

FACILITATING AND SUSTAINING THE INTEREST OF NIGERIAN CHILDREN IN SCIENCE AND TECHNOLOGY FOR NATION BUILDING: A PSYCHOLOGICAL APPROACH

Mrs. Oyenike A. Oyinloye

Abstract

The place of science and technology in the development of any nation cannot be under estimated. The need for improvement in science and technology has been the recent trend of development all over the world. This paper examines the various strategies that could be employed to facilities and sustain the interest of children in the field of science and technology if technological breakthrough is to be achieved. The write up highlights some strategies that could be embarked upon in educational settings mat will facilitate and sustain students' interest in science and technology. To achieve these there is the need to involve the skillful assistance of psychologist to assist the teachers in teaching-learning situation as well as appealing to the affective domain of the children as means of sustaining a lasting interest in science and technology.

Introduction

The need to strengthen activities toward the development of science and technology in cur educational system has become more of singsong over the years, until recently when practical steps are taken in this direction. With the latest technological breakthrough, the whole world has .now become a global village and activities occurring across the continent are being accessed by all through the website on the Internet (Oyinloye, 2002a).

The expansion of activities in science and technology will continue to draw attention and gain prominence as a result of the huge success already recorded and which could still be explored through continued and persistent effort.

Education is seen to be a strong force for nation building and a nation, which does not give attention to the training of her younger generation, is on the path to extinction from knowledge and viability. Bajah and Okebukola (1994), as cited by Iwuagwu (1997), stated that in order to understand science, the student must not only have some understanding of the concept, theories, principles and laws of the particular discipline, the students must also appreciate how this knowledge is obtained and how it fits into a structural framework.

Much effort has been made globally to bring about the desire to improve scientific literacy through the development of improved teaching and learning packages. The science education reforms of the 1960s still continue to attract attention because of its historical and global effect, the reforms though initiated in the United States, yet its impact was felt by the whole world.

Onyinmadu (1997) observed that in Nigeria, many efforts were made aimed at improving the need for science based education. International assistance were obtained through the UNESCO / UNICEF primary science project, Nigerian secondary school science project, Nigerian integrated science project and the Nigerian secondary school science project' (STAN) and a host of other activities geared at the improvement of science education.

The Provision of the Policy on Education

Improvement to, the curriculum was made in the 1981, Nigerian National Policy on Education, to quantitatively improve the teaching and learning of science and usher in an era of scientific literacy which will provide the necessary leverage to national development. Onyimadu (1997) was quick to point out that after three decades of great curriculum reforms of the sixties, the goal of scientific literacy is far from being realized. The science in Nigeria is marked by deteriorating' standard and low achievement by students and that there arc copious absence of scientific creativity thinking, scientific creativity and resourcefulness. It is not surprising that Nigeria is still under-developed in spite of her enormous human and material endowment.

A progressive and impressive move that was made by the Nigerian government is reflected in the provisions made in the 6-3-3-4 education policy which among other things enunciated the need to assist Nigerian students in the area of acquisition of appropriate skills, abilities and competence both mental and physical as equipment for the individual to live in and contribute to the development of his society (NPE: 4), And that efforts will be to relate education to overall community needs (NPE 6), specialist training for teachers in science, PHE etc (NPE: 10), broadening of the curriculum at JSS and SS to incorporate science, prevocational and vocational subjects(Oyinloye 2002b).

All the aforementioned are good and impressive governmental policies directed at the development of science based subject at the Junior and senior school level.

Place of Interest in the Study of Courses in Science and Technology

All the efforts aimed at the cognitive development of the child in the area of science education, would remain futile and ineffective if the affective domain of the child remains un-enhanced. The need to appeal to the affective domain of the child could best be achieved from the psychological dimensions, hence the need for the stimulation of the child's interest in science and technology education. Motivation factor have been seen as a strong force in the development of interest.

This paper seeks to examine the place of interest in productivity and to elucidate some measures, which could; be embarked upon by educators from psychological point of view to help facilitate and sustain the interest of the young minds in science and technological education. The slogan of the facilitator of children in science and technology which has been 'Catch them young'¹ then becomes more meaningful in this regard.

