

PROSPECTS AND CHALLENGES FOR THE VISION AND MISSION OF BIOLOGY EDUCATION IN COLLEGES OF EDUCATION IN THE 21ST CENTURY

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Abstract

A careful study of the vision and mission statements of biology education in Nigerian Colleges of Education reveals a concise, well thought-out objective that would make recipients of instructions to be meaningful players in the overall scheme of national development. The paper notes that despite the laudable provisions of the National Policy on Education and the Minimum Standards for the Nigeria Certificate in Education (NCE), holders of the NCE in biology still find themselves incapacitated in the use of modern technology to preserve the cherished values of the nation due to inherent pot-holes in the quality of instruction, provision of facilities; equipment and consumables for learning in most institutions. It is recommended that removal of such pot-holes accompanied with a review of the mission statements be made so that learners could adequately fit into the social structures of the 21st century.

Introduction

As used in this paper, vision may be described as the ability to see, a mental perception of something or a plan premised on imaginative thinking. Conversely, a mission is the aim or objective to be attained when the vision is accomplished or internalized. The evolution of a vision and mission for biology education in Nigerian Colleges of Education could be traced to the Curriculum Conference of 1973, the outcome of which led to the publication of the National Policy on Education (NOPE) in 1977. The foundation of the NPE took its thrust from the five main national goals of the 2nd National Development Plan (1970- 75) in which Nigeria was to be established as:

- (i) A free and democratic society
- (ii) A just and egalitarian society
- (iii) A united, strong and self-reliant nation
- (iv) A great and dynamic economy
- (v) A land full of opportunities for citizens

From the above educational philosophy, the national educational goals were derived, to:

- (a) Inculcate national consciousness and national unity;
- (b) Inculcate the right type of values and attitudes for the survival of the individual and the Nigerian society;
- (c) Train the mind in the understanding of the world around; and
- (d) Acquire appropriate skills and develop mental, physical and social abilities and competencies as equipment for the individual to live in and contribute to the development of his society (NPE, 1998:8).

The attainment of these goals at the tertiary level of education was exploited with the appointment of regulatory agencies viz;

- National Universities Commission (NTJC) - for universities
- National Board for Technical Education (NBTE) - for Polytechnics
- National Commission for Colleges of Education (NCCE) - for colleges of education.

The agencies regulate the quality of courses offered in the various disciplines in their respective institutions through setting and maintenance of standards, regular accreditation exercises and monitoring of physical projects. In its Minimum Standards, the NCCE (2002:1) espoused the mission of biology education as a programme in which the NCE teacher will be able to:

- (a) View biology as a process of inquiry into the living world,
- (b) Critically analyze the activities of living things in their environment,
- (c) Demonstrate practical skills in handling scientific apparatus,

- (d) Demonstrate excellence and professional competence in teaching secondary school biology,
- (e) Inculcate positive scientific attitudes and values in the society and promote positive disposition towards biology, science and the scientific enterprise,
- (f) Apply concepts and methods acquired in the course in new areas of study and in everyday situation,
- (g) Make a successful career in biology teaching,
- (h) Successfully undertake a B.Ed/B.Sc. (ed) degree programme.

Nwaokolo and Otubelu (1998:128) cited that there is a meeting point for the vision and mission in any educational enterprise - the point of implementation or accomplishment. They further asserted that if the mission is fruitful or successful, the vision is attained, thus implying that an unsuccessful mission would remain parallel to the vision.

The object of this paper therefore is to critically analyze the attainment of the mission of biology education as provided in the NCCE Minimum Standards and attempt to compare achievement of visionary educational goals in meeting the present-day needs of biology teachers in the contemporary Nigerian society.

Conceptual Evaluation of NCE Biology Programme

In the period penultimate to the 2nd National Development Plan (1970 - 75), most biology teachers in the nation's post-primary institutions were expatriates. The liberalization of education towards the end of the 20th century saw an increase in enrollment of learners across the various levels of education. This resulted in a sharp increase in the turnover of middle-level and high-level manpower from the nation's tertiary institutions, thereby stemming the import of foreign teachers into the country.

While biology education presently occupies an enviable pride of place in the numerical turnover of graduates, not much might have been achieved in their demonstration of acquired practical skills (Soyibo, 1992), as well as in the use of the scientific knowledge acquired in the course programme to solve social problems. The reasons being that while the learners are exposed to little practical lessons due to lack of the enabling environment in most cases, the teaching curriculum does not adequately provide for learning experiences that could easily be transferred to solving the problem of unemployment.

Prospects of NCE Biology Programme

Biology education bequeaths to learners a broadened knowledge for veritable intellectual development and potentials for sustainable improvement of their environment through the inculcation of non-destructive strategies of exploitation of natural renewable and non-renewable resources. Also, learners can reach out to a large number of people in the society suffering from diseases which can be cured and from which they need not suffer again if simple scientific rules of hygiene are followed.

There are usually abundant farm produce wasting and rotting away in some Nigerian agrarian country sides at harvest times. Through the appropriate skills in biology acquired from bacteriology, mycology and principles of sterilization, these produce could be properly harnessed, processed and preserved. The biologist also possesses the potentials that when properly educated through "integrated learning approach" could skillfully raise flowers (horticulture) and breed livestock for self-sustainability. However, in order to actualize these lofty educational ambitions through the study of biology, the right scientific knowledge, an enabling environment for a viable theory and practical lessons and a scientifically-minded population that is ready to imbibe the learning experiences are needed.

