

REDUCING THE PRESSURE OF UNEMPLOYMENT AND POVERTY THROUGH BASIC SCIENCE EDUCATION SKILLS IN NIGERIA

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Abstract

Basic science is a science taught to pupils and students at the lower, middle and upper basic education which incidentally lie within the primary and junior secondary schools. The subject is compulsorily presented to pupils at this level with the view of making them scientifically literate citizenry. It is also with the view that some students at the end of their junior secondary school level will opt for art subject at their senior secondary and tertiary education. Thus the subject prepares the student to be well informed consumers of science and technology in their later life. In this paper basic science education in Nigeria, unemployment rate, the need to eradicate poverty, skills in basic science learning and reducing unemployment through basic science education, and noting that basic science skills are similar to entrepreneurial skills is discussed. Based on the discussion it was recommended among others that effort should be made to inculcate basic science skills among pupils and students of basic science to enable them utilize the needed skills for self employment.

Nigeria is located in the West African sub-region and with a growing population of about 120 million people comprising of three major and many minority different ethnic groups: the Yoruba's from the west, many minority groups from the south, Hausa's from the north and Igbo's from the east (Nigerian National Population Commission, 1998). Nigeria as a nation comprising of 36 states has education at all levels and the responsibility of both the Federal and State governments. The level of poverty, unemployment, environmental pollution and degradation in Nigeria has been ascribed to the level of ignorance and illiteracy among the citizenry. The level of unemployment and

poverty in the country remains high (Nigeria Bureau of Statistics 2016) and is of great concern to all stakeholders-governments, educational authorities and individuals (Akpan, 1996). The underlying problems have been traced to many factors including illiteracy and inability to determine realistic and well-articulated goals for secondary science education (Okebukola, 1997).

Science education over a decade has been presented to the people as having power to transform the society (Bajah, 1998; FRN, 2008). Their views about the purpose and goals of science education include to:

1. develop creativity in learners;
2. improve scientific literacy and technological literacy of citizens;
3. prepare citizens for an active contribution towards their own culture; and,
4. inculcate the spirit of scientific thinking in learners.

According to Bell, Blair, Crawford and Lederman (2003), the study of science as a 'way of knowing,' and a 'way of doing' can help students reach deeper understandings of the world. These researchers also claim that the knowledge of science is important in making crucial decisions on everyday issues and problem, and in the production of informed citizens who are capable of taking personal actions to find solutions to any identified issue and problem. In this paper reducing the pressure of unemployment through basic science education skills in Nigeria is looked at.

Basic Science Education in Nigeria

Basic science is a science presented to students at the lower, middle and upper basic levels of education. These incidentally lie within primary and junior secondary school education in Nigeria. Basic science is a brain child of basic education following a review and introduction of basic education that covers the child first nine years of education in Nigeria. The needs for basic science education by government projection were the attainment of Millennium Development Goal as well as National, Economic and Empowerment Development Strategies (NEEDS). Thus basic science learning in Nigeria would help the students to achieve good value-reorientation, poverty eradication, job creation, wealth generation and using education to empower the people (NERDC 2007). Students exposed to basic science learning would acquire skills such as: acquisitive, organizational, creative, manipulative, and communicative. Although no attempt is made to rank these skills categories in order of importance, or even to imply that any one category may be more important than any other. Within each of the categories, however, specific skills are listed in order of increasing difficulty. In general, those skills that require only the use of one's own unaided senses are simpler than those that reacquire use of instruments or higher orders of manual and mental dexterity. The explanations of these skills are:

- **Acquisitive:** These are skills and abilities of gathering information.

1. Listening—being attentive, alert, questioning
2. Observing—being accurate, alert, systematic
3. Searching—locating sources, using several sources, being self-reliant, acquiring library skills and the ability to use computer search programs
4. Inquiring—asking, interviewing, corresponding

5. Investigating—formulating questions
6. Gathering data—tabulating, organizing, classifying, recording
7. Researching—locating a problem, learning background, setting up investigations, analyzing data, drawing conclusions

- **Organizational:** These are skills and abilities of putting information in systematic order.

1. Recording—tabulating, charting, working systematically, recording completely.
2. Comparing—noticing how things are alike, looking for similarities, noticing identical features.
3. Contrasting—noticing how things differ, looking for dissimilarities, noticing unlike features.
4. Classifying—identifying groups and categories, deciding between alternatives.
5. Organizing—putting items in order, establishing a system, filing, labeling, arranging.
6. Outlining—employing major headings and subheadings, using sequential, logical organization.
7. Reviewing—identifying important items.
8. Evaluating—recognizing good and poor features, knowing how to improve grades.
9. Analyzing—seeing implications and relationships, picking out causes and effects, locating new problems.

- **Creative:** These are skills and abilities of developing new approaches and new ways of thinking.

