Overcoming Tertiary Institutions' Challenges through Science and Technical Education

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Abstract: *The paper looked at various challenges confronting tertiary institutions in Nigeria, such as insecurity, cultism, examination malpractices, corruption, poor funding among others. The paper highlighted importance of science and technical education in overcoming these challenges. Emphasis was laid on skill acquisition programme; entrepreneurship education and Community Learning Service (CLS) for both science and technical students in tertiary institutions. The paper was concluded by suggesting some recommendations for tackling tertiary institutions challenges in Nigeria such as funding of Science and Technical Education programs in Nigerian tertiary institutions; the funding should not be left for government alone, but stakeholders and private/corporate organizations should join hands in funding Nigerian tertiary institutions.*

Keywords: *science education, technical education, examination malpractices, cultism, skill acquisition, community learning service*

1. INTRODUCTION

Tertiary institutions in Nigeria are still in their growing stage compare with the developed world because of various challenges that are peculiar to these citadels of learning.These challenges might not be peculiar to Nigeria alone however; the challenges often decimate the academic strength of the institutions.

Graduates of Nigerian tertiary institutions are being looked down upon outside the country not because of anything but due to these challenges. Polytechnics graduates in Nigeria can hardly performed when they get to the field because of lack of proper training. Graduates of Colleges of Education who are trained to be professional teachers cannot teach effectively when they graduated from schools. The facilities in our campus are not conducive for teaching and learning where both staff and students are experiencing epileptic power outage to read, carry out assignments, research studies, and interact with their counterparts outside the classroom across the globe. All these are some of the situations in Nigerian tertiary institutions, putting Nigerian graduates into a box which make Nigeria a laughing stock among the nations.

Students of tertiary institution spend more time outside classroom because of industrial action emanating either from the government or from the students themselves and it could come from workers.All these are ill wind that does not blow the nation any good.

Conferences, workshops, seminars are being held even public debate on how to solve tertiary institutions problems but little has been achieved so far. Solution to these problems is not in heaven but in the institution itself; that is why this review is very important.

Before looking at the solution to the problems it would be very appropriate to consider some of these challenges that tend to weaken the academic strength of the institutions. Therefore the review is divided into the following sub-heading:

- Tertiary institution challenges

- Meeting the challenges of tertiary institution through science education

- Meeting the challenges of tertiary institution through technical education

2. TERTIARY INSTITUTION CHALLENGES

Many are the challenges of Nigerian tertiary institutions but this paper will highlight few of these challenges. These challenges are insecurity, cultism, corruption, examination malpractices and poor funding.

2.1. Insecurity

Insecurity is the greatest challenge of Nigerian tertiary institutions. Security is very important and germane to academic excellence [4]. Gone are the days when Nigerian campuses were saved and secured; today lives and properties in campuses are not saved because of the types of students and workers we have in the institutions. Many students are already spoiled from home and parents thinking was that institutions will re- mould the life of such students but instead they turn out to be terrorists in the institutions.

There is declining in academic performance of students in the institutions thereby turning those who could not cope into a problem in the institution. Many students had been in the institution for many years without graduating; they remain there to cause security problem for the serious students and the entire learning community.

Effect of insecurity is great and incalculable. Consider the gruesome murder of three professors in a university in the northern part of Nigeria few years ago and lots of infrastructure that were destroyed by some people.

2.2. Cultism

Cultism is very rampart in all Nigerian institution of higher learning nowadays as observed by [6] that cultists have made Nigerian higher institutions become a place of worry to everybody. Cultists are making campuses insecure for everybody including staffers of the institutions. The most painful thing about this cultism is that staff including heads of the institutions is involved in cultism; this makes their activities difficult to curb.

Cultism has devastated academic programmes of tertiary institutions in Nigeria in many ways; lecturers can no longer do their work objectively because of fear of cultist; serious students are no longer committed to their studies due to cult activities; institutions are closed down and academic activities paralysed for long period as a result of violence caused by cultists.

2.3. Examination Malpractice

Examination malpractices are rampart in the country institutions of learning as argued by [7] that, even in teachers training institutions this is being practiced. Students don't want to read and they want to pass by all means resulting into all forms of examination malpractices. Shameless staffers of institutions also participate in this ugly act because of wealth. It has become very difficult to conduct any free and fair examination in the institutions because of examination malpractices.

Effects of examination malpractices are obvious as graduates of many institutions cannot live up to expectation in their various professions after graduation because they do not merit the certificate they are holding. Many of Nigerian institutions are not respected outside the country even within Africa; they make mockery of Nigerian certificates only because those who really worked for the certificate are few.

