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Evaluation of Enrollment Trends into Technical Education Programmes (2013-2023) In A Nigerian University Via Documentation Analysis

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Abstract: This study is aimed at evaluating the enrollment trends into technical education programmes in a Nigerian University via Documentation Analysis. The study was conducted at Nnamdi Azikiwe University Awka, and it covered a period 2013-2023. A checklist titled "Technical Education Student Enrollment Trends Framework (TESET-F)" developed by the researchers was used to tabulate the data for ease of interpretation. Frequency counts and simple percentage were used as tools for data analysis. Findings from the study indicated that that the enrollment trends into technical education programmes have witness an intermitted negative fluctuation in the last ten years to the extent that only 6% enrollment quota was filled in a particular academic year (2019/2020). The enrollment trends into technical education programme based on the three broad options favours electrical/electronic technology, building/woodwork technology and automobile or mechanical technology respectively. The enrollment of female students into technical education is very low when compared with their male counterparts. The authors advocate for concerted efforts by all stakeholders to address the challenges as an opportunity to improve the quality and relevance of technical education. Through this, universities in Nigeria can play a pivotal role in producing a highly skilled technical workforce that can contribute to the economic development and prosperity of the country.

Keywords: Enrolment, trends, technical, education, university

1. Introduction

The importance of technical education in the development of any nation cannot be over-emphasized. Although, different jurisdictions use diverse terms to refer to this aspect of education, in Nigeria, it is sometimes referred to as either Technology Education (TE) (Modibbo Adama University of Technology Yola, 2018), Industrial and Technology Education (ITE) (Federal University of Technology Minna, 2019), Industrial Technical Education (ITE) (University of Nigeria Nsukka, 2015) among others. However, the United Nations referred to it as Technical Vocational Education and Training (TVET) (UNESCO, 2016). TVET is a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related science, the acquisition of knowledge, practical skills and attitudes relating to occupations in various sectors of economic and social life (UNESCO, 2016). The programme is therefore concerned with the acquisition of skills and knowledge for sustainable livelihood and employment through the production of skilled workforce to revitalize and sustain the economy and reduce unemployment making it a veritable tool for empowering people.

Technical education programmes in Nigeria are offered at different levels ranging from craft, technician and professional levels (Okeke, 2015). For instance, the programmes as obtained in technical colleges, polytechnics, colleges of education and universities are aimed at training the recipients for certification at craft, technician and

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professional levels respectively. Though, the levels of certification may differ, the ultimate desire is to produce skilled and knowledgeable workforce to propel the industrial development of the nation. For the purpose of this study, the concerned of the authors centered on the programme as offered in a Nigerian university.

Nnamdi Azikiwe University Awka is a public-owned university in Nigeria that offers technical education programmes (Nnamdi Azikiwe University Awka, 2021). The objectives of the programmes as obtained in the institution is aimed at preparing students for teaching technical subjects and effectively occupies leadership positions in secondary schools, technical colleges and trade centres. The students are also prepared for employment in training schemes of technical and industrial establishments and cooperative colleges, as well as in the various government rural development schemes including an opportunity for advanced studies such as Masters and Doctoral degrees. The students are expected to major in either Building/Woodwork Technology (BWT); Mechanical/Automobile Technology (MAT) or Electrical/Electronic Technology (EET).

2. Literature Review

The admission requirements into the programme at Bachelor degree level varies depending on the qualification possessed by the applicant at the point of admission (Nnamdi Azikiwe University Awka, 2021). Candidates for UME admission who are expected to spend four years must compulsorily have Credit in FIVE subjects at the Senior Secondary School Certificate Examination (SSCE) conducted by WAEC and NECO or the National Technical Certificate (NTC) conducted by NABTEB or their equivalents at not more than two sittings. Candidates with teachers' Grade II Certificate with at least FIVE merit level passes are also considered. In any case, the credit/merit level passes must include English Language, mathematics and any one of the following: woodwork, metalwork, technical drawing etc. For those with Advanced level certification who are usually admitted through the Direct Entry (DE) (three years programme), all candidates in this category must satisfy the UME admission requirements and in addition possess one of the following (i) NCE/TTC in Technical Education with two (2) Merits (ii) HND/ND (Upper Credit) in relevant technical areas or (iii) Two (2) passes at GCE (Advanced Level) in relevant technical subjects.