Interest is an enduring characteristics expressed by a relationship between a person and a particular activity or object. Deci (1992) observed that interest occurs when a student's needs, capacities and skill are a good match for the demands offered by a particular activity. That is, the tasks students found more interesting are the ones that provide opportunities to satisfy their needs, challenge, skills, they have and came about developing, and demand that they exercise capacities that are important to them. Thus, the interest students show in an activity or in an area of knowledge predicts how much they will attend to it and how well they process, comprehend and remember-it (Oyinloye 1999).

One of the most effective means, of ensuring that students found a lesson or idea stimulating, is to involve their needs for achievement, working from the assumption that personal motives and increased individual efforts can be stimulated in the classroom.

Theoretical Basis for Interest Boosting

The proposition of Abraham Maslow on motivation has been a central construct in both educational and psychological research for the past sixty years and plays a significant role in several theories of human development and learning. Motivation is defined as an internal state that arouses us to action, pushes us in particular direction, and keeps us engaged in certain activities. Elliott et al (2000), point out that motivation and learning are essential for performance;- while learning enables one to acquire new knowledge and skills, motivation provides the impetus for showing what we have learned.

The Hierarchy of needs is a theoretical model of five needs that Maslow propounded. It is of the view that every human being has needs which range from basic psychological and safety needs, to love and belongingness needs, to esteem and finally at the top of the hierarchy is the need for self actualization. Maslow (1987), in the hierarchy of needs propounded that individuals use their abilities to the limit of their potentialities and that if students are convinced that they can fulfill their promise, they are on the path to self-actualization. Self-actualization is a strong force in every individual; it motivates one for action and leads to fulfillment. As a growth concept, its satisfaction leads to physical and psychological health.

Psychologically, motivation has been shown to increase an individual's energy and activity level, it influences the extent to which an individual is likely to engage in a certain activity-intensively or half-heartedly. This model explains the fact that the level of interest created and sustained on any idea will go a long way to affect performance or level of productivity on the task.

Anne Roe (1957), also identify needs in the life of individuals which has to be met in an attempt to enhance ones productivity and obtain satisfaction in whatever activity one engages in. The need for motivation is also stressed by Anne Roe.

Strategies for Facilitating and Sustaining Child's Interest

Interest has been seen to be a strong motivating factor to productivity in job life. Interest of any person could be shown through the demonstration of one's likeness for a task or activities. For the interest of children to be well stimulated for involvement in science and technological education, there is the need for the teachers to arrange the programme of instruction in sequence that will be appealing to the students. Much of the efforts for sustaining the interest of children in the sciences could be embarked upon by teachers, and counsellors in the school setting though information service meant to create awareness in the sciences and various areas of life where knowledge acquired through the sciences could be demonstrated for the good of the generality. The stimulation of children's interest in science and technology education requires more than appealing to the cognitive structures of students alone, the affective domain has to be sensitized in order to get the interest of students activated. Among the strategies that could be employed are the following:

1. **Involvement in Meaningful Projects:** Teachers in the field of science education need to invite students to participate in meaningful projects with connection to the outside world. When students are given the opportunity to demonstrate their worth, it brings out the person in them and this helps to sustain the interest that may have been stimulated in them initially.
2. **Matching Skills with Developmental Ability:** Another strategy that is useful in the sustenance of students' interest in the field of science and technology is for teachers to make efforts to provide activities that involve students' needs and provide them developmentally appropriate challenges. The issue of relevance to needs makes efforts of students to be considered rewarding and this strengthens involvement and desire to expand in the area of demonstration of worth.
3. **Monitoring Progress:** When opportunities are available for one to monitor one's progress on any job, it gives room for self assessment and this in return allows for the desire to press further for successful output. Self evaluation is a strong motivating factor especially when one is able to count lists of successes recorded on set goals.
4. **Facilitating the Integration and Use of Knowledge:** Knowledge gained at any level does not attract meaningfulness unless practically exerted. The need to facilitate and integrate knowledge gained will help students to be more productive rather than being counter productive. Knowledge gained is better assessed or measured if allowed to be put to use: At this stage in Nigeria, there is the urgent need to direct the focus of our children to living a productive life as a means of ensuring nation building.
5. **Allowing Cooperative Work:** Much success could be recorded in any learning encounter that allows for cooperative work; when students work together as a team, the spirit of competitiveness in a healthy environment is enhanced and this serves as a good tool for making the zeal of group members to be strengthened as a means of sustaining interest in the field of science and technology. Studies in the sciences require more of practical than theory and thus could be best built -through interaction between group members.
Promotion of Awareness: There is the need to create awareness in students if their interest in the study of sciences is to be stimulated. This serves as a preliminary effort to whet the appetite of students in science education. The creation of awareness in the field of sciences could best be embarked upon by school counsellors as a way of promoting awareness in career in science and technology.
7. **Conducive Learning Environment:** The learning environment that facilitates desire to learn is one in which the classroom condition is supportive, warm and encouraging; this classroom environment offers sufficient security and empowers students with the ability to take risks without fear of criticism.

