REVITALIZING POLYTECHNIC EDUCATION IN NIGERIA: FROM CHALLENGES TO OPPORTUNITIES

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PRESENTED BY

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Overview

- Globally, education is recognized as the most significant instrument for individual and national development (Bossick et al., 2008; Yusuf, Fakomogbon & Issa, 2012).

- Education has been generally acknowledged as the key that unlocks the gate to the social, economic, political and technological development of any society. It is increasingly becoming apparent that sound economic development cannot be attained without a functional education system.

- In Nigeria, tertiary institutions comprises principally of Universities, Polytechnics and Colleges of Education and recently a fourth, Innovation Enterprises Institutions (IEIs) and Vocational Enterprise Institutions (VEIs) were introduced.

- Polytechnic education, which is part of Technical Vocational Education and Training (TVET) programme in tertiary education level leads to the acquisition of practical and applied skills as well as fundamental scientific knowledge. (Ukpai 2008)

- Polytechnic educate future leaders and develop the middle-level technical capacities that underpin economic growth and development (Ekundayo and Ajayi, 2009) further stressing the main purpose and relevance of polytechnic education in Nigeria

- Polytechnic education in Nigeria is in travail, as it is filled with crises of various dimensions and magnitude.

- Despite the immense benefits of Polytechnic education to nation building, the potentials in fulfilling its responsibility is frequently thwarted by longstanding problems bedevilling the system.

- A number of multi-faceted problems have inhibited goal attainment and are raising questions, doubts and fears, all of which combine to suggest that the system is at a crossroad.

- The problems amongst others include degree/HND parity problem in the late 90's, treatment of lecturers as second-class academics and non inclusion of polytechnic students in many scholarship programmes.

Objective

- Considering all these negative perception of polytechnic education in Nigeria, coupled with disfavor in government policies and funding, there is urgent need to really investigate the effective management of the nation's polytechnic education, discussing the militating challenges with a view to achieving effectiveness, quality and relevance in the entire system.

- Hence, this paper seeks to specifically examine the polytechnic sector with a special focus on the challenges, opportunities and the way forward.

Focus of the paper

1. Education and Society;

2. Tertiary Education in Nigeria;

3. Evolution of Polytechnic Education;

4. Polytechnic Education as Technical Vocational Education and Training (TVET);

5. Contributions of Polytechnics to National Development;

6. Challenges of Polytechnic Education;

7. Strategies for Revitalizing Polytechnics Education;

8. Conclusion.

Education and Society

The basic objectives of education in Nigeria is encapsulated in its philosophy as enshrined in the National Policy (1997) by the Federal Ministry of Education thus:

> *...is geared towards self-realization, better human relationship, individual and national efficiency, effective citizenship, national consciousness, national unity as well as towards social, cultural, economic, political, scientific and technological progress (Federal Ministry of Information, 1997).*

It is thus, intended to:

➢ *Produce all forms of manpower needed for development;*

➢ *Inculcate desirable habits and attitudes;*

➢ *Build bridges of unity;*

➢ *Cultivate the spirit of patriotism and national consciousness;*

➢ *Equip individuals with solution to identify problems;*

➢ *Transmit socio-cultural heritage between generations.*

In summary, education is intended to develop in individuals, motor skills, social skills and intellectual skills.

Tertiary Education in Nigeria

To do what?

i. Contribute to national development through high level relevant manpower training;

ii. Develop and inculcate proper values for the survival of the individual and society;

iii. Develop the intellectual capability of individuals to understand and appreciate their local and external environments;

iv. Acquire both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society;

v. Promote and encourage scholarship and community service;

vi. Forge and cement national unity;

vii. Promote national and international understanding and interaction;

viii. Education beyond school such that we will furnish the students with more complicated and fresh knowledge and consequently develop better skills;

ix. Conduct research which should be speculative and imaginative and accumulate knowledge and ideas for the benefit of society.

The NPE has specified in details how these goals shall be pursued by higher education. Higher education in Nigeria operates a three tier systems , university, polytechnic (Monotechnics, Innovation Enterprise Institutions (IEIs) and Vocational Enterprise Institutions (VELs), and Colleges of Education.