Although technical education contributes significantly to the development of the society, it has been observed that it has not been given its rightful place in Nigeria despite the efforts being made by government and other stakeholders to reposition the programme (Oviawe, 2017). This can be attributed to many factors such as the misconceived notion that technical education is meant for the academic weaklings (Auta, 2023), and the societal perception of the programme as being an exclusive for the men folks (Dokubo & Deebom, 2017). The average Nigerian parent will prefer professions like Medicine, Law, and Engineering, etc. to technical education for their children and wards (Auta, 2023). This negative stigma which society places on technical education might have contributed in no small measure to the low enrollment of students into the programme especially at the university level. Though, the visible declined and fluctuations have been observed by many, there appears to be paucity of empirical evidence to support that especially for decision making, policy making, budget planning and practice.

Several studies have been carried out on enrollment trends in recent years. For instance, Oviawe (2017) studied on "Fostering Students' Enrollment in Technical Education Programmes through Career Guidance and Occupational Awareness". The author reported that technical education has remained detested to a greater extent by the majority of Nigerian parents and even students as detected in the low students' enrollment into technical colleges. Similarly, in a study conducted by Abiodun-oyebanji and Michael (2016) titled "determinants of students' enrollment in technical and vocational education in Ondo State, Nigeria". Findings of the study showed that, a positive and significant relationship exist among both parents' and students' perception and enrollment into Technical and Vocational school. Interestingly, Dokubo and Deebom (2017) conducted a study on "Gender Disparity towards Students enrollment in Technical Education in Rivers State: Causes, Effects and Strategies". The study revealed amongst others that poverty, preference of male child, cultural and religious beliefs were causes of female folk's low enrollment into technical education programmes in Rivers State.

Based on the literatures reviewed in the preceding paragraph, it can be clearly seen that there is a relatively paucity of empirical evidence to support the visible inconsistent enrollment trends into technical education programmes in relation to the approved carrying capacity especially at the university level. Hence the need to evaluate the enrollment trend into technical education within the last ten years in a Nigerian university using a documentation analysis. To achieve that, the following research questions served as a guide to the researchers:

RQ1: What is the enrollment trend into technical education programme in relation to the approved carrying capacity?

RQ2: What is the enrollment trend into technical education programme relative to the three broad areas of specialization (BWT, MAT, EET)?

RQ3: What is the enrollment trend into technical education programme based on gender?

3. Methodology

3.1 Research Design

The study adopted qualitative research method via documentation analysis. Document analysis is an analytical method of qualitative research which requires the adoption of systematic procedure for reviewing or evaluating both printed and electronic documentary materials so that the data obtained can be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge (Corbin & Strauss, 2008; Rapley, 2007). As a research method, document analysis is particularly pertinent to studies of this nature since it provides an intensive means of producing rich descriptions of a single phenomenon, event, organization, or program (Stake, 1995; Yin, 1994) which is the focal point of this study.

3.2 Area of the Study

The study was carried out in Anambra State, Nigeria. The choice of Nnamdi Azikiwe University Awka for the study is informed by the fact that, it's the only university offering technical education programme in Anambra State. In the university, Technical Education is housed in the Department of Technology and Vocational Education, Faculty of Education. According to (Nnamdi Azikiwe University Awka, 2021), the department endeavours to enhance respect for work and dignity of the individual, faith in man's ability to make rational decisions, moral and spiritual values in inter-personal and human relations, shared responsibility for the common good of society, respect for the dignity of labour and promotion of the emotional, the inculcation of national consciousness and national unity, the inculcation of the right type of values and attitudes for the survival of the individual and the Nigerian society, the training of the mind in the understanding of the world around and the acquisition of appropriate skills, abilities and competence both mental and physical as equipment for the individual to live in and contribute to the development of his society.

3.3 Data Gathering Procedures

As customary with Document analysis procedures, the data was obtained through skimming (superficial examination), reading (thorough examination), and interpretation. In order to achieve that, the following steps were taken in this study during the data gathering processes:

1. The intention of the study was made known to the institution by the researcher and requests for relevant documents were made.
2. The relevance of the documents obtained vis-à-vis the research problem and purpose was established by the researchers.
3. The authenticity, credibility, accuracy, and representativeness of the selected documents were determined by the researchers.
4. Pertinent information was identified and separated from that which is not pertinent to the study (Corbin & Strauss, 2008)
5. Data were extracted from the pertinent documents and tabulated in accordance with the "Technical Education Student Enrollment Trends Framework (TESET-F)" developed by the researchers for ease of interpretation of the results.
6. The data tabulated were reviewed by one of the authors who was not part of the tabulation processes.
7. The data were subjected to further analysis using Descriptive Statistics of frequency counts and percentage to answer the research questions using the formula below:

   Percentage of enrollment $= \left| \frac{N}{T} x \frac{100}{1} \right.$

   Where:
   N = Number of enrollees based on the variable under consideration
   T = Total number of enrollees on each cluster

3.4 Validity and Reliability

In order to ensure the validity and reliability of the outcome of the study, the authors were guided by the following admonition (Bowen, 2009):

> Document analysis is not a matter of lining up a series of excerpts from printed material to convey whatever idea comes to the researcher's mind. Rather, it is a process of evaluating documents in such a way that empirical knowledge is produced and understanding is developed. In the process, the researcher should strive for objectivity and sensitivity, and maintain balance between both (p.33).

