CHAPTER 32

DEVELOPING SPECIAL NEEDS CHILDREN INTEREST IN THE SCIENCES AT THE BASIC EDUCATION IN NIGERIA

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Introduction

Special needs children (SNC) are those children born with one form of disability or those who in the course of their life got disability through accidents. They include all children who for whatever reasons may fail to benefit from school effectively (Kwon, 2012). Bryan (2012) sees special needs children as those with significant sensory deficits or unusual high intellectual ability that cannot be properly addressed in their regular school programme. In other words, a special child is a youth who has been determined to require special attention (Ozoji,2008) and specific necessities that other children do not have (Kim, 2013). Such children broadly range with varying cognitive, physical, emotional and behavioral learning needs (Lee, 2016).

Studies by Ozoji and Fakolade (2008) have found that children with disabilities may tend to perform relatively to their peers without disabilities. On developing and assessing the gap in learning which eventually tends to widen overtime as such children progress from the basic elementary science level (Iriarte, Mc-Conkey&Giligan, 2015). SNC learners' inability to learn sciences maybe a cognitive deficit that affects their memory with limited interest. As used here, the term 'interest' refers to a feeling or concern about something with positive attitude that makes turn towards it (Sholahuddin,2010). It is also the desire for something, or objective of the person in order to achieve something. It can be assumed that if the person does not have interest or the desire of the soul to achieve a given outcome the person will not achieve the desired objectives in a given training. SNC need such feeling in learning sciences, although they rather need an additional time to be able to process and assimilate information during science learning. Studies by Nwachukwu (2008) have tended to frame SNC learners with low interest as a deficiency located wholly within the child rather than acknowledging the role that structural factors may play in preventing such children from academic success in the sciences.

The ideal ways to help such children develop greater interest is that some of them have a natural curiosity that will help provide solutions to real life problems. The curiosity must be encouraged in them and grow the natural scientist in the child i.e. get SNC learner interest in science outside the classroom (Ozoji,2009). Another way to help develop interest in learning science is by being with them

100% when they have questions, be prepare and listen to being positive. Also building the SNC learner interest in science from childhood will also help to increase their curiosity and to teach them to apply science outside classroom using play. The teacher can help them to be inquisitive together to explore science in their own home through creativity and fun experiments to use and value such questions. Some questions should be posed to the SNC learners in order to stimulate them to interact safely with home animals and learn more easily. Let the SNC learner learn from previous mistakes, that could prompt them to learn sciences more. Alternatively, let them explore and find answers together with fun experiments and guide them to possibly record their observations.

Classroom experience has shown that the stronger the interest to learn science that a child has generally, the greater the commitment and efforts. The SNC learner may develop interest also in sciences with science instruments such as microscope to view tiny organisms that cannot be seen with naked eyes. furthermore, one may go out to get a body of water and safely collect samples of plants and animals or ground materials with humus and bring them home to let the SNC leaner look at through the microscope or magnifying hand lens. In this way, they will be amazed at what they see and then get them thinking about why certain plants and animals are like this, for example, they might see amoeba wiggling around in a pond of water with floating particles. More so, find science camps in the area around to study nature such as flowers, trees, bushes, insects, fishes, animals and so on.

Their interest may develop more if also their science teachers could prepare them to start visiting places of interest and value such as natural historical museums to see science in real life and to appreciate nature more at their early stages of learning. To an extent a child with learning difficulties can be engaged also to watch movies if they are not vision impaired or listen to music if they are not deaf or dumb to enhance science learning. They can as well be carefully guided to play indoor and outdoor games depending on their disability at home. Their parents especially the mothers can turn their kitchen into a laboratory as well to teach elementary science for such children and eventually may develop their interest in sciences.

Science is therefore defined differently by individuals due to their perceptions. It can be the intellectual and practical activities encompassing the systematic study of the structure and behavior of the physical and natural world through observation and experiments. In other words, it is the knowledge or a system of knowledge covering general truth or operation of general laws especially as obtained and tested through science methods (Ajaja, 2012). Basic science therefore means the education embracing all forms of learning given to the individual from the years of primary school to the end of the three years of junior secondary school at the formal level. The National Policy on Education (FME, 2013) presents basic education as an educational programme aimed to eradicate illiteracy, ignorance and poverty among children. Achieving quality of basic

education according to the Federal Government is the responsibility of all and every form of government to the non-governmental organization down to individuals in Nigeria (FME, 2013). Basic education is therefore taught to pupils at these levels of education for all children including special needs children. These provide the pre-requisite and scientific knowledge, attitudes and skills upon which subsequent scientific and technological advancement is based (FME, 2013).

Akpan (2008) stressed that basic science may contribute to the quality of life in areas such as health, nutrition, agriculture, transportation, materials and energy production as well as industrial development of a society. Akpan urged further that sciences at the basic education for SNC learners may form the bedrock of sound and special education at further levels of a child's life.