1. Planning ahead—seeing possible results and probable modes of attack, setting up hypotheses.
2. Designing—identifying new problems.

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3. Inventing—creating a method, device, or technique.
4. Synthesizing—putting familiar things together in a new arrangement, hybridizing, drawing together.
- **Manipulative:** These are skills and abilities of handling materials and instruments.
 1. Using an instrument—knowing the instrument's parts, how it works, how to adjust it, its proper use for a given task, its limitations.
 2. Caring for an instrument—knowing how to store it, using proper settings, keeping it clean, handling it properly, knowing its rate capacity, transporting it safely.
 3. Demonstrating—setting up apparatus, describing parts and functions, illustrating scientific principles.
 4. Experimenting—recognizing a question, planning a procedure, collecting data, recording data, analyzing data, drawing conclusions.
 5. Constructing—making simple equipment for demonstrations and investigations.
 6. Calibrating—learning the basic information about calibration, calibrating a thermometer, balance, timer, or other instrument.
- **Communicative:** These are skills and abilities of transferring information correctly from one experimenter to another.
 1. Asking questions—learning to formulate good questions, to be selective in asking.
 2. Discussing—learning to contribute ideas, listening to ideas of others, keeping on the topic, arriving at conclusions.
 3. Explaining—describing to someone else clearly, clarifying major points, exhibiting patience, being willing to repeat.
 4. Reporting—orally reporting to a class or teacher in capsule form the significant material on a science topic.
5. Writing—writing a report of an experiment or demonstration; describing the problem, method of attack, data collected, methods of analysis, conclusions drawn, and implications for further work.
6. Criticizing—constructively criticizing or evaluating a piece of work, a scientific procedure, or conclusion.
7. Graphing—putting in graphical form the results of a study or experiment, being able to interpret the graph for someone else

Acquisition of these skills would automatically ginger students to become entrepreneurs and this in turn will reduce unemployment as well as abet poverty in the country.

Nigerian Unemployment Rate

Nigerian Bureau of Statistics (NBS, 2016), reported that the country's unemployment rate has increased to 9.9 percent in the third quarter of 2015, representing a fourth consecutive rise in the unemployment rate since the third quarter of 2014. The Bureau revealed that a total of 1,454,620 Nigerians are unemployed in this quarter compared to 529,923 in the second quarter and this has led to an increase from 8.2 percent in second quarter 2015 to 9.9 percent in third quarter 2015.

The NBS used the International Labour Organisation's (ILO) definition to compute its unemployment details. This definition refers to people who work less than full time, which is 40 hours, but work at least 20 hours on average a week. It also includes those that work full time but are engaged in an activity that underutilizes their skills, time and educational qualifications. Drivers and cooks are considered employed since most of them fit into this time frame and their skills meet this methodology, while a farmer is underemployed

if he only works during the planting season and remains idle until the harvest period. The active economic population rose from 102.8 million in first quarter of 2015 to 103.5 million in the second quarter and subsequently 104.3 million in the third. The increase in the labour force population was attributed to newly qualified graduates.

Despite the creation of about 427000 new jobs in the third quarter of 2015, Nigeria's unemployment rate increased to 9.9 percent which shows an inadequate space for over 1.9 million new entrants into the labour force. The ILO previously forecasted a global unemployment rate of 5.9 percent this year which implies that if Nigeria's underemployment rate of 17.4 percent is subtracted from the current unemployed rate of 9.9 percent, her unemployment rate is higher than the global average.

Nigeria Poverty Rate

Poverty has risen in Nigeria, with almost 100 million people living on less than a \$1 (£0.63) a day, despite economic growth, which statistics have shown. The National Bureau of Statistics said 60.9% of Nigerians in 2010 were living in "absolute poverty" - this figure had risen from 54.7% in 2004. The bureau predicted this rising trend was likely to continue.

The NBS, a government agency, said there was a paradox at the heart of Nigeria as the economy was going from strength to strength, mainly because of oil production - yet Nigerians were getting poorer.

Table 1: Nigeria's population in poverty (1980-2010)

- 1980: 17.1 million
- 1985: 34.7 million
- 1992: 39.2 million
- 1996: 67.1 million
- 2004: 68.7 million
- 2010: 112.47 million

Source: Nigeria's National Bureau of Statistics

Likewise Osinbajo (2015) noted that about 110 million Nigerians were still living below poverty line despite the policies of past governments to improve their welfare. The Vice President however stated that the policy were wrongly formulated and as a result did not have direct impact on the people. According to Osinbajo, the main challenge that has fueled this poverty level to a greater height in the country is the illiteracy level of the people. Osinbajo acknowledges that education could help to reduce poverty in the country if properly implemented.