Hence, all the documents gathered by the researchers were carefully evaluated in order to establish empirical knowledge based on facts and to ensure the objectivity and sensitivity of the outcome without compromising a balance between them – objectivity and sensitivity.

4. Results and Discussions

The data obtained from the documentation analysis are presented and discussed in line with the three research questions formulated.

4.1 Enrollment Trend into Technical Education Programme in Relation to the Approved Carrying Capacity

The data obtained on the enrollment trend into technical education programme in relation to the approved carrying capacity as approved by the regulatory agency are presented in discussed under this heading.

Table 1 - Enrollment trend into technical education programme in relation to the approved carrying capacity

Session	N	NUC approved Carrying Capacity	Percentage of Carrying Capacity (x)	Percentage of Enrollment (y)	Ratio of x and y
2013/2014	44	100	100	44	100:44
2014/2015	36	100	100	36	100:36
2015/2016	16	100	100	16	100:16
2016/2017	41	100	100	41	100:41
2017/2018	14	100	100	14	100:14
2018/2019	19	100	100	19	100:19
2019/2020	6	100	100	6	100:6
2020/2021	29	100	100	29	100:29
2021/2022	23	100	100	23	100:23
2022/2023	93	100	100	93	100:93
Total	**321**	**1000**	**1000**	**32.1**	**100:32.1**

Data in Table 1 shows that the approved carrying capacity for the programme is 100 students per year and the number of enrollees per year ranges from six to 93. The highest enrollment was recorded in the 2022/2023 academic session with aggregate number of enrollees rising to 93 representing 93% relative to the approve quota; while the lowest was logged in the 2019/2020 academic year with only six students representing 6% of the approved quota. Overall, the total number of enrollees in the last ten years was 321 as against the approved carrying capacity of 1000 at 100 per year which translates to a percentage ratio of 100:32.1 in favour of the allocated enrollment quota. This is an indication that the enrollment quota allocated to the programme has never been met in the last ten years. It can therefore be concluded that the enrollment trends into technical education programmes has witness an intermitted negative fluctuation in the last ten years to the extent that only 6% enrollment quota was filled in a particular academic year (2019/2020).

This finding was corroborated by Oviawe (2017) whose study on "Fostering Students' Enrollment in Technical Education Programmes through Career Guidance and Occupational Awareness" discovered that technical education has remained detested to a greater extent by the majority of Nigerian parents and even students as detected in the low students' enrollment. Other factors such as demand for technical education, availability of faculty and infrastructure (Bowen, 2022), changes in program offerings (Smith, 2021), equipment for practical training (Oluwatayo, 2019), limited industry-academia collaboration (Auta & Onwusuru, 2022), and outdated curricula (Auta, 2022) that do not align with current industry demands may have influenced these trends.

4.2 Enrollment Trend into Technical Education Programme Relative to The Three Broad Areas of Specialization (BWT, MAT, EET)

The data on enrollment trend into technical education programme relative to the three broad areas of specialization (BWT, MAT, EET) are presented and discussed under this heading.

Table 2 - Enrollment trend into technical education programme relative to the three broad areas of specialization (BWT, MAT, EET)

Session	Building/Woodwork(x)		Automobile/Metalwork (y)		Electrical/Electronics (z)		Ratio of x, y and z
	N	%	N	%	N	%	
2013/2014	20	45.45	10	22.73	14	31.82	45.45:22.73:31.82
2014/2015	6	16.67	14	38.89	16	44.44	16.67:38.89:44.44
2015/2016	6	37.50	5	31.25	5	31.25	37.50:31.25:31.25
2016/2017	15	36.59	9	21.95	17	41.46	36.59:21.95:41.46
2017/2018	2	14.29	4	28.57	8	57.14	14.29:28.57:57.14
2018/2019	8	42.11	2	10.53	9	47.36	42.11:10.53:47.36
2019/2020	3	50	1	16.67	2	33.33	50:16.67:33.33
2020/2021	6	20.69	6	20.69	17	58.62	20.69:20.69:58.62
2021/2022	8	34.78	6	26.09	9	39.13	34.78:26.09:39.13
2022/2023	24	25.81	36	38.71	33	35.48	25.81:38.71:35.48
Total	**98**	**30.53**	**93**	**28.97**	**130**	**40.50**	**30.53:28.97:40.50**

