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## NEEDS TO RECONSIDER BIOLOGY FOR ALL STUDENTS IN NIGERIA SENIOR SECONDARY SCHOOLS

David Akinjide Akintola

Department of Science Education

University Of Ilorin, Ilorin

Email: [samgladdavcom@yahoo.com](mailto:samgladdavcom@yahoo.com)

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### INTRODUCTION

Tripping down memory lane, in the colonial era the British educational policy did not address the aspirations of the people leading to a clamour for change in the post-independence era resulting in the first indigenous National Policy on Education in 1977. The aim of colonial masters for introducing western education into Nigeria was not to produce professionals like Engineers, Medical Doctors, Technologists, Lawyers and Bankers, but to produce Interpreters, Artisans, Dispensers and Clerks. The evidence is shown in their curriculum that is made up of 4RS' that is; Reading, Writing, Religion and Arithmetic. Furthermore, with the establishment of secondary grammar schools, the curriculum was dominated by the British Empire history, European Geography, English literature, Latin and Philosophy without any element of science. Ezeh (2006) affirmed that the prestige and political power of any Nation resides in its level of scientific activities since science is the key that unlocks the door to the modern development.

In this paper, the needs to reconsider biology as a core subject for all Nigeria senior secondary schools students is addressed under the following headings:

- Nature and objectives of senior secondary school science curriculum
- Objectives and content of senior secondary schools Biology curriculum
- Recalling earlier justifications for including Biology in Nigeria senior secondary school curriculum
- Applications of Biological knowledge to societal problems and issues.

### Nature and objectives of senior secondary school science curriculum

Curriculum in which Biology is included is defined by Abimbola and Mustapha (2003) as an educational programme of what goes on in the school and outside the school. Thus, science curriculum can be operationally defined as a carefully planned and intended learning outcomes provided by

the Federal Ministry of Education for teaching sciences in the senior secondary schools. In Nigeria, the sciences are taught in school subjects as Biology, Chemistry and Physics.

Ajaja (2007) identified the following objectives of teaching science:

- To acquire knowledge of science academic discipline;
- To acquire the skills of scientific methods;
- To have clear explanation for societal issues through increasing interest in science literacy and societal goals;
- For personal needs and;
- For career awareness.

### **Objectives and content of senior secondary school Biology curriculum**

Biology is the branch of science that involves the study of life. Biology is such a broad field, covering the minute working of chemical machines inside our cells, to broad scale concept of ecosystem and global climate change. According to Enger and Ross (2007), the nature of science and the fundamental biological concept is so important for any person, regardless of the person's occupation. Biology covers all the life processes such as movement, respiration, nutrition, irritability, growth, excretion and reproduction. The life processes are characteristics of all living things either plant or animal regardless of races and geographical distributions.

From the National Policy on Education (2004), the following main objectives were derived to prepare students to acquire:

- adequate laboratory and field skills in biology;
- meaningful and relevant knowledge in Biology;
- ability to apply scientific knowledge to everyday life in matters of personal and community health and agriculture and;
- reasonable and functional scientific attitudes.

To make acquisition of the above objectives possible, the contents and context of the curriculum place emphasizes on field studies, guided discovery, laboratory techniques and skills along with conceptual thinking.

In pursuance of the stated objectives, the (2009) edition of the Biology curriculum (NERDC, 2009) has these themes:

- Organization of life;
- Organization of work;

- The organization and its environment and;
- Continuity of life.

Looking into the above themes, the knowledge inherent is useful to everybody whether Science, Art, or Commercial students. It is shocking that Biology is no longer a core subject to all senior secondary school students while the status is still elective to the sciences students only. Abimbola (2013) claimed that how do we then produce a scientifically literate society devoid of ignorance and diseases when the themes that are of direct relevance to the society and the learners are no longer available to all students.