Universities

❖ Universities offer degree programmes in all fields, from humanities, art, social sciences, applied sciences, education, engineering, technology, agriculture, medicine and other paramedical programmes.

❖ As at September 2024, we have a total of 274 universities in Nigeria. Table 1 shows the breakdown of the universities in Nigeria by ownership

❖ Generally, all the universities are under the supervision of the National Universities Commission (NUC) however, specialized universities are further supervised by their relevant government ministries and agencies

Universities in Nigeria and Admission Statistics

Table 1 : Universities in Nigeria

S/No	Owners	Number	Percentage (%)
1.	Federal	62	22.63
2.	States	63	22.99
3.	Private	149	54.38
	Total	274	100.00

Table 2: University Admission Statistics between 2016 and 2023

Academic Session	Total Applicants	Total Admitted	Male	Female	Admission Rate
2015/2016	1,424,715	433,241	254,459	178,782	30.4%
2016/2017	1,555,614	456,625	267,597	189,028	29.4%
2017/2018	1,662,818	471,324	276,311	195,013	28.3%
2018/2019	1,793,018	493,327	291,161	202,166	27.5%
2019/2020	1,925,819	514,608	304,849	209,759	26.8%
2020/2021	2,061,116	535,001	317,555	217,446	25.9%
2021/2022	2,186,048	555,353	329,637	225,716	25.4%
2022/2023	2,324,248	574,911	342,505	232,406	24.7%

Source: https//www.statista.com; September, 2024; NUC, September, 2024

Polytechnics

- Polytechnics train middle and high-level manpower at the National and Higher National Diploma levels.

- The polytechnics focus more on technical manpower development in commerce, engineering, environmental and other applied sciences.

- Polytechnics have clearly defined mandates (objectives) articulated by the National Policy on Education (2004) as follows:

i. To provide trained manpower in applied science, technology and commerce particularly at sub-professional grade;

ii. To provide technical knowledge and vocational skills necessary for agricultural, industrial and economic development;

iii. To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;

iv. To give an introduction to professional studies in engineering and other technologies;

v. To give training and impart the necessary skills leading to the production of craftsmen, technicians and other enterprising and self-reliant; and

vi. To enable young men and women have an intelligent understanding of the increasing complexity of technology.

National Board for Technical Education (NBTE)

- The effective management of polytechnic education is both external and internal in dimension. At the external dimension, the federal government through the National Board for Technical Education (NBTE) controls the polytechnics.

- This Board, (the NBTE), established by law (National Board for Technical Education Act 9 of January 1977) is charged with the coordination of polytechnic education management in the country (Ukpai, 2012).

- To Idoko (2005), the Board is established, also to advise the Federal Government on, and to coordinate **all aspects of technical and vocational education, outside the polytechnic and to make recommendations on national policy necessary for full development of technical and vocational education for the training of technicians and craftsmen and other middle and skilled manpower for the balanced and coordinated development of the Polytechnics and Colleges of Technology.**

- NBTE approves the setting up of each polytechnic, regulates the courses, and also sets the minimum standards on admission, teaching and infrastructure. To function, the NBTE undertakes certain activities to improve quality of polytechnic education in Nigeria, such as accreditation of courses; approval of courses and programmes; maintenance of minimum academic standards; monitoring of polytechnics; giving guidelines for setting up of polytechnics: monitoring of private polytechnics; prevention of the establishment of illegal campus; and implementing appropriate sanctions (NBTE, 2001).

