

STRATEGIES FOR FEMALE GENDER PARTICIPATION IN SCIENCE AND TECHNOLOGY

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ABSTRACT

Science and Technology have ever been known to be dynamic. Prevalent needs of mankind have always been the catalyst for the advancement of Science and Technology since ages past. Societal backgrounds of different human societies have at various times led humans to think outside conventions to invent various devices to attain stress-free living style among human beings. Every human being has been divinely equipped at birth to think logically in order to resolve various challenges of life as the challenges evolve. This review paper utilized both primary and secondary data collected and analyzed to elicit relevant and useful facts for this study. This paper is set to review the roles played in the past by the women in Science and Technology. This paper being a review paper also chronicles means by which the female gender has contributed to science and technology development over times in the past. Suggestions are also made concerning how to enhance female gender participation in Science and Technology in years to come. This study concluded that for the female gender participation in science and technology to improve significantly, there should be deliberate and conscious efforts at increasing female gender enrolment in science and technology based courses among other recommendations.

Keywords: Strategies, Female-Gender, Participation, Science, Technology.

1. INTRODUCTION

Necessity has been widely accepted to be ‘the mother’ of inventions. Science and Technology has been used globally to solve and unravel mysteries surrounding several needs of mankind since time immemorial. Baskets were devised to solve the problem of carrying items from one point to another in an orderly manner. As a follow-up to the baskets invention was the development of carts of various sizes and shapes propelled on single or double wheels. Shelter against the harsh weather conditions and the attacks of ferocious wild –animals of their times moved the early-men to devise thatched roof sheds which later on metamorphosed into walled buildings of various media ranging from wooden-walls to mud-walls, to brick-walls and now concrete pre-cast walls of modern times.

It is note-worthy also that the male-dominated societies of our time have specified less-cumbersome roles for the female gender and believed the male gender are the ones created or equipped naturally to venture into much difficult roles associated with Science and Technology. However, every human being has been divinely equipped since birth to think logically in order to resolve various challenges of life as they emerge. In every human invention, it has been noticed that needs which require satisfaction has driven man to develop new devices. This in the main has led to the invention of light bulbs and electricity to power the bulbs. Communication has come to be what it is today courtesy of advancement in Science and Technology.

Traditionally, till date women in different cultures have been culturally restricted to domestic enterprises or better put, women-folks have been culturally engaged in cottage industries, such as textile-piece-goods dyeing or weaving. Traditional Dyeing and weaving Industry have greatly contributed to Nigeria’s economy aside other benefits like domestic tasks of looking after the babies within the homestead. Beside fulfilling their society imposed domestic functions in their cottage industries, many female gender have proven their mastery of their trade which connotes certain elementary science and technology as much as they are capable of doing.

One cottage industry populated by the female gender in centuries past is the traditional natural – indigo – dyeing crafts among the Yoruba tribes of South-West Nigeria. For many centuries in the past, the Yoruba women have practiced the dyeing crafts to the global admiration of expatriates and European tourists who strived to own samples of these crafts-products in their exquisite ward-robos. It is worth mentioning that the dyeing practices of the Yoruba women were in several ways scientific and technological despite the fact that their practices were devoid of written documents. The early practitioners of this vocation grew in dexterity and tenacity that the Europeans could not but came back to study the traditional expertise which they later on developed into templates used in initiating the prevailing imitations

of local designs using their developed technology of mass production to kill our present day practitioners using only the homegrown science and technology.

Olagoke S.A. (2017) reported that, in the present 21st century, No Nation is expected to be deficient, following the United Nations directives and programmes on issue of development in which there are interventions –(MDGs). In the light of this. I opined that Nigerians should dismantle all barriers of religion or culture from the female gender in order to tap into their potentials. This is already being practiced in some neighboring West African countries. A practical example is the novel feat achieved by a young Ghanaian lady by the name Bernice Dapaah. Bernice Dapaah is already redefining the mode of transportation in Ghana and beyond with her recently developed Bamboo framed bicycles. This latest development has put to rest the erroneous belief culturally that only men can make meaningful impact in science and technology.

2. LITERATURE REVIEW

Available records in the library made mention of several meanings attached to Science and Technology.

