of the sampled universities was the instruments used for data collection. Both the multi-stage and Purposive sampling techniques were adopted for the study resulting to a sample size of three study universities. Frequency count and Simple Percentage were used to answer the research questions. The findings of this research showed that (i) there are differences in the time duration for degree programmes in technology education in Nigerian universities. (ii) There are differences in the degree nomenclature depending on the stress of each programme towards professional technology education courses, basic science and mathematics, fields of specializations, and pedagogical studies. (iii) The degree awarded range from B.Sc (Ed), B.Tech, B.Tech (Ed.). Based on these findings the researcher recommends among others, that (i) the duration of the programme should be made uniform across all the universities. (ii) More professional technology education courses such as emergent problems in technology education, course construction e.t.c. should be integrated into the curriculum to provide a balance with the other employability skills clusters.

BACKGROUND OF THE STUDY

Technology Education has been defined in several ways by different scholars to suit the purpose they desire to accomplish. Some scholars defined it from the perspective in which its various school-subject components are taught, while others defined it from the way it is practiced in the field. However, the Nigerian National Policy on Education defines Technology Education as those aspects of educational processes involving the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of the economic and social life (Federal Republic of Nigeria [FRN], 2013). Immaculate (2005) sees Technology Education as experiences meant to be impacted on an individual systematically in order to get him/her adequately equipped for employment in a recognized occupation. Technology Education programmes therefore, are those programmes designed to enable individuals acquires requisite employment skills to enable him or her function effectively in teaching, industrial establishments, or even as self-employed.

One of the numerous medium for technology education programmes is the University. University education play critical role in the social, economic and human development of Nigeria. The objectives of Nigerian tertiary educational system (with focus on the Universities) according to FRN (2013) are: Teaching, Research and development. The curriculum of the Universities defined the in-depth knowledge, competency, and attitudes to be acquired by the students, while the instructional resources, such as classrooms, teachers, funding, laboratories, and consumables among others, facilitate the acquisition of such skills. The adequacies of these instructional resources with respect to the Technology Education Programme have been studied extensively by other researchers (Irabor & Osarenren-Osaghae, 2012; Osam, 2013; Serumu, 2014).

In Nigeria, the universities enjoyed some degree of autonomy with regards to the content of their respective programmes, and the National Universities Commission has the primary role of regulating the Academic Programmes. According to the Federal Government of Nigeria [FGN], (2011), the "Benchmark for Academic Standard (BMAS) recognizes the autonomy of individual Universities with regards to the academic programmes, but only seek to ensure that minimum requirements for graduation are set and met". Thus, all Nigerian University graduates of Technology Education are expected to possess the same minimum academic requirements (knowledge, attitudes, and skills for graduates and their ability to fit in to the requirements of the new national and global economy).

The question is: how far have they complied with provisions of the Benchmark for Academic standards (BMAS) in developing their respective programmes? This paper would attempt to find answers to the question.

PURPOSE OF THE STUDY

The purpose of this study is to assess the adequacy of technology education programme in Nigerian Universities in compliance with the Benchmark for Academic Standards (BMAS). Specifically, the study sought to:

1. Identify the Degree nomenclature and duration used in Nigerian Universities for the training of technology education students.

2. Assess the adequacy of the material content of the curricula in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills.

RESEARCH QUESTIONS

The research work was expected to answer the following specific questions:

1. What are the Degree nomenclature and duration used in Nigerian Universities for the training of technology education students?

2. How adequate is the material content of the curricula in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills?

METHODOLOGY

Research Design

Descriptive survey research design was adopted for the study. This design was deemed appropriate as the study involved the collection of extensive and cross-sectional data for the purpose of describing and interpreting an existing situation under study. It also provides the most convenient way to obtain real facts and figures needed, in which the results of the analyses would be used for decision making and generalization (Kerlinger1979)

Area of the Study

The Area of the study covered all the states in the Northern part of Nigeria. This Northern Part of Nigeria is made up of three geo-political zones of Nigeria and it comprises 19 out of the 36 states that made up the country. The study area borders with Niger Republic to the west, Cameroon and Chad to the east, and Ondo, Oyo, Cross-River, Edo States of Nigeria among others to the South.

Sample and Sampling Technique

This study adopted a multi-stage sampling technique incorporating simple random and purposive sampling techniques. According to Dudovskiy (2014), multi stage sampling techniques should be used where a large cluster of population / Area is divided into smaller clusters in several stages. In this study, the Area of the study was stratified in the three existing geo-political zones in Northern Nigeria, namely: North-East, North-West and North-Central. Within each of the zone one of the Universities offering Technology Education programmes was purposively selected for this study- Abubakar Tafawa Balewa University, Bauchi for the North-East, Bayero University, Kano, for the North-West, and the Federal University of Technology, Minna, for the North-Central.