Polytechnics and Admission Statistics in Nigeria

Table 3: Polytechnics in Nigeria

S/NO	Owners	Number	Percentage (%)
1.	Federal	41	22.90
2.	States	54	30.17
3.	Private	84	46.93
	Total	**179**	**100.00**

Table 4: Polytechnic Admission Statistics between 2016 and 2023

Academic Session	Total Applicants	Total Admitted	Male	Female	Admission Rate
2015/2016	424,141	231,411	164,411	67,000	54.6%
2016/2017	441,115	244,519	173,596	70,923	55.4%
2017/2018	454,919	257,331	182,481	74,850	56.5%
2018/2019	468,331	269,911	191,819	78,092	57.6%
2019/2020	481,911	282,541	201,541	81,000	58.7%
2020/2021	495,501	295,501	212,591	82,910	59.6%
2021/2022	509,211	308,591	223,591	85,000	60.6%
2022/2023	523,049	321,591	235,505	86,086	61.4%

Source: NBTE September 2024
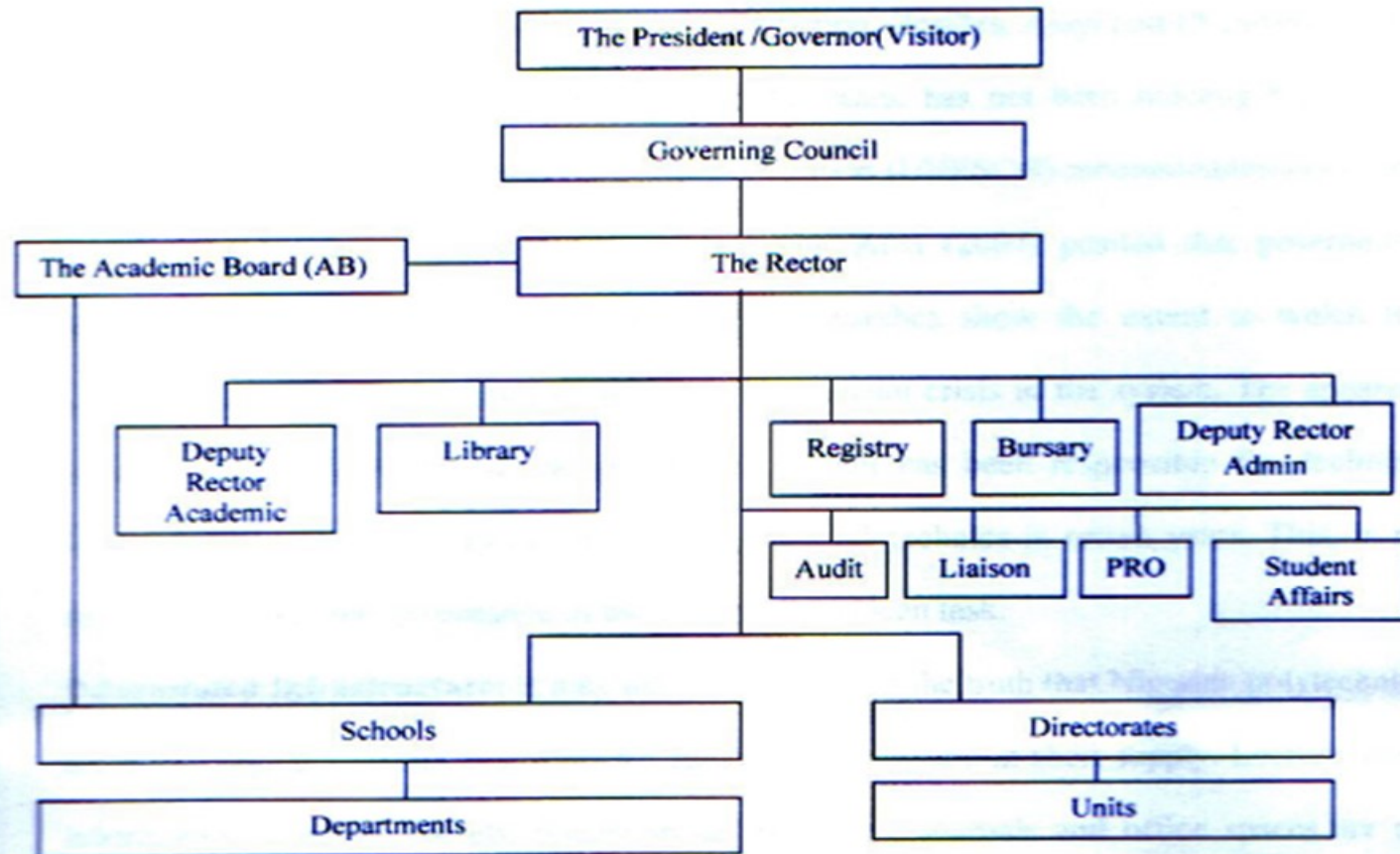
FIGURE 1 : ORGANOGRAM FOR THE INTERNAL MANAGEMENT OF A POLYTECHNIC