What is Science?

Ayelaagbe J.A. (2000) cited by Stanley (2010) affirmed that ‘Science is derived from the Latin word ‘*Scientia*’ which simply means Knowledge. In addition to this linguistic definition of Science, there have been other definitions by authors of Science textbooks and scientific publications. Abdullah (1987) cited by Jefferson (2016) submitted that “Science means intellectual activity through which man seeks to understand nature. He further stressed that a science teacher sees science as an organized body of knowledge in terms of concepts, theories, generalizations’ and laws. Other Scholars see science as a tool for achieving technological ends in solving human problems through tentative hypothesis. In another instance some scholars conceived science as a body of knowledge which has been acquired through experimentation. To a layman in the street, Science is anything that makes life enjoyable and comfortable. From the fore going statements about science there is an appreciable indication that Science means many things to different people. Conant (1951) quoted by Chapman (2017) once defined Science as an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observations which are fruitful for further experimentations and observations.

However, none of these conceptions about science clearly explicates the real nature of scientific enterprise. These shortcomings motivated Oguniyi’s (1988) view reviewed by Salawu (2016) about science being defined as follows, ‘Science is an attempt by human beings to organize their experience about nature into meaningful systems of explanations. Kingsley (2015) summarized by defining Science as asset of activities resulting in testable, falsifiable and verifiable body of knowledge. With these, regularities in nature can be observed and reasons could be advanced. Through this, Scientists are able to formulate concepts, principles, theories and laws, which form a body of knowledge that can be tested, falsified and verified at any time and at any place.

What is Technology?

According to Ayelaagbe J.A. (2000) mentioned by Urevba (2017) the term Technology is derived from the Greek word ‘*techure*’ which means ‘*Art*’ or ‘*Craft*’. Olatunji R.W. (2017) wrote about the meaning of Technology as being the application of knowledge. He further stated, ‘it refers to “the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science and pure science.. Technology is generally used in either of two or more restricted senses. On the one hand, it refers to all processes that have to do with materials. On the other, and in a much narrower sense, it means the industrial processes that succeeded craft operation. Within the scope of this study, technology would be defined as the application of scientific knowledge to solving human problems.

Relationship between Science and Technology

Cyril (2017) remarked that “the relationship between Science and Technology can be equated to that of two sides of the same coin”. While Science on the one hand is a dynamic human activity concerned with understanding of nature, Technology on the other hand deals with the application of scientific knowledge to solving problems of life in the

society. In the light of this, Technology affords man to interact more effectively with the environment, thereby making life more comfortable for human beings.

It is evident from the foregoing statements that a discourse on scientific literacy or science and society without due reference to technology will be likened to a bird trying to fly on a single wing. No wonder Casmir (2018) rightly posited that ‘Science and Technology are major factors in contemporary life. They serve as agents of social economical change, and are the recipients of change’

3. FINDINGS

This study found out so many female gender doing fantastically well in the field of science and technology in spite of the myriads of barriers placed on the female folks which under normal circumstances are sometimes referred to as ‘the weaker sex’.

In the course of moving round the states to obtain relevant data for this study, contact was made with one Miss Islamiat Adeniran, a female brick-layer who learnt the trade from her biological father. Islamiat is the fifth child in a family with six children, all females. The father resolved to train his daughters in the trade of brick-laying, not buying into the pecuniary disposition of his clansmen that bricklaying is exclusively a male-child’s vocation thus forbidden for the female –folks. Islamiat recalled regrettably what befell her senior sisters upon getting married. Islamiat has scaled up her trade by registering her business of bricklaying with the relevant government agencies with the aspiration that later on in life, she would eventually grow her business to a formidable building contracting firm. Islamiat, after completing her Secondary School education, proceeded to the Government Science and Technical College, Abeokuta. While at the technical college studying Bricklaying, she distinct herself in dedication and commitment to work that made her pooled together seven of her course-mates to form a team of builders consisting of four male and four female building professionals.



Plate 1:

Ms. Islamiat Adeniran at a construction site in Abeokuta. Picture sourced from the bricklayer’s private collection. May, 2019.