The data presented in Table 2 confirmed that there was fluctuation in the enrollment trend of building/woodwork technology option of technical education programme. In 2017/2018 session, the enrollment was relatively low with only 2 students representing 14.29% of the total enrollees, while the highest aggregate number of enrollees 24 representing 25.81% was recorded in 2022/2023 academic session. In automobile/mechanical technology, the enrollment was at its lowest in 2019/2020 with only 1 student (16.67%) and its peak enrollment was observed in 2022/2023 with 14 students (38.89%). The enrollment trend into electrical/electronic technology showed a similar pattern to building/woodwork. The enrollment was at its lowest in 2019/2020 with only 2 students (33.33%). The highest number of enrollees into electrical/electronic technology option was observed in 2022/2023 with 33 students (35.48%) Overall, with a percentage ratio of 30.53:28.97:40.50 it can be concluded that the enrollment trend into technical education programme based on the three broad options favours electrical/electronic technology, building/woodwork technology and automobile/mechanical technology respectively.

The findings of this study on the enrollment trend into technical education programme relative to the three broad areas of specialization (BWT, MAT, EET) departed from that of Auta (2021) who reported that, the huge demand for skilled construction personnel has triggered an urgent need to create a wide range of opportunities for the training construction craftsmen that will fill in the consistently widening gap in the industry. The trends may also reflect the changing preferences among student which could be due to an individual's desire to actualize the long-conceived dream.

4.3 Enrollment Trend into Technical Education Programme Based on Gender

The data gathered on enrollment trend into technical education programme based on gender are presented under this heading.

Table 3 - Enrollment trend into technical education programme based on gender

Session	Male (m)		Female (f)		Ratio of m and f
	N	%	N	%	
2013/2014	33	75.00	11	25.00	75:25
2014/2015	33	91.67	3	8.33	91.67:8.33
2015/2016	15	93.75	1	6.25	93.75:6.25
2016/2017	39	95.12	2	4.88	95.12:4.88
2017/2018	13	92.86	1	7.14	92.86:7.14
2018/2019	18	94.74	1	5.26	94.74:5.26

2019/2020	5	83.33	1	16.67	83.33:16.67
2020/2021	26	89.66	3	10.34	89.66:10.34
2021/2022	23	100	0	0.00	100:00
2022/2023	42	45.16	51	54.84	45.16:54.84
Total	**247**	**76.95**	**74**	**23.05**	**76.95:23.05**

Data in Table 3 indicated the enrollment trend based on the gender of the students. The data shows that male students have consistently dominated the number of enrollees in nine out of the ten years under consideration. In the 2021/2022 academic session, there was no single female student that enrolled into the programme. Ironically, there was a surge in the number of female enrollees in the 2022/2023 academic session to the extent that they constitute 54.84% of the total enrollment. Overall, there was a clear imbalance between the male (247) and female (74) enrollees into technical education programme in the last decade with a percentage ratio of 76.95:23.05 in favour of the male enrollees. It can therefore be concluded that the enrollment of female gender into technical education is very low when compared with their male counterparts.

The findings in this study on gender-based enrollment trends indicate a persistent gender disparity, with male students dominating in most fields. This finding agrees with Dokubo and Deebom (2017) who reported a consistent gender disparity towards Students enrollment in Technical Education in favour of the men folks. Dokubo and Deebom's study also revealed amongst others that poverty, preference of male child, cultural and religious beliefs were causes of female folk's low enrollment into technical education programmes. Other factors such as societal norms, gender stereotypes, limited access to educational resources, and lack of female representation in technical fields (Oviawe, 2017) are identified as significant barriers to female enrollment in technical education programs.

5. Conclusion and Suggestions for Further Research

The current study identified a gap between the approved carrying capacity of the university in terms of students' admission into technical education programme and the number of enrollees to the extent that there where instances in which only 6% of the quota was filled. The study also identified the diversity in the enrollees' preference to choose a particular area of specialization with majority (40.50%) going for electrical/electronic technology. The long-identified issue of gender disparity in the preference for technical education has also been identified with a particular academic session having zero female enrollments. Overall, the current study on enrollment trends into technical education programmes in a Nigeria university highlights the need for concerted efforts by all stakeholders to address the challenges and capitalize on the opportunities to improve the quality and relevance of technical education. By doing so, universities in Nigeria can play a pivotal role in producing a highly skilled technical workforce that can contribute to the economic development and prosperity of the country.

Considering the unexhausted nature of this study, further research and interventions are needed especially in other jurisdictions not covered in this study. There is also a need to explore research areas that could assist to promote technical education programme in general as well as reduce the negative gender disparity in female enrollment into technical education programmes in Nigerian universities. Addressing these barriers and promoting female gender participation in technical education programme is crucial for achieving workforce diversity, promoting national development, and ensuring social inclusion.

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