Challenges for the Vision and Mission of Biology Education

The rapid expansion in school enrollment towards the third quarter of the 20th century Without a corresponding availability of professionally competent teaching and support personnel (Okebulola, 1984), adequate laboratory/research space and classrooms are some of the factors which impeded the smooth attainment of prescribed vision and mission statements of biology education. For example, most biology classrooms and laboratories are almost always crowded during instruction (Ukpene, in Press). Consequently, most learned experiences are premised on the traditional 'talk and chalk'

method whereby learners 'see' but do not physically 'do' or 'study' science (Dansarai, 1997). Most concepts are therefore learned by rote for regurgitation to pass prescribed examinations.

Presently there is a strong call for instruction to be structured and delivered to learners on the threshold of information and communication technology (ICT) devices (NCCE, 2003). Unfortunately, most teacher-trainers are not yet proficient in the effective use of ICT facilities for simulations and lesson delivery in biology, Even where the teacher-trainers possess the requisite ICT skills, the ICT facilities are often centralized in most institutions, while associated accessories and electricity are available in trickles.

In addition, provisions in the mission statements for biology education are seemingly out of tune with present day realities or are not feasible due to inherent human factors, the Nigerian style. The NPE espoused that the Nigerian child will be educated to acquire appropriate skill, abilities and competencies both mental and physical. While some aspects of the provisions are being achieved in biology education, it is noteworthy that majority of the skills and competencies acquired at the college of education level, to a large extent, predispose recipients of instruction to white-collar jobs and redundancy (Ukpene, 2003). The learning experiences that might have equipped learners with skills for other self-sustaining vocations besides teaching are either lacking or are superficially provided for in the course content.

Conclusion

This paper has highlighted the vision and mission of biology education as espoused in the NPE and the NCCE Minimum Standards, respectively and has noted that they are statements of hopeful transformation of the Nigerian educational system into a veritable enterprise. It has also been observed that the dearth of infrastructure, laboratory equipment and consumables are still some of the notable impediments in the process of implementation. Equally noted is the fact that most provisions of the policy documents have fallen short of equipping our scholars in biology with skills that would make them to depend less on paid employment. Consequently, most NCE holders roam the streets in endless search of jobs. It will be a millennial breakthrough in education to review the mission statements of biology education so that learners could acquire some skills that would predispose them to some level of self-sustainability and drift away from seeking white-collar jobs and unemployment.

Recommendations

Biology education in the 21st century should be seen as a vibrant academic discipline where instructional experiences are structured and delivered on the threshold of up-to-date scientific equipment and consumables, with back-ups from functional ICT devices. The following suggestions are made to realize this ambition:

The educational system should be empowered to be operationally efficient. This might be achieved through the provision of functional teaching and learning materials that would make learners to study biology as a true science subject of inquiry.

To derive full academic benefit from the use of ICT facilities in our classrooms and laboratories, government should empower colleges of education (through special grants) to acquire adequate computer hardware and software as well as other accessories for its various departments for instructional purposes. In order to complement this provision, teachers should endeavour to acquire the necessary competencies on the use of ICT facilities for effective lesson delivery. The NCCE is commended for tying computer literacy to the promotion of teachers in colleges of education as a means of spurring them up in this direction. The NCCE is requested to 'inject' some elements of vocations (such as plant and animal breeding, bee keeping, juice extraction, food canning and many more) into its next review of the Minimum Standards in biology education. This might predispose learners towards specializing and be positively disposed towards the current trends of our national development.

References

- Abdullah!, M. D. (1998). Vision, Mission and Motion of Science and Technology Education in Nigeria. In. Ishaku K; Akale, M. A. G; Mavyanga, A. A. and Olokun, M. (Eds). *Vision and Mission of Education in Nigeria: The Challenges of the 21st Century*. Pp. 91 - 101.
- Dansarai, M. A. (1997). On Educational Reforms in Nigeria. *Bichi Journal of Education*. Vol. 1 (2). 96-100.
- Federal Government of Nigeria (1998). *National Policy on Education*. 3^r edition.
- NCCE (2002). *Minimum Standards for NCR Teachers: Sciences*. 3rd edition.
- NCCE (2003). Compulsory Information and Communication Technology Education. NCCE/AP/GC/043/V3/346.
- Nwaokolo, P.O.; and Otubelu, D.O. (1998). Vision and Mission of Technology Education in Nigeria: Some Philosophical Constraints. In. Ishaku K; Akale, M. A. G; Maiyanga, A. A. and Olokun, M. (Eds). *Vision and Mission of Education in Nigeria: The Challenges of the 21st Century*. Pp.138-137.
- Okebukola, P. A. (1984). Tackling the Problems of Large Classes in Biology. An Investigation Into the Effects of a Co-Operative Learning Approach. *Journal of the Science Teachers Association of Nigeria*. Vol. 22 (2). 73-77.
- Soyibo, K. (1992). A Comparison of Pre-Service Teachers' Knowledge of Error in Some Biological Diagrams. *Journal of the Science Teachers Association of Nigeria*. Vol. 27 (2). 53-60.
- Ukpene, A. O. (2003). Competencies for Self-Sustainability Among Holders of Various Biology Degrees from Nigerian Universities. A Case Study "of Kano State. *The Nigerian Academic Forum*. Vol. 5. No. 2. Pp 120-125
- Ukpene, A. O. (in press). Causes and Management of Stress in Practical Biology Lesson. A Case Study of the Federal College of Education (Technical), Bichi. *Journal of Teacher Education and Teaching*.