Abstract

Children at the Primary School level are in their formative years - a stage in life that greatly determines what the child may turn out to be tomorrow depending on what the child has been exposed to during the period. In recognition of this fact, this paper discusses the importance of introducing science to the child early in life and how this can serve as an effective tool towards laying in the child a solid foundation for effective citizenship.

Introduction

A nation that despises her younger generation is heading for no where but the rocks. There is the popular saying that the children of today are the leaders of tomorrow. They are also the followers of tomorrow. Except the leaders lead well and the followers follow effectively, the result is nothing but chaos and no nation can thrive under such a situation. Proper education for the younger generation is therefore a necessity.

The introduction of science education at the primary school level is a step in the right direction. At no other level would the introduction have been more appropriate. As stated in the Science Teachers Handbook (STAN, 1988), Science is a sound mind-trainer and helps to train good citizens. Primary Science helps to inculcate in the child or at least lay a solid foundation in the child for the inculcation of knowledge, qualities and virtues necessary for his/her survival within the society. This paper highlights the importance of Primary Science education and its relevance to effective citizenship.

Science Education

Science Education is a discipline concerned with the study of the interaction of science and society (Okafor, 1980). It is concerned with the study of the impact of science upon society as well as the impact of society on science. Science Education according to Umudhe (1998) cuts across many fields of human endeavour such as the natural sciences, sociology, Philosopy, Psychology, History, Arts, Languages etc. It is therefore not science per se but education in and about science. An effective science education is according to Umudhe (1998) expected to:

1. Generate widespread public understanding about science and technology.
2. Support science and technology as agents of change,
3. Train the required manpower for science and technology.

The goals of modern science education according to Umudhe (1998) therefore include:

1. To develop in the learner a command of rational powers.
2. To develop in the student the ability and capacity to inquire.
3. To develop an understanding of the changing nature of the environment in terms of matter, life, energy and their interactions.

Primary Science Education

This refers to science education given to the child at the Primary School level. The importance of introducing science early in the life of the child cannot be over emphasised. Children by their very nature are highly inquisitive - always wanting to discover things by themselves. Primary Science therefore derives from the child's natural interest in things around him and helps to link the child with his environment (STAN, 1988). Knowledge acquired through science is useful for development in all aspects of life. This stems from the fact that science is a sound mind-trainer, helps to train good citizens and also helps to eliminate fears and superstition (STAN, 1988).

The objectives of Primary Science Education as adapted from Agusiobo (1985) and STAN (1988) include:

(i) To lay a solid foundation in science at the primary school level by introducing the basic processes of science to the children.

(ii) To enable the Nigerian child to develop spatial (three dimensional) perspective in the course of his/her intellectual development. (iii) To provide opportunities for the Nigerian child to develop manipulative and psychomotor
skills through practical experience by doing, (iv) To develop and sustain the interest of the Nigerian child to make him/her self confident and self-reliant, (v) To develop and sustain the interest of the Nigerian child in Science through appreciation of orderliness and beauty in nature, (vi) To develop in the Nigerian child a functional knowledge of science and science concepts and principles, (vii) To develop in the child scientific attitudes, including curiosity, critical thinking and objectivity, (viii) To enable the child apply skills and knowledge gained through science in solving everyday problems in his environment, (ix) To enable the child develop self-confidence and self-reliance through problem-solving activities in science.

According to the American Association for Advancement of Science as quoted by Machey (1971) and cited by Mba (2001), the purpose of science education include:

(i) To develop in learners, a scientific culture
(ii) To develop in citizens attitudes such as curiosity, open-mindedness, intellectual honesty, objectivity, suspended judgement and logical thinking, among others.

In addition to the above, Gbenedio and Omoifo (1999) states that science enables the learner to acquire scientific attitudes and values such as perseverance and critical reflection. According to Banu (1992), a person who has acquired scientific literacy among other things, will be aware of interaction between science and society on moral, ethical and sociological planes. A well implemented Primary Science programme will therefore go a long way towards inculcating in the child the basic qualities for effective citizenship.

Civic Responsibility

Civic responsibility refers to the duties and obligations of citizens that will enhance effective citizenship. According to the new Encyclopaedia Britannica (1981) citizenship means the relationship between an individual and a state, defined by the law of that state, with corresponding duties and rights in that state. It went on to state that citizenship implies the status of freedom with accompanying responsibilities. In any nation the citizens are supposed to be aware of and uphold the body of knowledge, set of rules and behavioural orientations, which are considered necessary for the sustenance and well being of the nation (Encyclopaedia of Education, 1971). In a democratic nation, to merit the benefits of a free society, one must meet his obligations to that society. What then are the duties and obligations of the Nigerian citizen necessary for the sustenance and well being of the Nigerian nation?