Instrument for Data Collection

Instrument for data collection was the Academic Brief of the study universities technology education programmes which was obtained from the head ofdepartments in the respective institutions.

Method of Data Analysis

The data collected was analyzed using the following statistical tools: frequency count, and percentages.

RESULTS

Research Question 1

What are the Degree nomenclature and duration used in Nigerian Universities for the training of technology education teachers?

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Table1. *Degree nomenclature and duration Used in Nigerian Universities for the Training of Technology Education Teachers*

S/No	University	Nomenclature of the Degree	Years Required for Graduation
1.	ATBU, Bauchi	Bachelor of Technology (Education)	5 years (UTME) & 4 years (DE)
2.	BUK, Kano	Bachelor of Science (Education)	4Years (UTME) & 3Years (DE)
3.	FUT, Minna	Bachelor of Technology	5 Years (UTME) & 3/4Years (DE)

Key: *ATBU=Abubakar Tafawa Balewa University, Bauchi; BUK= Bayero University, Kano; FUTM= Federal University of Technology, Minna*

A summary of the analysis of the data collected for this research question is presented in Table 1. The data shows that although the institutions operate under the same National Universities Commission benchmark, there are clear variations in the Degree nomenclature and course durations. While Abubakar Tafawa Balewa University, Bauchi and Federal University of Technology, Minna run similar degree programmes with 5-year duration each for UTME candidates, but the degree awarded at the Abubakar Tafawa Balewa University, Bauchi is graced with education, Bachelor of Technology (Education) that of Minna is only Bachelor of Technology. The degree title for the same programme at the Bayero University, Kano, Bachelor of Science (Education) appears to suggest a greater emphasis of science related courses unlike those of Abubakar Tafawa Balewa University, Bauchi and Federal University of Technology, Minna which connotes a biases towards technology, and the programme at Bayero University, Kano last for 4 years as against the 5-year duration obtained at Bauchi and Minna.

Research Question 2

How adequate is the material content of the curricula in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills?

Table2. *Adequacy of the Material Content of the Curricula in Relation to the Benchmark of Minimum Academic Standard for Training Technology Education Students*

S/No Employable Skills Clusters	No. of Courses by Cluster							No of Credit Units by Cluster						
	BMAS	ATBU		BUK		FUTM		BMAS	ATBU		BUK		FUTM	
	NC	NC	A(%)	NC	A(%)	NC	A (%)	CU	CU	A(%)	CU	A(%)	CU	A(%)
1. Education	11	12	109	25	227	8	72	`19	34	178	56	294	15	78
2. General studies	6	7	116	6	100	5	83	12	14	116	14	116	9	75
3. P T E Courses	24	12	50	8	33	26	108	45	28	62	17	37	52	115
4. Fields of Specialisations	28	18	64	24	85	29	103	56	51	90	50	89	58	103
5. Basic Sciences and Mathematics	7	7	100	8	114	8	114	14	21	150	17	121	19	135
6. Others (Computer, Improvisation)	3	3	100	1	33	3	100	6	11	183	2	33	6	100

Key: *NC= Number of Courses in each Cluster; A=Adequacy in Relation to the BMAS Expressed in Percentage; CU= Credit Units; ATBU= Abubakar Tafawa Balewa University, Bauchi; BUK= Bayero University, Kano; FUTM= Federal University of Technology, Minna; BMAS= Benchmark of Minimum Academic Standard*

Table3. *Ratio of Course Cluster*

S/No	University	Educ	GS	PTE	FS	BS&M	Others
1.	ATBU, Bauchi	109	116	50	64	100	100
2.	BUK, Kano	227	100	33	85	114	33
3.	FUT, Minna	72	83	108	103	114	100

Key: *ATBU= AbubakarTafawaBalewa University, Bauchi; BUK= Bayero University, Kano; FUTM= Federal University of Technology, Minna; Educ= Education; GS= General studies; PTE= Professional Technology Education; FS= Fields of Specializations; BS&M= Basic Sciences and Mathematics*

This research question is concerned with the adequacy of the material content of the various universities programmes under these different titles and time duration in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills. The data presented on Table 2 clearly shows that the difference in the titles and course duration may have a direct correlation with the material content. Table 3 showing the ratio of the course offering indicates that while ATBU, Bauchi and

BUK, Kano are weighted towards education, general Studies, and basic sciences with over 100% adequacy based on the NUC benchmark, the FUT Minna programme has low level of adequacy at 72% for the education courses with a high tilt towards Professional Technology Education courses (108%) and Fields of Specializations (103%) both with over 100% adequacy respectively. This shows that the programmes are not only different in the degree titles but in the material content.

