

THE PLACE OF SCIENCE IN INCLUSIVE EDUCATION IN NIGERIA

Sani Ojoma Roselyn

Department of Science and Technology

Faculty of education

Abstract

The dynamics of inclusive education requires the contribution of other disciplines. This paper examines the place of Science in inclusive education. Science itself requires, to a great extent, the continuous advancement of knowledge and practical know-how and fostering of entrepreneurial spirit. Among the issues discussed in the paper include: the concept of Science, Science related to education and the relevance of Science in inclusive education practice. Science Education is of great relevance toward effective implementation of inclusive education programmes and practice.

Introduction

The concept of inclusion has a value orientation, “based on the premise that all individuals with disabilities have a right to be included in naturally occurring settings and activities with their neighbourhood siblings and friends” (Erwin, 1993, p.1).

Inclusive education means more than simply placing students with disabilities in regular education classrooms, it means giving students with disability the opportunity to participate as members in all school activities and affirming their right to such opportunity.

Inclusive education is essentially a programme that enables all learners with or without disability to participate fully in the life and work of mainstreamed settings to meet his or her learning needs. It gives equal opportunity for all learners to jointly undertake learning situations without discrimination and any learner considered to have a deviation as a result of a lost or damage in physical and mental development is given the right to belong to the mainstreamed setting. The understanding is that students with disabilities do not only have the right to education, they also have the right to be part of the mainstream education system (Iheanacho & Osuorji, 2008).

According to Gentry and Jones (1972) unequal results are a result of segregated schools. This explains why many educators and researchers view inclusive education as the most effective strategy for gaining quality education planners are in the position to determine priorities of the Nigeria educational system through appropriate strategies for diagnosing aspects of the education that need special attention, like the creation of a truly inclusive education.

Principles of Inclusive Education:

This refers to the practice in education where all children with special needs (including those with mental retardation) are instructed in general execution classes rather than special education settings. A true inclusive education is one that can be achieved in the general education classroom where students with disabilities, the mentally retarded therein are learning the general education curriculum alongside their same age peers without disabilities.

The Beneficiary of Inclusive Education:

Special needs children are considered to be the beneficiaries of inclusive education, these include those formally classified as having disabilities and defined by the individual with disabilities education Act (IDEA).

Students with special needs are defined as those who exhibit one of several specific conditions that result in their need for special education and related services. Some of the special needs students include the following:

Specific learning disabilities, speech or language impairments, mental retardation, emotional disturbances, physical and other health impairments, multiple disabilities, hearing impairments, orthopedic impairments, visual impairment, behavior and emotional disabilities, autism, traumatic brain injury, deaf-blindness, development delay, gifted and talented.

The Concept of Science:

The welfare of modern society depends to a large extent on the continuous advancement of scientific knowledge, the development of technical and practical know-how and the fostering of entrepreneurial spirit. Extra-ordinary advances have taken place in science and new technologies in the last decades. For example, our understanding of genetics, synthetic biology, neurosciences, material sciences, computer sciences, space science and advances in nanotechnologies have provided both deeper understanding of the grammar of nature and new opportunities for industrial and economic development.

Science is concerned about general explanations of reality. It is simply the study of nature and this includes the study of matter, its properties and uses. Pure science can be basically subdivided into three main branches: Biology, Chemistry and Physics.

Biology is the study of living things; Chemistry deals with the composition, properties and uses of matter and the principles governing the changes which matter may undergo, while Physics is more concerned with the mass and energy content of matter.

Every scientific activity is characterized by two partial activities. One is some form of observation/perception. It can take place directly, through the senses, somewhat more in directly via some form of an, in one or another respect sense improving instrument like a microscope, a telescope or stethoscope or even more indirectly via

detecting instrument like a Geiger counter, an electro cardiography or an x-ray apparatus (Harre, 1976).

The other part is some form of thought activity. It surrounds and penetrates the observation/perception; a more or less conscious thought activity takes place as an introduction to the observation. It directs the attention in a special direction “chooses: observations, steps somewhat back during the direct moment of perception/observation to dominate once more after the direct moment of perception/observation (Harre, 1976).

Principles and Components of Science:

Science is a methodical process which seeks to determine the secrets of the natural world by using the scientific method. The scientific method is a process scientist must follow in determining the workings of the universe. There are five basic components to the scientific method.

1. From observation of the natural world, determine the nature of the phenomenon that is interesting to you (i.e. ask a question or identify a problem).
2. Develop one or more hypotheses or educated guesses to explain this phenomenon. The hypotheses should be predictive – given a set of circumstances, the hypothesis should predict an outcome.
3. Devise experiments to test the hypotheses.
4. Analyze the experimental results and determine to what degree the results fit the predictions of the hypothesis.
5. Further modify and repeat the experiments.

Science and scientific theories are an ever-evolving as new ideas and technologies allow us to create and test hypotheses in new and exciting ways.

Science related to Education:

Science education is the field concerned with sharing science content and process with individuals not traditionally considered part of the scientific community. The target individuals may be children, college students or adults within the general public. The field of science education comprises science content, some social science and some teaching pedagogy. The standards for education provide expectations for the development of understanding for students through the entire course of their K-12 education. The traditional subjects included in the standards are physical, life, earth and space sciences.

Research in Science Education

The practice of Science education has been increasingly informed by research into Science teaching and learning. Research in science education relies on a wide variety of methodologies, borrowed from many branches of science and engineering such as computer science, cognitive science, cognitive psychology and anthropology. Science

education research aims to define or characterize what constitutes learning in science and how it is brought about.

The Relevance of Science in the Inclusive Education Practice:

The first is in everyday human life. In bio-medical fields, there are fewer infectious or lethal disease than ever before. Some illness that would be death sentences even just twenty years ago with advanced research into the study of bacteria and viruses are now becoming manageable and in some cases have even eradicated. People are now living longer as we understand more about aging and the nutrients need to keep the body, healthy and active long into our sunset years.

Another great area where science is proving itself is industry. In industry new materials are being discovered everyday that will help technology make huge leaps. New allotropes of carbon re being discovered like grapheme and carbon nanottubes that could make feats like space elevators or even faster microchips a reality.

Personal Opinion and Considerations:

1. Education for all should focus prominently well on enabling the special needs children to acquire necessary life-skills. This can be done by integrating science in inclusive education in Nigeria.
2. There should be proper monitoring and evaluation of science for special needs children in schools.
3. Government should encourage science in inclusive education by providing materials, equipment and supportive services.
4. Science in inclusive education should be quality driven and should be compensatory and competitive focused, so that special needs child will not only be re-equipped due to his/her impaired skills but also be prepared adequately to compete with his/her impaired skills but also be prepared adequately to compete with his/her aver-bodied peers in whatever are involved.

Conclusion

Inclusion involves the learning needs of a more diverse range of learners but it must be understood that real inclusion is about disabled children and youths with special educational needs.

Inclusion is thus fundamental human rights just as denying opportunity to such children with disabilities to learn science in Nigeria.

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