Reducing the Pressure of Unemployment and Poverty through Basic Science Education Skills

Achieving universal primary education is a key prerequisite for the successful eradication of unemployment and of poverty and hunger worldwide. Only guaranteed access to a full course of basic science education could ensure that individuals are able to fulfill their development potential and participate in the

globalisation process on an equal footing. Basic science education also provides the knowledge that is required for the individual to benefit from further education in the secondary and tertiary sectors and vocational training.

In the last 30 years, school enrolment rates worldwide have more than doubled. And yet it is estimated that around the world, some 121 million children do not attend primary schools. In many developing countries, the quality of education is often poor and fails to cater for the needs of target groups such as disadvantaged children and members of socio-cultural minorities. There are 862 million adults and young people worldwide who cannot read and write. 121 million children - one-fifth of all school-age children - have no opportunity to attend school. Denying people access to education means denying them a basic human right. Without education, human development is impossible. Promoting education is therefore a key task in international and Nigerian development policy. Education is the basis for the cultural identity of the individual and society. Every child has the right to an education and every individual is entitled to satisfy their basic learning needs.

The Purpose of Basic education is to encourage learning, facilitate the ongoing learning process, and promote independent thought and problem-solving. Besides literacy and numeracy, people must also acquire life skills, for example self-help skills. A good basic education increases self-confidence and autonomy. Knowledge is a prerequisite for self-determined action and participation. Education is therefore also the basis of a functioning democracy, for people who can read and write are able to participate in social and political processes more quickly and effectively. They are able to assert their individual rights.

A basic education empowers people to improve their social, cultural and economic status. It increases opportunities for economic

growth and is therefore a key prerequisite for poverty reduction. Studies by the World Bank show that just four years of education help people to increase the productivity of their agricultural smallholdings. Basic education is the prerequisite for developing a population's creative and productive capacities. A well-trained workforce enhances the quality and quantity of a country's labour productivity.

Basic education helps people develop a rational understanding of causal relationships. It promotes environmental awareness, encourages the sustainable use of natural resources, and improves the status and living conditions of women and girls. Education can also have a positive impact on reproductive health and nutrition. It helps improve health and reduce birth rates. According to a study by the World Bank, women who attended school for more than four years have one third fewer children than women without any schooling. The mortality rate of their children is also 50 percent lower than among children born to illiterate mothers. Children whose own parents attended school also have a better chance of being sent to school. What is being done to increase Basic and equal educational accessibility?

The international community has pledged to improve education worldwide. This commitment forms part of the Millennium Declaration: by 2015, all children should have access to primary education. A further aim is to eliminate gender disparities at all levels of education by the same deadline. Concerted endeavours are under way to achieve these goals.

Basic Science Skills is Similar to Entrepreneurial Skills

When students are exposed to basic science education they should be able to acquire skills similar to entrepreneurial skills which could enable them to set up and run their own

business thus leading to self employment and creation of job opportunities. Such skills are:

- **Creative Thinking:** The student should be able to see situations from a variety of perspectives and come up with original ideas.
- **Problem Solving:** The student should be able to come up with sound solutions to the problems they are facing.
- **Recognizing Opportunities:** They should be able to create a plan to take advantage of the opportunities they identify.

Practical Skills

They also need the practical skills and knowledge to produce goods or services effectively, and run a company.

- **Goal Setting:** They regularly set goals, create a plan to achieve them, and then carry out that plan?
- **Planning and Organizing:** They acquire talents, skills, and abilities necessary to achieve their goals. They also coordinate people to achieve these efficiently and effectively.
- **Decision Making:** Are based on relevant information and by weighing the potential consequences. And also confident in the decisions that they make.

The students have acquired knowledge that transcends business knowledge, entrepreneurial knowledge, opportunity-specific knowledge, venture-specific knowledge. Through their basic science learning

They can also learn from others who have worked on projects similar to the ones they are contemplating or find a mentor– someone else who has been there before and is willing to coach them.

Summary

This paper takes a look at reducing the Pressure of unemployment and poverty through Basic Science Education Skills. In this paper the

emergence of basic science education in Nigeria, skills acquired through basic science education in Nigeria, unemployment rate and poverty rate and ways of reducing unemployment and poverty through basic science skills were discussed.

Conclusion

Based on the discussion in the paper, it is concluded that basic science education has the potentials of reducing unemployment and poverty in Nigeria if properly implemented.

Recommendation

It is recommended thus:

1. Effort should be made to inculcate basic science skills among pupils and students of basic science to enable them utilize the needed skills for self employment.
2. Students should be given enabling environment to acquire the basic science skills in their classes through the provision of facilities and materials for effective student interactions.
3. Basic science classes should be tailored towards creative and problems solving skills attainment. In this regard their teachers should be made to see them selves as facilitators of learning not reservoir of knowledge.

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