2.4. Corruption

There is corruption everywhere in the nation as opined by EL-Rufai in [4] that corruption and terrorism has taking over the nation. According to [18], corruption is everywhere in Nigeria, tertiary institutions inclusive. Admission into tertiary institution is on whom you know not on merit again; award of contract in the institution is no longer for the best contractor but to the rogues. [5] Observed that purchases of science equipment to schools are no longer done transparently because it is either the chief executive of the institution or any of his or her relation who did the supply.

Nigeria, which has a population of 168,883,776, is ranked 135 out of 176 most corrupt countries in the world which is slowing the pace of development [21] in [14]. Presently, in an effort to assess the basic human development achievements in the world, Nigeria ranked 153 among 193 countries in the world. The implication is that Nigeria's poverty index will get worsen the more because presently, her multidimensional poverty index is 0.31% while 68.0% of her population is living below $1.25 PPP per day ((United Nations Development Project, 2013 in [14]. In this view, science and technical education has a greater role to play in overcoming these challenges in order to have a secured nation whose technological advancement cannot be compromised.

Nevertheless, Nigeria's human development index which stands at 0.31% could be improved upon through some technical education programs such as in Automobile technology, Building technology, Electrical/Electronic technology, and Metalwork technology. This will reduce the country's high rate of unemployment that is still contributing to high rate of poverty among Nigerians [14].

[12] lamented that recruitment to job is tied down to criteria such as political favouritism, geographical area or quota system. Many of the teacher training institutions, polytechnics and universities are devoid of best academic staff because the best probably do not have godfather who could help.

Some lecturers are corrupt; they have left their primary duty of lecturing and research to business of selling books and handouts to students at any price of their choices; they are promiscuous and committing immorality with female students with the view to give them marks. Corruption has ruin our tertiary institutions except something is done urgently the system may collapse soon.

Judging by the most corrupt institutions in Nigeria from an indices of 5% as high while 1% as low corruption index, recording the political parties and the police as most corrupt institutions in Nigeria with 4.7% respectively, the Education institution 's level of corruption is 3.4%. [21].

2.5. Poor Funding

Funds are not made available for research and teaching in our tertiary institutions as opined by [19] that Nigerian public institutions and university are not well funded by the government and supported by [1] that tertiary institutions are poorly funded. Budgetary allocation to education in Nigeria is generally very low when compare with other Africa countries. A national newspaper, [9] reported that, Nigeria spends less than nine per cent of its annual budget on education.

The table below show annual budget of some Africa countries as compare with Nigeria.

s/n	country	Budget (%)
1	Botswana	19.0
2	Burkina Fasco	16.8
3	Cote d'Ivoire	30.0
4	Ghana	31.0
5	Kenya	23.0
6	Lesotho	19.0
7	Morocco	17.7
8	Nigeria	8 .0
9	South Africa	25.8
10	Swaziland	24.6
11	Tunisia	17.0
12	Uganda	27.0

Source: [9]

Nigeria government is not sincere to education; [13]said government lack sincerity and that is why the quality of education is poor.[10]was worried that country like Ghana committed 31 per cent of its budget to education as against Nigeria's eight per cent.

Lecturers' allowances and salary are not given priority forgetting that, role of teachers cannot be compared with that of politician. [17] posited that, in any stable political system, teachers and their education system are well catered for; teachers are not well catered for in Nigeria because of lack of fund.

3. MEETING THE CHALLENGES OF TERTIARY INSTITUTION THROUGH SCIENCE EDUCATION

Science education is the study of biology, chemistry or physics in conjunction with the principle and method of education [5]. The field of science education is aimed at sharing both science content and processes with individual that might not be traditionally in science community. Science education could be applied to meet tertiary institution through, Community Service Learning (CSL), skill acquisition and entrepreneurship education.

In most of Nigerian tertiary institutions science teaching are done in classrooms and most students forget almost all they learnt when they are outside the classroom. CSL according to [8], is the integration of science learning into the real-world situations within the context of a community. CSL allow students to learn science outside the classroom in the community where the schools are established. CSL provides a real-life working environment that lead to excellent learning outcomes for the students as well as strengthens their individual social responsibility [8].

Physics education student who has been busy in the community using his knowledge of electronic and electricity for repairing electrical appliances and electrical installations will not have time for trouble or cultism because such work is fetching him money. Biology education student also could use their knowledge of zoology and botany to render services in the community which can earn them money. There are many other things Chemistry education students can do for their community that will earn them money. When students are busy doing something that fetch them money they will not like any trouble that will send them home.