From the analysis so far one can conclude that the various institutions have their strengths and weakness in the material content of their programmes in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills. The analysis also accepts that while FUT Minna is strong in the Professional Technology Education and Fields of Specializations areas against the other two institutions, it is at par with ATBU Bauchi with 100% respectively in the other courses provision. This is an area (other courses provision) that BUK is the weakest with only 33% level of adequacy.

DISCUSSIONS

The findings of this study revealed that the institutions operate under the same NUC benchmark, but there are variations in the degree nomenclature and course durations. Some use the Bachelor of Technology title which last for five years while others use the Bachelor of Science Education title which last for four years. The findings is consistent with the views of Lecta (2016) who opined that one of the major problems facing technology education programme is the inconsistency in the years required for graduation which portrayed the programme as being with its counterpart in other professional fields of endeavour. The finding is also in line with FGN (2011) which advised that every university is free to give title to its programme. The duration of the programme however, would have an implication for the students' acquisition of requisite skills, because the longer the duration, the better the quality of the output which would ultimately affect their performances in the world of work (Watson, 1990). Those operating under the 4 year programme fell below the BMAS because the BMAS says "Holders of NCE/Diploma will spend four academic years while all others would spend five to six years" (FGN, 2011).

The findings of this study revealed that the various institutions have their strengths and weakness in the material content of their respective curriculum in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills. This finding negates FGN (2011) which emphasized that the BMAS recognizes the autonomy of the individual university with regards to the academic programme, but only seek to ensure that minimum requirement for graduation are set and met. A cursory look at the Table 2 shows that all the universities have a varying degree of adequacy ranging from 72% to 227% in the education cluster with Bayero University taking the lead with a whopping 227% which might not be unconnected with their curriculum structure of "Bachelor of Science Education". In the general studies cluster, the adequacy ranges from 83% to 116%. The professional technology education cluster however, shows that the universities curricular is grossly inadequate with the Bayero University, Kano, leading from the bottom with partly 33% and 37% adequacy in terms of the number of courses and the credit units respectively The other two clusters of Fields of specialization and Basic science and Mathematics shows moderate adequacy with the least index being 64% in terms of the number of courses and 89% in terms of the credit units. Bayero University led from the bottom in the other essential courses with a partly 33% in both the number of courses and the credit units. This is in line with Uwaifo (2010) who observed that technology education curriculum is too academic and overloaded with intellectual content in pure science and mathematics at the expense of basic engineering and technology. Okolocha (2006) advised that technology education programme curriculum should be overhauled by aggregating adequate material contents that would enhance their employability status of the graduates. This explained why Fallows and Steven (2000) maintained that, universities should initiate the incorporation of skills required in the labour market by employers within the academic curriculum for all disciplines.

CONCLUSIONS

The findings of this study present a number of issues on the adequacy of technology education programme in Nigerian Universities in compliance with the Benchmark for Academic Standards (BMAS). Based on the two specific purposes

that the research work addressed, the researcher concluded that:

The institutions operate under the same NUC benchmark, but there are variations in the degree nomenclature and course durations. Some uses the Bachelor of Technology title which last for five years while others use the Bachelor of Science Education title which last for four years.

The various institutions have their strengths and weakness in the material content of their curriculum in relation to the Benchmark of Minimum Academic Standard for training technology education students in the acquisition of requisite employable skills.

RECOMMENDATIONS

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

1. The national universities commission should ensure that the duration of the programme is made uniform across all the universities.

2. A situation where by one university ran the programme for four years (contrary to what was spelt out in the BMAS) and the other one for five years is unhealthy for the overall development of the students.

3. More professional technology education courses such as course construction, emergent problems in technology education, e.t.c. should be integrated into the curriculum to provide a balance with the other employability skills clusters.

4. Entrepreneurship education should be given topmost priority. This would enable the students to develop entrepreneurial mind which would be useful to them after graduation.

5. Technology education programme managers should ensure that technology education programme is fully implemented. This would help to strengthen students' attitude towards positive learning and would enhance the acquisition of the requisite employment skills.

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