To ensure that the interest of Nigerian children in science and technology are facilitated and sustained, it is required that much should be done by the parents, the teachers and the school management to help the children. The following recommendations are also considered appropriate:

- a. Children should be encouraged to observe things around them either in the school or in the wider community.
- b. Science teachers should ensure that a democratic lesson environment is allowed.

- c. Practice in sciences should be ample to allow students to make use of their hands.
- d. Parents should provide all that will be required to get their children working in the area of science education.
- e. Science is fun; children's mind should be disabused from the wrong notion that science is difficult and not easy.
- f. The school management should make arrangement to promote studies in the sciences, this will stimulate the interest of children in the field of science education.
- g. Schools should on regular basis allow guidance counsellors to sensitize and comb students interest in the area of science education, this could be done through the rendition of information service and career awareness.
- h. As suggested by Oyinloye (2005), creativity must be acknowledged and sustained in the young ones to ensure functionality. To make education acquired in schools functional, for the purpose of nation building and to make Nigeria develop in the field of science and technology, much is required from the parents, teachers, school management and the government to create the awareness, stimulate and sustain the interest of children in science and technology. The slogan "catch them young" should be enforced now to help us achieve breakthrough in science and technology as a means for nation binding.

Conclusion

It could be said without any doubt that for the interest of children to be stimulated and sustained in science and technology, efforts must be directed at appealing to their cognitive and affective domains if cognitive effect is to be achieved.

References

- Deci, E. L. (1992). The Relation of Interest to Motivation of Behaviour: A Self Determination Theory Perspective in K. A Renniger, S. Midi, and A. Krapp (Eds./ *The Role of Interest in Learning and Development*: Hillsdale NJLEA.
- Elliot, S. N; KratochwiJI T. R; Cook J. L; Travers J. F (2000). (3rd Edition) Boston: McGraw-Hill. Federal Republic of Nigeria (1998). *National Policy on Education*. Lagos: NERDC Press.
- Iwuagwu SEC (1997). Learning Science in Schools. *Journal of Science Education* 2 (1 and 2), Pages 173-178.
- Maslow (1957). *Motivation and Personality*. New York: Harper and Row.
- Onyinmadu, A. C. (1997). Using Project "2061" of the American Association for the Advancement of Science (AAAS). In the Reform of Science Education in Nigeria. *Journal of Science Education* 2(1 and 2), pages 193-198.
- Oyinloye O. A. (1999). Promoting Career Awareness among Primary School Pupils. *Proceedings of the 21st Convention of National Association for Educational Media, and Technology*.
- Oyinloye O. A. (2002a). Utilizing Information and Communication Technology in Effective Guidance Services in Schools. Paper Presented at the 2002 Convention of National Association for Educational Media and Technology held at Obafemi Awolowo University, Ile-Ife 20 - 23 November.
- Oyinloye O. A. (2002b). Ensuring Functional Vocational / Technical Education in Nigeria: Vocational Guidance Approach. *Journal of Education Innovation and Development*. _1 (2), pages 255-262
- Oyinloye, O. A. (2005). guidance Strategies for ensuring Self Actualization and Sustainability. *Nigeria Journal of Curriculum and Instruction*^ 13 (2) Page 22 — 26.

