

THE CHALLENGES OF FUNCTIONAL AND QUALITY BIOLOGY TEACHER EDUCATION TO NIGERIA ECONOMIC GROWTH AND DEVELOPMENT

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Abstract

The challenges of functional and quality Biology teacher education has brought about so much campaign in the teaching learning profession and this has brought about proper monitoring to meet up standards for the nation's economic growth. This paper seeks to discuss the seven pointy agenda with particular emphasis on the education sector in terms of development of human capital and research. Issues relating to biology teachers relevance to vision 2020 was discussed to include production of highly motivated and efficient classroom teachers for the education system and to encourage further the spirit of enquiring and creativity in teachers and how biology teachers can help in the nation's economic development growth in terms of adapting and providing practical experiences in biological investigations. Recommendations were made as to solve everyday problems relating to adequate funding of education for the provision and upgrading and urging government to invest heavily in education for Nigeria economic growth and development.

Keywords: Biology Teacher Education, Challenges, Development, Economic Growth, Prospect

Educating people in science and technology has been widely acknowledged as a sure way of promoting economic development, eliminating poverty and introducing social welfare. Investment in science and technology education has many years been a priority to most countries of the world. (Nwagbo, 2005) Developing countries such as Nigeria, Ghana have made concerted efforts to

generalize the provision of science education to both secondary and primary schools. For science teachers to confidently and effectively discharge their duties, they must be guided by certain standards or rules for operation, which will give them a pride of place in their chosen careers (Nwagbo, 2005). The present teaching and learning in science classroom in Nigeria seem inadequate.

The level of science teacher competence needs to be raised to the level that will allow teachers to teach students using varied instructional aids with a focus on understanding rather than lecture, transmitting textbook knowledge with the consequent student rote-learning and simple recall knowledge (Ameh, 1991). What makes a good teacher really depends upon objectives of the teaching, the context, the age of the students and what the teacher perceives to be needed by the students. All the above factors could combine to make a good teacher but what supersedes all is the degree of combination linked to a respect for the students as an individual (Ameh, 1991). In line with, the President Musa Yar'adua declared that he met a nation with vital infrastructure such as roads, power, water supply, in comatose state while key sectors such as agriculture, manufacturing, education and transportation were floundering. It was against this background that in August 1, 2007, the President unveiled a Seven-point agenda which he hoped would set the socio-economic state on track. The agenda is to serve as the platform from which that administration would spring off to transform Nigeria into one of the twenty largest economies of the world by the year 2020. The seven point agenda were as follows: (1). Power and Energy (2). Food, Security and Agriculture (3). Wealth Creation and Employment (4). Mass Transportation (5). Land Reforms (6). Security (7). This reform will be achieved through massive infusion of money into the Education sector. The then 7-point

agenda represents the vision of the then administration which was to strengthen the reforms already started and re-build the Nigerian economy to become one of the twenty largest economies (Okeke, 2008).

Functional and Quality Biology Teacher Education in Nigeria

Teachers are a critical factor in qualitative education delivery, to achieve its goals, a science teacher requires skills to play a significant role in its transformation. Herein lies the imperative of teacher education in the transformation process. The then Vision 20-20 promised to inject new funds into the education sector with a view to improving the quality of its infrastructure and to enhance its economic development. The private sector is likely to become an active player in a variety of educational provisions and or services. However, the following challenges are taken into consideration: i) Production of correct mix of quality teachers for basic and post-basic education within the period of eleven years. ii) Embarking on an aggressive continuing teacher professional development to upgrade their knowledge, fine-tune their competencies; strengthen their commitment with a view to enhancing their performance in the classroom, school and the community. iii) Modernize quality assurance mechanisms by making them robust and all-inclusive in view of the multiplicity of institutional types and their providers. (Tahir, 2007)

Teachers are generally referred to as mediators of educational innovations. It

is for this reason that the teacher is being globally recognized as the most prominent and significant factor that impact on the learning process, especially in the school context. It is equally recognized that competent and dynamic teaching personnel would ultimately produce efficient and effective human resources for national consumption. Our concern here is the capacity of the system to produce the required quality and functional teachers through the pre-service framework. The role of education as a tool for economic, social and political transformation as envisioned by our leaders and their 7 point agenda underscores the need for Biology teachers, as its key operators to be part of the changing trend in the economic development. Consequently teachers must be subjected to constant training and re-training if they are to effectively and appropriately perform their roles as agents in the new Nigeria of our dream.

Relevance of Biology Teacher Education

Biology is a basic human science that involves the understanding of the composition, functioning and survival of living things including human beings and other non-living things and their interaction in nature. Its relevance to human existence, health and survival, makes its study interesting and valued. It enhances his understanding of nature and intellectual development, his problem solving skills development, acquisition of survival values and skills relevant to human existences. The teacher studying