The thesis statement for this book chapter includes:

- Developing interest of children with disabilities in the basic science education
- Developing interest of SNC learners in the process of basic sciences
- Developing interest of SNC learners in the product of basic sciences
- Implications of developing SNC learners' interest in the basic sciences

Developing interest of children with disabilities in the basic science education

Emphasis of science education at the basic level is to equip and encourage special needs children (SNC) with scientific thinking through learning activities that may involve planning, designing, measuring, observing, analyzing data (Gay, 2010). This is to wake up children attention by means of their positive emotional feelings and to develop their interest in the sciences by accompanying instructional materials such as video clips and illustrating practical applications of acquired knowledge and their importance in the future life. This could be supported by worksheets, teaching aids, multimedia and e-learning created in the sciences. Science education also may provide learning experiences through which SNC learners acquire scientific literacy and develop scientific knowledge with understanding, processing skills, values, attitude and interest to help them contribute to the scientific world (Akpan, 2008). This may help to guide the SNC learners to:

- Develop curiosity and interest in sciences
- Develop the ability to inquire and solve problems.
- Acquire basic scientific knowledge and concepts for living in and contributing to a scientific world.
- Become familiar with the language of science and be equipped with the skills to communicate ideas in sciences.
- Appreciate and understand the evolutionary nature of scientific knowledge.
- Attain personal growth through studying sciences (FME, 2013).

At the basic level, science is taught as part of the subjects which is design based on the belief that children's learning experiences should be connected and

not compartmentalized to allow SNC learners to develop a holistic view of themselves as individuals in the community of their place in the natural world with the interaction of human beings with the environment and understanding of scientific concepts and to cultivate the habit of exploring science with an open mind. They may move from thinking concretely and literally to being able to think more creatively. However, they are also joyful, enthusiastic and positive to learn sciences when interest might have been developed.

Some guidelines to develop SNC learners' interest in the sciences includes:

- Developing mathematics skills and problem solving.
- Engage SNC learner by asking questions.
- Build them confidence through participation
- Move learning from concrete to abstract concepts
- Alleviate boredom through activity
- Encourage independent investigation
- Develop their minds further through vocabulary

Developing interest of SNC learners in the Process of basic Sciences

The process of science refers to as the practices employed in science to uncover knowledge and interpret the meaning of those discoveries. The process is much more robust, dynamic and diverse and this means data may be gathered about the natural world using multiple research methods, then employ similar techniques to analyze these data, form hypotheses and work within a global community of individuals and organizations contributing to science. These are core principles and methods to have evolved overtime and distinguish science from other disciplines (Anthony, 2009).

Some of the key concepts in the process of science includes:

- Science is a process of investigation into the natural world and the knowledge generated through that process.
- Data collected through scientific research must be analyzed and interpreted to be used as evidence.
- Scientific theories are testable explanations supported by multiple lines of evidence.
- Scientific benefits from the creativity, curiosity, diversity and diligence of individual.
- Science is subject to human bias and error.
- Scientists value open and honest communication in report research.
- Science is valuable to the individual and to society.

So, science is that robust process that may help SNC learners better understand our surroundings and places in the universe. It can also be accessible to anyone other than SNC learner both as a way of thinking that one can use every day and as a career path where diverse backgrounds and perspectives are an advantage whether able or disabled. Understanding the process of science is critical to a participation in the society as a citizen.

Developing interest of SNC learners in the Product of basic Sciences

The aim of science is to create interest and produce knowledge to understand and explain some aspects of the world around us. Some of the key scientific products that are used daily include electricity, transportation through automobiles or trains, soap or detergents, clean drinking water, home and other buildings. Some examples of these products include microwave ovens, welding equipment and medical supplies. A scientific product is a result of the efforts of many scientists because without those historic steps to get more complex idea could not have appeared as a product which have reduced travel time a lot and safe such as travelling in trains and so on. Again, the daily use of soaps and detergents for cleaning ourselves, clothes and instruments are common examples.

Implications of developing SNC learners' interest in the basic sciences

Special Needs Children (SNC) learners have developmental delays, medical, psychiatric, congenital conditions and such they may require accommodation to reach their potentials in life. The inability to develop special needs children interest in the sciences may go a long way to have implications on their lives. This could hinder their full potentials in learning sciences and it may affect their physical, psychological and emotional well-being hence the need to develop their interest and special learning skills to face life challenges. Ideally, developing scientific methods to SNC learners may help them to think, behave well, learn to solve daily problems and make informed decisions. These decisions are integral to every aspect of a child's education and life from school to career generally. So, by engaging SNC learners with exciting materials and experiences may motivate them to be useful, learn and pursue their goals in life, again may gain employment in different parts of the world.

Conclusion/Summary

The world is surrounded by technology and the products of science every day, public policy decision that affects every aspect of our lives are based on scientific evidence. It is then concluded that if SNC learners could help to develop interest in the sciences through the proper use of their curriculum content, the process and product of science, their lives would be meaningful and creativity may be enhanced in them at the basic education.

Suggestions

Both teachers and caregivers should be give more attention n to SNC learners especially in the area of science education to develop their interest to benefit them now and in their future endeavors.

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