Youths in tertiary institutions should not only be focusing on academic programme without regard for a particular skill while in the school. Youths should be equipped with scientific skills that will keep their minds and souls away from any evil inclination. For instance, students of Physics education could be trained on electronics and ceramic making; since all these are part of what they have learnt in Physics. Chemistry students could be trained on soap and dye making while biology students could specialize in fishery.

Equipping them with these skills will keep them engaged and away from cultism and other vices. An understanding of science and the processes of science contributes in no small way to these skills[15].

To further assist the students on skill acquisition, teachers must be professionally upright. Science education teachers at all level must be balanced both theoretically and practically. They should be provided with opportunities to develop theoretical, practical understanding and ability, not just technical proficiencies [15].

[2] Believed that the purpose of entrepreneurship education is to prepare youth to be responsible therefore asserted that:

Entrepreneurship education seeks to prepare people, especially youths to be responsible, enterprising individuals who become entrepreneurs or entrepreneurial thinkers and who contribute to economic development and sustainable communities (p.2).

[16] said entrepreneurship education provides young graduates with training and support to enable them established career in small and medium businesses.

A functional science education will prepare its products for a profitable future through quality training. Most of the training that goes on in tertiary institutions today focuses on learning to obtain certificate for paid jobs without thinking of what can be done when there is no paid job. Youth in school should be trained to look beyond paid jobs. Most of these youths tend to cause trouble because they felt staying in school is better since there is no job in the country.

A Physics education student who has been taught on how to be self employed through ceramic making will never engage in any activities that can prolong his/her studies duration in school. Institutions can use science education to establish money generating ventures in schools. For instance through Chemistry education a school can establish chalk industry; Biology education can establish fish pond; Physics education can engage in electronics and electrical works. A lot of money could be generated through these ventures which could be a solution to poor funding for the institution.

Science education could be use to solve problem of corruption through emphasis on moral and peace education. Teaching should not be only on principle and method of teaching science but on individual duties to neighbours and immediate community [20].

4. MEETING THE CHALLENGES OF TERTIARY INSTITUTION THROUGH TECHNICAL EDUCATION

With standard research work, technical education can produce more technical personnel that will help mount the already collapsed industries. This can be achieved through the relevant skills acquired to solve the nation's erratic power supply by demonstrating their skills in accordance with the objectives/ goals of Technical Education which are specifically to technology education that is offered at some higher institutions:

- The production of high level and middle-level manpower as appropriate in areas necessary for agriculture, industrial, commercial and economic development.

- The identification and solution of the technological problems and needs of industrial; and

- The production of technicians and technologies and similar business related personnel for direct employment in industry [11].

Technical education can also reduce the high rate of poverty in the country because more youths would have possessed the relevant skills that will discourage them from scanning for a white collar job and be self-reliant.In fact, if technical education programs are properly funded, it will in return help to generate more money back to government purse because goods produced from the available funds and materials can be sold at both local and international levels respectively.The program can also build into the young Nigerians coming with the skills for maintenance culture which the country is lacking right now. Skills' acquisition can help in the formulation of ideas, their integration, and the interaction of persons and ideas to give solutions to possible emerging challenges for national development [14].

Most importantly, students who are idle or restless can be engaged with series of skills ranging from welding, lubrication of vehicles, spraying of vehicles, machining, servicing, joinery, block making, electrical installation, electronic computer diagnosing to painting and decoration in college before graduation. These skills if introduced to them will not create room for cultism, crime, examination malpractice, and arm-robbery among them. More so, the time allocated for theoretical and literature work could be shortened to give more room for practical know-how.

5. CONCLUSION

In the light of the above submission it is obvious that Nigerian tertiary institutions are faced with the challenges of insecurity, examination malpractices, and cultism among many others. Science and Technical education have been seen as strong tool to overcome these challenges through skill acquisition and entrepreneurship education.

6. RECOMMENDATIONS

In the light of the fact that Science and Technical Education can help in meeting up with the Nigerian Tertiary Institutions' Challenges, the followings are recommended:

- Funding of Science and Technical Education programs in Nigerian tertiary institutions should not be left for government alone, but stakeholders and private/corporate organizations should join hands in funding Nigerian tertiary institutions.

- Technical education programs should be adequately funded and free for all categories of students, youths, and adults, in order to reduce the rate of unemployment in Nigeria.

- Science education must be taking serious by Nigeria government at all level of our education by giving scholarship for any outstanding students in science education.

- Science education curriculum should be revised to include skill acquisition programme and entrepreneurship education in all tertiary education.

- Any corrupt individual in tertiary institution should be dealt with like an arm rubber; the individual may be lecturer, chief executive of institution or anybody.

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