Biology is placed in a good position to cultivate similar traits in his learner. The study of biology exposes the subject relevance, relationships and application to the learners, the society and for economic development (Ango, 1991). Teacher education will continue to be given a major emphasis on all our educational planning, because no educational system can rise above the quality of its teachers". In furtherance of the positive statement, the document listed five purposes which constitute the basis of our quality biology teacher education. These are: a. to produce highly motivated, conscientious and efficient classroom teachers for all levels of our education system. b. To encourage further the spirit of enquiry and creativity in teachers; c. To help teachers to fit into the social life of the community and society at large and to enhance their commitment to national objectives. d. To provide teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to any changing situation not only in the life of the country but in the wider world; e. To enhance teachers commitment to the teaching profession. Good (1959) in relating professionalisation to quality of teaching states that the teacher is concerned with the promotion of the vocation of teaching so that it may increasingly become functional and that this will involve: (i) Distinctive expertness and high competence resulting from theoretical study and knowledge, (ii) Practical mastery of pedagogical techniques. This implies that for quality biology teacher education to meet the need

of the country, the following must be put in place: (i) Specialized competence, skills, attitudes and recognition that characterize the profession in general. (ii) The extent of preparation, experience and success in teaching. (iii) The rank or recognition a biology teacher has achieved in the profession. This being the case, the aim of a biology teacher should be to continually improve the quality of biology teaching and learning for the students and the country's standard of education (Nwagbo, 2005). The National Science Teachers Association (NSTA) in their position on science teacher professionalism, functional and quality recognized the teacher as the key to making science teaching a profession. Consequent, NSTA set up standards of what quality science teaching and professional practices are, they include: (1) Knowledge of and participation in the activities of professional community. (2) Ethical behaviour consistent with the best interest of students and the community. (3) Willingness to work with students and new colleagues as they enter the profession. In the context of quality biology teacher education, quality can only be achieved if the biology teacher identify quality practices to guide them and ensures that every biology teacher goes for remedial training. Expected roles of biology teachers in promoting quality science education is that the prospective and practicing teacher have major roles to play in the development of knowledge, skills, competences and reform document (National Policy on education, subject curriculum etc). The objectives of science

teaching specified in the curriculum are hardly achieved because: I. of lack of opportunity of the child to have direct experiences with learning materials. II. Inappropriate learning environment for science teaching. III. Use of inappropriate teaching methods, others include: IV. Large class size, rigid school timetable, overloaded curriculum and lack of incentive for the teacher. However, due to knowledge explosion and the need for the country to move with other countries of this world, the issue of quality biology teacher education has become important and necessary for improving the country's economy and growth.

1. To prepare the majority of science teachers towards this new trend requires awareness and proper coordination of existing knowledge to fit into the new scheme of things.
2. Biology as the science subject most favoured by students need teachers who are well grounded not only in knowledge of subject matter, but also in the skills/competencies needs to impart such knowledge to bring about meaningful learning in the students.
3. For biology teacher to aspire for quality teaching he/she has to be conversant with innovative teaching strategies, which are integrative, child centered and activity based.
4. Furthermore growth in science (biology) requires the teacher to regularly update his/her knowledge through in-service training, attendance at conferences seminars etc but research result indicate low participation in such activities (Abu,2000).

Quality and Functional Biology Teacher Education to Economic Growth

This is necessary to cope with the large number of students offering the course at senior secondary school SSCE level and NCE level. The government on their own part has tried to meet the demand of biology education by training more teachers at NCE, degree and higher degree levels. Therefore to serve as a pointer to country's economic growth the quality biology teachers need to:

(a). Adopt an interdisciplinary or multidisciplinary approach in order to cope with new issues in biology.

(b). Adopt to the widened scope of biology which provide solution to most human activities and problems e.g. food, nutrition drug, pollution, population, disease, radiation, health, hygiene, family life, natural resources conservation and management as well as biotechnology climate change, and ethics (UNESCO 1986).

(c). Adopt guided inquiry/discovery method of teaching in the biology curriculum (FME 1984).

(d). To provide the students with practical experiences in biological investigation and problem solving.

(e). Accept his responsibility to help students cope with the "information overload" of the internet learning and assist in organizing them appropriately.

(f). Be armed with sound biological knowledge he should be able to solve everyday problems relating to food, sanitation, erosion, primary health care etc. in this way, the biology teacher functions as classroom teacher,

communicator in both the school and the country ensuring lifelong education that is necessary for economic growth and development of the country.

Conclusion

In furtherance of research, the paper examines the link of the 7 point agenda as it addresses the major problems in the education sector and why quality and quantity of biology teacher education should be properly addressed. Quality is seen in the context of the skills established by a biology teacher as a result of knowledge and participation in the activities of biology teacher education and willingness to work with students and new colleagues as they enter the professions and ability to identify quality practices such as attending remedial training, be abreast of latest researches in practice and examine his/her teaching regularity. The expected roles of quality biology teacher education for country economic growth and development were discussed and enumerated.

Recommendations

This paper proposes that some key measures be pursued to reposition biology teachers and educational institutions to meet the challenges and prospects in a comatose economic growth and development, the teaching profession must be made attractive to attract best brains, the environment of learning in institutions need to be upgraded, the various teacher training curricula must be reviewed in order to accommodate new national concerns and global challenges and finally

government must be prepared to invest heavily in education and further gave this recommendations:

1. Biology teacher should regularly update his/her knowledge through in-service training and updates through electronic learning.
2. He should be able to cope with the information overload and should assist in organizing them.
3. His ability to solve everyday problem relating to sanitation, food, erosion climate change, that may enhance the growth of the economy.
4. Adequate funding for the provision and upgrading of necessary teaching aids, laboratory materials and tools.
5. Teaching methods improvement, steps should be taken for continuous teaching methods review/improvement to make the teaching methods current and relevant to contemporary needs of the economy.
6. Compliance with carrying capacity standards, institutions involved in teacher education should limit admission of students to what their facilities can support.
7. It is desirable to have special scholarships and awards for quality teacher education in order to provide additional incentives for people who want to go into the teaching profession.

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