Monotechnics in Nigeria

Table 5: Monotechnics in Nigeria

S/No	Owner	Number	Percentage (%)
1.	Federal	92	50.27
2.	State	54	29.51
3.	Private	37	20.22
	Total	183	

Innovation Enterprise Institutions (IEIs) and Vocational Enterprise Institutions (VELs)

- These institutes are more or less like monotechnics except that they only award National Innovation Diploma (NID) and Vocational Innovation Diploma (VID), generally rated as equivalent to a National Diploma.

- Aside from the name of their diploma, they are unique and more contemporary in the type of courses they offer when compared to polytechnics and monotechnics.

- As at October 2024, there are 173 Innovation Enterprise Institutions (IEIs) and Vocational Enterprise Institutions (VEIs) in Nigeria, all privately owned which are under the supervision of National Board for Technical Education (NBTE).

Colleges of Education

- Colleges of education produce middle level manpower in teaching of basic and technical education at junior and secondary school levels. They offer three-year programmes leading to the award of National Certificate of Education (NCE).

- The three-year teacher education is sand witched with practical teaching experiences which are supervised by their lecturers and senior teachers in the institutions where the Teaching Practice (TP) is carried out.

- In addition to the Colleges of Education, there is also a National Teachers Institute which train teachers in a kind of part-time, distance learning mode while some polytechnics also have technical, vocational and Business Education programmes that lead to the award of National Certificate of Education.

- The Colleges of Education are supervised by National Commission for Colleges of Education.

- As at September 2024, there are a total of 123 Colleges of Education in Nigeria, with Federal, States and Private as owners. The details are as shown in Table 6.

Table 6: Colleges of Education in Nigeria

Owners	Number	Percentage (%)
Federal	27	13.17
States	52	25.37
Private	107	52.20
Other NCE Awarding Institutions including Polytechnics	19	9.26
Total	**205**	**100.00**

Comparison of trends in universities and polytechnics in Nigeria between 2015/2016 and 2022/2023

- **Admission Rate**: Polytechnics have consistently higher admission rates (54.6% - 61.4%) compared to universities (24.7% - 30.4%);

- **Applicant Pool**: Universities receive more applicants (1.4M - 2.3M) than polytechnics (424K - 523K);

- **Gender Balance**: Polytechnics have a more balanced male-to-female ratio (55:45) compared to universities (60:40);

- **Growth Trend**: Both university and polytechnic admissions have increased over the years, but polytechnic admissions have grown at a faster rate

- **Entry Requirements**: Universities require higher entry requirements (JAMB scores, WAEC/NECO grades) compared to polytechnics;

- **Program Offerings**: Universities offer a broader range of programs, including undergraduate and graduate degrees, while polytechnics focus on diploma and certificate programs;

- **Funding**: Universities receive more government funding and grants compared to polytechnics.

Table 7: 2023 vs 2024 UTME Application by First (1st) Choice of Preference

Percentage	2023		2024	
	Total Applications	Percentage (%)	Total Applications	Percentage (%)
Degree	1,453,797	91	1,778,216	90.75
NCE	18,049	1.1	191,054	8.10
ND	123,031	7.8	1,225	0.06
NID	896	0.1	22,165	1.08
Total	1,595,773	100.00	1,992,660	100.00

Evolution of Polytechnic Education

- Polytechnics were first introduced in the United Kingdom in the 19th century. The first was the Royal Polytechnic Institution established in London in 1838.
- The focus of the course offerings was engineering and applied science.
- In Nigeria, Yaba College of Technology, the first Polytechnic was established in 1932.
- Its forerunners were technical schools which were established only according to the needs of the colonial system for technicians
- Prior to independence only five technical institutions were established in Nigeria, and they were operated as departmental in-service training centres.
- They were Railway Training Institute (1901), The Survey School, Lagos (1908), The Post and Telegram Training Centre (1931); The Veterinary School at Vom (1935) and the School of Forestry at Samaru near Zaria, (1931)

- The growth of the Nigerian economy further necessitated the establishment of more craft centres and higher technical institutions based on the recommendation of Thorp and Harlow Commission (1950), and Eric Ashby Commission of 1960.