### Recalling Earlier Justifications for Inclusion of Biology in Nigeria Senior Secondary School Curriculum

According to the West African senior secondary school certificate examinations' syllabus (2004-2008), the justifications for inclusion of biology in the senior secondary school curriculum aim at achieving the following objectives:

- Understanding of the structures and functions of living organisms as well as appreciation of nature
- Acquisition of necessary laboratory and fields' skills in order to carry out and evaluate experiments and project in Biology.
- Acquisition of necessary scientific skills, for example, observing, classifying and interpreting biological data.
- Acquisition of relevant knowledge in biology needed for future and advanced studies in biological sciences.
- Acquisition of scientific attitudes for problem solving
- Ability to apply biological principles in everyday life in matters that affect personal, social, environmental, community health, and economic problems (p)

National examination council (NECO) syllabus (2004-2006) aims at achieving the following:

- Mastery of the structures and functions of living organisms;
- Appreciation of nature and the needs of its conservation;
- Acquisition of an adequate laboratory and field skills of biology necessary to carry out and evaluate experiments and projects in Biology;

- Ability to observe, classify, and interpret biological data;
- Acquisition of meaningful and relevant knowledge in Biology as a pre-requisite for pursuit of careers in Biological science and related discipline;
- Acquisition of acceptable scientific attitudes for solving problems and;
- Ability to apply biological knowledge and thoughts to everyday life in matters of personal, social, economic, environmental and community health (p39).

To have a stable community and live a meaningful life, acquisition of the above objectives contained in WAEC and NECO syllabuses including the last objectives in the dual in matters that concerned personal, social, economic, environmental, and community health is needed by all irrespective of the academic designations of an individual.

### **Applications of Biological Knowledge to Societal Problems and Issues**

The writer considered any knowledge that cannot be applied as dormant, incomplete and not useful. The knowledge obtained from biology is applicable to the following societal problems and issues facing Nigerians:

- The knowledge of biology provides explanations for anatomical and physiological changes per age, sex and time in an individual. If the knowledge is restricted to fewer science students that offer biology only, what medium is going to provide the urgent explanations for the non- sciences students?
- Interpretation of genotype result in relation to choosing marriage partners could be easily understandable via the knowledge of biology which is needed by all students and not science students only.
- The life Planning Education (LPE) was derived from biology to deeply teach sex education to secondary school students to prevent unwanted pregnancy and transmission of sexually transmitted infections STI's/STD's. It was discovered that Parents do not take time to teach the correct things about sex to their children. Mitchel (2007) in his studies pointed out that the respondents claimed to have learned about sexual matters from their friends, books or novels and from watching television. Such knowledge is grossly inadequate. If the knowledge of biology is totally restricted to fewer science students only, the implication is strengthening of anti-social behaviours like

terrorism, stealing, raping, drug addiction, kidnapping and murder. The study of Malinosky-Rummell & Hansen (1993) revealed that children that are physically abused or neglected tend to be offenders later in life, since those that took into crime related habits are usually products of unwanted pregnancy and broken homes.

- The Knowledge of biology gives explanations to students' developmental physiological occurrences such as puberty stage, masturbation, menstruation and other related concepts. If biology is no longer taught to all students, those denied of this knowledge will need to consult physicians before getting explanation to simple issues biology could explain.
- The subject biology as a core subject provides future hope in career choice for non-science students that may after secondary school education choose to study Nursing or health related courses. If biology is retained for interested science students only, such an opportunity will not be available again.
- Knowledge of biology explains the process of blood transfusion, control of population because a large population or family size is a relatively strong and highly replicable predictor of delinquency (Ellis, 1988, Fisher, 1984), control of pollution, micro-organisms around us. All these concepts are needed by all and not science students only.
- The knowledge of biology at the secondary school level helps non-science students in the tertiary institutions in understanding of some concepts in their general studies that are biology related e.g. psychology.
- Among the recent efforts to solve societal problems is the inclusion of Family life and Emerging Health Issues (FLEHI) into the Nigerian colleges of Education as one of the General studies. The contents of the course are majorly biological which all students either science or non-science students must attempt and pass. If Biology is completely weeded from offered subjects by non – science students, they will be at disadvantage in such case.

## CONCLUSION

The introduction of the new curriculum that changed the status of Biology to elective for science students only with the inclusion of over 34 trade subjects and English Language, Mathematics, Civic Education and

Information Communication Technology (ICT) as core subjects in quest for entrepreneurship education to combat the problems of unemployment in Nigerian is highly reasonable. Wisely, when attempting to solve a problem, you need not to create a bigger one. Retaining the core subject status of biology considering its importance and relevance to individuals would do no harm to the aims and objectives of the new curriculum. Therefore, as researchers, scholars, organizations and private individuals are making concerted efforts in improving the teaching and learning of biology in secondary schools, the writer is appealing to Government, Federal Ministry of Education and concerned individuals to reconsider Biology as a core subject in Nigerian secondary schools.

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