The Duties and Obligations of the Nigerian Citizen.

The duties and obligations of the Nigerian citizen as outlined by Odhe and Williams (3994) and Ubioworo and Avivata (1997) include: (i) Loyalty to the nation. (ii) Obedience to laws. (iii) Payment of tax. (iv) Upholding national, political culture such as respect for the national flag, anthem and the national pledge, (v) Protection and preservation of public property and to fight against misappropriation and squandering of public funds, (vi) Helping to enhance the power, prestige and good name of the country and to defend the country and render national services as may be required. (vii) Respect for the dignity and religion of other citizens and the rights and the legitimate interest of others and to live in unity, harmony and in the spirit of common brotherhood. (viii)Making positive and useful contributions to the advancement, progress and well-being of the community where one resides. (ix) Ensuring the proper upbringing of one's children. (x) Participating in and defence of all democratic processes and practices. (xi) Rendering of assistance to appropriate and lawful agencies in the maintenance of law and order. (xii) Declaring of one's income honestly to appropriate and lawful agencies.
Enhancing Civic Responsibility Through Primary Science Education

It is important to note that times are changing fast and that society is changing too. Trends in the future will therefore definitely present new challenges.

Population is expected to have increased, the nation is expected to have been highly urbanised and computerised with enormous developments in science and technology. It will in fact be a different world presenting countless challenges to the values and processes of the open society (Encyclopaedia of Education, 1971). There is need therefore to bring up today's young generation in such a way that they will be able to sustain the nation. It is therefore very important to inculcate in the young ones the knowledge needed to contribute positively to the nation's civic culture. This has led to high emphasis on citizenship education (F. M. E., 1981). According to the Encyclopaedia of Education (1971), the priorities for today's citizenship education are essentially determined by asking what young people will have to know and do to contribute to their civic culture. It went on to state that such priorities include:

(i) Knowledge of, and respect for public law and policy at any level are vital to a well ordered and progressive society. This does not however suggest blind and unquestioning obedience to any set of rules. This indicates that the individual must possess some elements of rationality, self-confidence, objectivity and open-mindedness.

(ii) Acquisition of knowledge necessary for effective participation. Knowledge about public issues and problems is vital to the participatory role of citizens. Seeking to influence government officials on the basis of pure emotion is not meeting the responsibilities of effective citizenship. This is a very salient point particularly with reference to those in positions of authority and power, many of who work towards satisfying their own selfish interest at the expense of state and national interest. This has led to appointment of mediocres, less intelligent and less qualified people in place of better, more intelligent, more experienced and better qualified people. The result of their performance in of course nothing to write home about because they are nothing but mere stooges planted is positions to secure the interest of their 'masters'. The painful aspect is that the state and the nation remain at the losing end. The implication here is that attributes such as objectivity, honesty, open-mindedness, selflessness, rationality and logical reasoning are a necessity in the citizens of any nation for the security and well being of that nation.

(iii) Knowledge and behaviour which recognise and respect equal rights and opportunities for all in a diverse pluralistic society. Such knowledge will make citizens see themselves as one irrespective of ethnic or political differences. It will therefore help to check tribalism, 'political wickedness' and similar vices which tend to deny responsible and qualified citizens of positions they would have occupied to move the nation forward, just because they do not 'belong'. There is once more a dire need for the inculcation of such attributes as objectivity, honesty, open-mindedness, rationality and dedication to duty in the citizens for the well being of the nation.

Without the knowledge and behaviours associated with the stated priorities, a proper democratic civil culture cannot be sustained. Basically therefore, the well-being of any nation depends upon the substance and the style of citizenship behaviour. This is where primary science education comes in to inculcate in the child early enough, the various attributes such as honesty, objectivity, dedication to duty, open-mindedness, selflessness, critical thinking, rationality, logical reasoning and patriotism to mention just a few. Primary Science education is therefore a necessity if the Nigerian child is to grow into an adult well equipped with the relevant knowledge and behaviours needed to perform his duties and obligations as an effective citizen.

Conclusion

Unless the citizens of a nation possess the relevant knowledge and attitudes necessary for the sustenance and well being of that nation, there is no way they can be effective citizens - people who are able to effectively carry out their civic responsibilities. Primary science education is geared towards cultivating in the young generation qualities necessary for functional and effective life in the society. It is therefore an effective tool for equipping the young generation for their future duties and obligations towards the state and the nation.

References

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