- Polytechnic with branches were established and sited in each of the then three Regions of Nigeria. The three institutions were: The Nigerian College of Arts, Science and Technology situated in Ibadan, Zaria and Enugu.

- These Colleges produced Technicians in Engineering, Agricultural Sciences and Paramedicals; and the quality and standards of the courses offered, and the products of the Colleges were very high.

- The period 1960 to date as far as technological education is concerned has seen the emergence of 186 accredited Polytechnics and Colleges of Technology owned by the Federal Government, the State Governments, and privately owned.

- Essentially, Polytechnics and Colleges of Technology are vocation-driven and industry linked offering National Diploma and Higher National Diploma.

Evolution of Polytechnics in Developed World

Like in the UK, several other countries have transformed their polytechnics to universities or degree-awarding institutions, including:

i.   **Australia**: Many polytechnics were merged with universities or became universities themselves, offering degrees and higher education programs.

ii. **New Zealand**: Polytechnics were rebranded as Institutes of Technology and Polytechnics (ITPs), offering degrees and higher qualifications.

iii. **Canada**: Some polytechnics were upgraded to university status, while others became colleges or institutes of technology, offering degree programs.

iv. **Singapore**: Polytechnics were established as separate institutions, offering diploma and degree programs, with some later becoming universities.

v.   **Finland**: Polytechnics (Ammattikorkeakoulus) were transformed into Universities of Applied Sciences (UAS), offering Bachelor's and Master's degrees.

vi.   **Netherlands**: Hogescholen (polytechnics) were upgraded to offer Bachelor's and Master's degrees, becoming Universities of Applied Sciences.

vii.   **Sweden**: Polytechnics (Högskolor) became universities, offering academic degrees.

viii.   **Denmark**: Polytechnics (Ingeniørhøjskoler) were merged with universities or became University Colleges, offering degree programs.

Evolution of Polytechnics in Africa

Several African countries have transformed their polytechnics to universities or degree-awarding institutions. Some examples include:

i. **Ghana**: polytechnics were upgraded to technical universities, offering degree programs.

ii. **South Africa**: polytechnics were converted into universities of technology, offering degree programs.

iii.**Kenya**: polytechnics were upgraded to universities, offering degree programs.

iv. **Tanzania**: polytechnics were transformed into universities, offering degree programs.

v. **Uganda**: polytechnics were upgraded to offer degree programs, with some becoming universities.

vi. **Botswana**: polytechnics were upgraded to universities, offering degree programs.

vii. **Namibia**: polytechnics were transformed into universities, offering degree programs.

Contributions of Polytechnics to National Development

- Polytechnics in Nigeria have contributed substantially to national development through the production of **qualitative and highly skilled manpower** in virtually all aspects of the national economy.

- The vital contribution of polytechnics **in the area of commerce** is particularly noticeable in **the banking industry,** where up till today, their products are dominating.

- In the **construction and housing sectors**, the power sector, oil and gas the products of polytechnics are making giant strides.

- **In the Nigerian Army**, until very recently, the Engineering Corps is dominated by the products of the polytechnics.

- Polytechnic engineering **graduates were sought after and indeed preferred by foremost manufacturing outfits**, leading construction companies and Oil Services Companies.

- In the corporate world, most successful real estate companies – private and public, as well as banks and insurance **companies prefer to recruit their Premises Managers from the polytechnic graduates**

- **Fabrication of Tools (Prototypes):** Many polytechnics in Nigeria, have recorded a great measure of success in simple tool and machine production such as Cassava Processing machine, Rice Parboiling Equipment, Palm Kernel Cracker, Maize Shelling machine, Yam Pounding machine

- **Research and Development**: The Polytechnics have been involved in researching on certain aspects of our material life, such as food seasoning and preservation techniques (NBTE, 1985);

- **Agricultural Production**: Polytechnics engage in direct production of food crops such as palm fruits, and vegetables; and in animal production such as poultry, goats, snails, fish, cows, and many more.

