

ENTREPRENEURIAL AND FUNCTIONAL BIOLOGY EDUCATION: VERITABLE TOOLS FOR ACHIEVING THE NATIONAL OBJECTIVES OF VISION 20:2020

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Abstract

Nigeria has a laudable vision of being among the first twenty nations of the world, in the global economic and political arena by the year 2020. The establishment of the 7-point agenda of the late President Yar'adua outlined means of achieving this vision one of which is making the citizens self reliant through education. This paper therefore examined how the vision on education can be achieved through entrepreneurial and functional education as well as the entrepreneurship skills in a functional biology education that can be used to achieve vision 20:2020. The vision for education cannot be complete without the teacher, therefore, the paper also highlighted the role of the biology teacher towards making this achievement a reality as well as the resources needed to achieve it.

Introduction

Vision 20:2020 is a proposal made by the Federal Government of Nigeria which envisaged that within 20 years from the year 2000, Nigeria will be among the first 20 world economic powers. The key goals of vision 20:2020 is that by the year 2020, Nigeria will be one of the 20 largest economies in the world to consolidate its leadership role in Africa and establish itself as a significant player in the global economic and political arena. The actualization of this vision has been worrisome to many Nigerian citizens. The then president, late Umaru Yar'adua designed a 7 – point agenda (the seven priority areas) for the actualization of the vision, and education is one of them.

The vision for the education sector is based mainly acquisition of entrepreneurial skills and capacity building to contribute to the development of the economy, (Yar'adua 2007). This vision is premised in Nigerian economic potential which is recognized as the largest economy in the West African sub region. Given the country's considerable resource endowment and coastal location, there is potential for strong growth. This vision can be actualized through education.

Education in its widest sense is any systematic influencing of peoples knowledge, skills and attitudes. It not only serves obvious utilitarian purpose, but also, perhaps, most imperatively, cultivates and strengthens the will and capacity of all peoples to accept responsibilities.

Onuocha and Nwafor (2005) in Anaekwe and Ifeakor (2008), asserted that education is not just a means but an end in itself. It is the transmission of desirable traits to individuals to make them knowledgeable and contributing members of the society.

The vision for education in the national agenda of Nigeria as stated in the Ministry of Education Web Site is to establish an enabling and sustainable environment for education to achieve the desired national reform and human development objectives. The vision is to reform and restructure the education sector to empower and develop the citizenry to acquire skills and knowledge that would prepare them for the world or work. For this vision to be realized, the curriculum has to be functional and thus inculcate entrepreneurial skills in the citizenry, since the primary aim of education is to prepare learners for effective life in the society. This can be achieved through biology education.

Biology is one of the sciences studies in the school. As a natural science, it is the core for the sciences because it deals with living things, their existence and relationship with one another and with non-living things. Biology can contribute to achieving vision 20:2020. This can be done through making the curriculum functional, so as to inculcate entrepreneurial skills.

Functional education, as seen by Idowu (1999), is the total process of bringing up individuals to develop their potentials (cognitive, affective and psychomotor) to the fullest and consequently, be able to contribute maximally to the development of the society. This implies that the learner has to be considered in the curriculum planning. It therefore goes without argument that functionality in biology teaching should be based on the standards of science teaching world wide which include:

1. Adequate laboratory and field skills in biology
2. Ability to apply scientific knowledge to every day life in matters of personal and community health and agriculture
3. Reasonable and functional scientific attitude among skills

These standards, when adhered to will help actualize the vision 20:2020 in education. For functional education to be achieved in the teaching and learning of biology to bring the reality the vision 20:2020, emphasis should be laid in developing entrepreneurial skills in biology students in addition functional scientific attitude.

Entrepreneurial skills are skills and competencies that enable people seek and run enterprises successfully. The skills are acquired through training that emphasizes the acquisition and development of appropriate knowledge and skills that will enable an individual to maximize the resources around him within the limits of his capability. The skills consist of effective utilization of ideas, information and facts that help a learner develop competencies needed for career commitments such as establishing a business, marketing, services or being productive employees of organization, (Achufusi, Ume and Okoye 2009). The development of entrepreneurial skills will require that biology teachers will be trained to have the where-with-all in the skills needed for entrepreneurship education. The entrepreneurship skills needed include; technical, managerial, leadership, human relation, analytic, diagnostic, communication etc. There is also need to provide adequate resources (both human and material) for actual implementation of such skills, (Achufusi *et al* 2009).

Overview of Entrepreneurship Education

The world entrepreneur has been viewed differently, by different authorities. According to Nnamdi (2007) in Elechi (2009), an entrepreneur is a person who sells consumer goods and services in a unique way that makes him successful. He/she is an individual who takes risks and starts something new. He/she organizes, operates, assumes the risks for business ventures. He/she is such a creative person and a risk-taker who executes a programme resulting to a new business enterprise and profits. Entrepreneurship on the other hand is a concept that is attracting a lot of attention presently, especially how that there is a reduction in the availability of paid employment. Vesper (1982) in Elechi n(2009), defined entrepreneurship as the creation of new business enterprises by individuals or small groups. In the above and many other definitions of the concept, the issue of organizing and managing a business stands out clearly. Consequently, entrepreneurship education is a carefully planned process leading to the acquisition of entrepreneurship skills for effective living. According to Nnamani (2007) in Elechi (2009), entrepreneurship education is an instrument that empowers the youths to be in control of their future. It creates jobs and businesses. The youths have more opportunities to exercise creative freedom, higher self esteem and overall greater sense of control over

their own lives. It is a life-long learning process. In entrepreneurship education, one starts by building appropriate objectives based on what you really hope to be in life. This depends on ones interest and talent. The benefits of entrepreneurship education include; development of business awareness, management acumen and ability to risks, economic empowerment, self reliance and reduction in social ills.