- **Public Enlightenment/Education**: Polytechnics have continued to organize national and international seminars and conferences, which do not only enlighten the public, but also act as catalysts to economic development.

Challenges of Polytechnic Education in Nigeria

On the positive side:

1. Before 1978, there was no discrimination against polytechnic education. Polytechnic education, like the university education was equally heavily-subsidized and well-funded by the government.

2. There was no discrimination between the Higher National Diploma and University Degree and in many instances, HND holders earned more respect than their university counterparts, especially in the industries.

3. There were enough industries in terms of number to cater for all students who needed to acquire one-year industrial experience.

The problem started about 1978 when the almighty military's approach to governance and economic policies started to disfavor the private sector and consequently industrialization leading to graduate unemployment.

1. The Federal Government's pronouncement in 1978 that "all Polytechnics and Colleges of Technology in the country should, as a matter of policy, stop the award of National and Higher National Diploma, and that the two tier of training should be replaced by a single tier to be called **Nigeria National Diploma**". This led to a serious academic crisis until the issue was resolved in a law court.

2. Again, from the **early 90s up to the earlier part of 2000**, the discrimination against the products of the polytechnics heightened. **The parity between university degree and Polytechnic Higher National Diploma started to disappear**. The crisis reached a climax and a Presidential Technical Committee for the Consolidation of Federal Tertiary Institutions was set up to carry out a final burial ceremony of the Higher National Diploma.

3. The Bachelor of Technology was to replace Higher National Diploma, with each Federal Polytechnic attached to the nearest Federal University to supervise the award of Bachelor of Technology Degrees.

4. The idea canvassed by the Report of the Presidential Technical Committee for Consolidation of Federal Tertiary Institutions was similar to what happened in the United Kingdom in 1992 when in a single sweep, all the polytechnics were converted to "New Universities".

5. **Conceptual Problem**: From the colonial era through the early stage of our nationhood, technical schools or colleges were perceived as inferior to Grammar schools. Indeed, those who attended technical schools were seen as intellectual never-do-wells who could not make it to Grammar schools.

6. **Discrimination by Government and some private-sector against the polytechnics and polytechnic education in terms of:**

   a. Funding;

   b. Recruitment and placement of polytechnic products/graduates;

   c. Conditions of Service for polytechnic staff as evident in the lower allowances, lower retirement age, secondary attention and lower status;

   d. Non-creation by Government of a separate regulatory body equivalent to the National Universities Commission (NUC) and National Commission for Colleges of Education (NCCE).

7. **Weak Regulatory Framework for Polytechnic Education:** NBTE was established to coordinate and advise on "all aspect of technical education falling outside the Universities. **With the rapid growth in the number of technical schools, monotechnics, Federal Technical Colleges of Education and Polytechnics, NBTE find it difficult to meet her statutory responsibilities of supervision – accreditation and re-accreditation of programmes in about 569 technical and vocational institutions under NBTE supervision, all scattered across the country.**

NBTE therefore become less responsive in curriculum development and review at the pace of dynamics in technology and commerce. The failure of the NBTE to cope with her regulatory functions has led to the lagging behind of polytechnics in Nigeria when compared to their counterpart in the other parts of the world like Singapore, Finland, Germany, China, among others.

8. **Inadequate Funding and Financial Constraints:** Attempt by many polytechnics to raise their internally generated revenue **led to mass admission as a survival strategy**.

9. **Brain Drain Syndrome/Teaching Staff Retention.**

10. **Outdated Curriculum and Teaching Methods with inadequate curriculum planning and implementation: For the fast-paced changes in technology and industry requirements necessitate regular updates in educational curricula.**

a. The curricula are based on foreign model;

b. There is a basic lack of textbooks;

c. There is usually a shortage of highly competent indigenous teaching and support staff;

d. The curricula are adjudged to be too academic and overloaded with intellectual contents;

e. Inadequate provision of humanities, social sciences, business management concepts and entrepreneurial skills development.