Considering the importance of entrepreneurship education, it becomes imperative that the inculcation of entrepreneurship skills in our youths should be highly emphasized especially through the study of biology. This can be achieved if the curriculum is functional; thus the need for functional biology education as has been emphasized. When this is done, the vision 20:2020 agenda on education will be fully realized.

Advantages of Entrepreneurship Education

According to Ezeudu (2008) in Tongur, Kabutu and Abba (2009), entrepreneurship education has the following advantages:

1. **Skill acquisition:** It helps the students (youths) acquire the necessary skills to form a base of knowledge about the function and operation of a business and develop some level of familiarity with business environment and it also plays a complementary role in developing the knowledge, job skills and work experience among teachers and students.

Creation of employment: It offers opportunities to students for job experience and for earning, saving and investing money at an earlier stage of life than their peers.

There will be great while reduction in the high rate of unemployment in our society; self employment and business ownership will be a viable and appealing goals for todays students.

Other advantages includes;

- Effective utilization of local resources
- Decentralization and diversification of business
- Promotion of science and technology
- Capital formation
- Promotion of entrepreneurship culture, (Jongur et al, 2009).

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Objectives of a Functional Biology Curriculum

The cardinal objectives of a functional biology curriculum include:

- (a) Adequate laboratory and field skills in biology
- (b) It provides meaningful and relevant knowledge or content in biology
- (c) Ability to apply scientific knowledge to every day life in matters of personal and community health and aquaculture.
- (d) Reasonable and functional scientific attitude (FRN 2004).

When these objectives have been inculcated into the youths, ultimately, entrepreneurship education and entrepreneurship skill which is the bedrock of vision 20:2020 on education will be actualized.

Entrepreneurial Skills in a Functional Biology Education for Achieving Vision 20:2020

Jungur et al (2009), Nwagbo and Onyejebu (2009) opined that the biology student should be able to embark on the following on commercial scale for self reliance and self employment:

- Food and water quality control
- Food and beverages production skill eg. Fermentation of cheeses, beverages.
- Animal production eg rabbitry, poultry, piggry, snailry, beekeeping, animal fattening.
- Cross breeding through artificial insemination.
- Instructional materials production eg the production of models and charts as improvisation.
- Identification and marketing of medicinal plants.
- Horticulture eg flower garden maintenance.
- Animals feeds production.
- Production of improved variety of seeds.
- Aquaculture which include: fish farming, crab farming, prawn farming and vegetable farming for home consumption and for local and distant markets.

Biology Concepts that can be taught for Entrepreneurship Skills for Achieving Vision 20:2020

Lawal (2009), underlisted contents of the biology curriculum that can be taught with the aim of injecting into the learner the entrepreneurship skills attached

	Content	Entrepreneurship Skill
1.	Environmental pollution of biosphere	1. Refuse disposal 2. Sewage disposal 3. Recycling of waste/waste management
2.	- Ecology of fish - Water habitat	1. Fish rearing 2. Snail rearing
3.	Social insects eg bees	Rearing bees for honey production
4.	Sexual and asexual reproduction among plants.	Rearing of flowers, seedlings and orchards.
5.	Genetic engineering for improving crops and animal yield.	1. Crop improvement in farms 2. Animal improvement eg the use of local chicken to crossbreed the agric type to get improved chicken.
6.	Vertebrate study	1. Aquaculture which includes fish farming, prawn farming, crab culture etc.
7.	Relevance of Biology to Agriculture	- Horticulture
8.	Reproduction in animals eg fish, snail.	- Aquarium - Rearing of fish in aquarium - Poultry - Snailry - Piggry - Rabbitry

All there are not attainable; neither will the noble vision be achieved without the biology being at the centre of the activity. Therefore for such to be possible, the teacher will have a principal role for play.

Role of the Biology Teacher in Achieving Vision 20:2020

The biology teacher has a great role to play in impacting entrepreneurial skill in the biology students. The roles include:

1. The teacher should be able to identify concepts in biology that can inculcate entrepreneurial skills acquisition in students.
2. The biology teacher should practicalize the teaching, giving individual or small group project that can lead the learners to acquire relevant practices skills.
3. The teacher should link up with existing relevant industries for the students to get first hand information, industrial and practical experiences.
4. The biology teacher should make enough information available to the students in the form of pamphlets; carrying useful information on how to carry out the job.
5. The teacher should teach biology concepts with a double aim of acquiring the knowledge as well as the skills that can help open a way of trade. For example, in teaching pollution. (e.g. land), especially the refuse, refuse from homes can be conveyed to far away places and a token paid for it or it can be packaged and sold to farmers as manure which is also a source of income, (Lawal 2009).

Resources Needed

The resources needed include:

1. Human
2. Material

The human resources include the teachers, who should get the skills to teach through attending seminars, workshops and conferences while the material resources include well equipped indoor and outdoor facilities for teaching biology for entrepreneurship education. This include good functional biological garden which can serve as orchard, housing fish pond; raising seedlings etc, good and well equipped biology laboratory among others.

Conclusion

This paper has examined entrepreneurial and functional biology education as a veritable tool for achieving the national agenda of vision 20:2020. The countries efforts to attain the status it desires in the world economic status will be an illusion if serious efforts are not made towards achieving these objectives.

Recommendations

It is hereby recommended that:

1. Biology teachers should be encouraged to attend seminars, conferences and short term courses to improve their pedagogy; get more knowledge about entrepreneurial education.
2. The biology curriculum should be reviewed from time to time in order to align it with emerging issues.
3. Emphasis should be laid on entrepreneurial skill and functional biology education.

4. Both the federal and state governments establish centers for training in entrepreneurial skills, at least in every local government area of the country.

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