11. **Staffing**: Polytechnic in Nigeria have a unique disadvantage; it has no specific institution where to train its staff.

12. **Lack of Industry Collaboration and Linkages.**

13. **Poor Infrastructure and Learning Environment.**

14. **Discrimination, Negative Societal Perceptions and Stigmatization of Polytechnic Education.**

15. **Relatively Shorter Career Ladder for Graduates.**

16. **Lack of Interest by Political Office Holder/Law Makers.**

17. **Governing Councils of Polytechnics are mainly Politicians.**

18. **Inadequate Industrial Placement and Attachment.**

19. **Nigeria Value System.**

20. Other challenges include:

- Poor Policies;
- Poor Attitude;
- Poor Governance and Corrupt Practices;
- Inadequate Skilled Manpower;
- Skilled Workforce;
- Inconsistency in Quality Assurance;
- Inadequate Information on Labour Markets;
- Weak Partnership;
- Inadequate and obsolete (analog) workshop;
- Poor Accreditation status;

- Low tempo of research;
- Examination malpractices;
- Lack of public patronage;
- Legislative constraints;
- Unidirectional movement of staff;
- Weak Institution;
- Inadequate and dilapidated classrooms;
- Low ICT;
- Intractable class sizes;
- Unethical/Unprofessional behaviour/activities
- Cultism.

Strategies for Revitalizing Polytechnic Education in Nigeria

1. **Establishment of New Polytechnic Education Regulator: Commission for Polytechnics should be established** which must be:

   i. Responsive;

   ii. Relevance;

   iii. Reputable; and

   iv. Innovative.

The core mandate should be:

- Curriculum and Programme Development and Review;
- Quality Assurance;
- Strategic Manpower Development;
- International Linkages, Exchanges and Collaborations;
- Grant Sourcing for Strategic Teaching, Learning and Research Infrastructure;
- Strategic Partnership with the Professional Bodies and Industries; and
- Ensure that Polytechnics deliver on their mandate.

2. **Changing status of Polytechnics to Degree Awarding Institutions:**

   i.   All the polytechnics in Nigeria to retain their designations as "Polytechnics" but statutorily empowered to offer degree programs at Bachelor, Masters and Ph.D levels.

   ii. Polytechnics should be allowed to run B.Tech, MTech and Ph.D Degrees in Technology related programs.

   iii. Only National Diploma should be allowed to continue, while **Higher National Diploma should be abolished**.

iv.   The new National Diploma should be for 3-years leading to the award of a National Diploma that will be useful in two-ways;

✓ As entry qualification to labour market;

✓ A pre-requisite to enter for a 3-year Bachelor of Technology (B. Tech.) or Bachelor of Engineering (B. Eng.) or similar degrees.

iv.   A high level Technical Body of experts should be set up to work out the transition details.

3. **Empowering Polytechnics to Award Their Own Degrees Through The ND Route will:**

   i.   Enhance the status of polytechnics, allowing them attract a much higher number of students;

   ii. Provide a more inclusive and equitable education system, recognizing the practical skills and knowledge acquired through polytechnic education;

   iii. Align with global trends, where polytechnics are recognized for their expertise in Science, Technology, Engineering, and Mathematics;

   iv. Foster a more skilled and innovative workforce;

   v.   Promote social mobility and permanently put to rest the discrimination against HND holders.

Conclusion

➢ The argument and rivalry between polytechnic and university is not necessary.

➢ The polytechnic of the future should bridge the gap between the pure and applied, and the merit of scholarship and the trust of the intellectual.

➢ The national aspiration of Nigeria requires highly skilled products of the polytechnics, and the intellectual capacity of the university. We need both to develop rapidly.

➢ The Federal Ministry of Education and indeed the National Council on Education, and not the least, the Federal Government of Nigeria should set in motion a process to interrogate the issues and act appropriately and timely.

Thank you !