Islamiat is an icon of commitment at the construction site, taking hold of the trowel professionally to register her imprints on the site with well aligned rows of brick-walls and well plastered walls. Wherever Islamiat worked, any first-time observer would notice something different about her skills on display. She has decided to surmount cultural prejudices by dreaming of incorporating her business fully before long.

Kate Osaghie, hails from Benin –City, thus from the Edo tribesmen. She is a Vehicle Mechanic who specialized in maintenance and repairs of Mercedes Petrol engines. She learnt her trade from the Government Science and Technical College, Igarra Road, Auchi, Edo State. She enlisted with then Nigerian Army in the year 1983, where she served as a craftswoman in the Nigerian Army Electrical and Mechanical Engineering Corps for twelve years before disengaging from the Army to float her personal Workshop for Vehicle Maintenance and repairs at Akpa-kpava Road, Benin-City.

Kate is flourishing city-wide known specialist when it comes to Repairs or Maintenance of Mercedes Petrol-engine vehicles.



Plate 2:

Kate Osaghie at work in her workshop located on Ikpoba Slope, Akpa-Kpava Road, Benin-City, Edo State.

Theresa Collins, is a Tiv-lady from Benue State, the fourth out of five children, all females. Her father is a now retired Police Officer who has traversed the length and breadth of the nation – Nigeria. Theresa was trained to be a plumber at the Federal Technical College, Ijebu-Mushin, Ogun State. Theresa used to be the only female student in her class while attending Federal Technical College, Ijebu-Mushin, when there were seventeen other males' students in the class of 18 students in all. Theresa determined to succeed in her chosen field of study and she was able to realize success as she desired when she secured a huge contract of fitting all plumbing works in an estate located at Lekki Peninsula, Lagos State Nigeria with the assistance of one of her former instructor at Federal Technical College, Ijebu-Mushin who happened to be the Main Contractor commissioned to deliver the Dangote Group's Staff Quarters at Lekki, Lagos State.



Plate 3:

Ms. Theresa Collins – a female plumbing technician at work in a construction site on Dangote Group Staff Quarters under construction at Lekki Peninsula, Lagos. Picture sourced from the archives of The Federal Technical College, Ijebu-Mushin, Ogun State.

Doyin Ogungbile is a mother of four children, including a set of twins all male. She is the only daughter of her mother whose other eight children are all males. She hails from Ode-Aye in Ondo State. Doyin is a 1992 OND graduate of the then Ogun State Polytechnic now Moshood

Abiola Polytechnic, Abeokuta. Doyin Ogungbile built her career with the defunct⁵ National Electric Power Authority, Abeokuta Business Unit before being transformed and renamed Power Holding Company of Nigeria (PHCN) in the year 2005 by the Government of Former President Olusegun Obasanjo. Doyin is an exemplary technician who has been physically and practically involved in various electrification projects in various Ogun State communities. She deftly climbs electric High Tension Poles without fear to correct faults and carry out installation tasks as might be deemed necessary. Her services have been continually in demand by the PHCN authorities.



Plate 4:

Mrs. Doyin Ogungbile – Electrical Technician on the pay-roll of IBEDC, Abeokuta since the days of the defunct National Electricity Power Authority after her OND programme at Ogun State Polytechnic now Moshood Abiola Polytechnic, Abeokuta. Picture sourced from the technician’s collection.

4. CONCLUSIONS AND RECOMMENDATIONS

Beyond cultural and religious restrictions placed on the female gender, challenges of the female gender participation are grossly similar to those confronting Technical and Vocational education cum training in general. Issues of dilapidated and near obsoleted training equipment and facilities abound all over the country. This lack of adequate training equipment and facilities culminated in drastic reduction in the enrolment volume of students opting for Science and Technical education in recent times.

Revitalization of the Science and Technology sub-sector will be worthwhile when facilities for training are in place appropriately and the trainers are encouraged to be passionate about their work and stay put on the job of training future generation of practitioners who would not seek greener pasture outside the Science and Technology sector. Proliferation of Science and Technology Training centres across the nation is herein advocated for believing that in so doing, this will afford future generation Scientists and Technologists, passionate interest to succeed in their chosen field of study and vocation coupled with meaningful patronage will spur more female youths to key themselves into then Science and Technology sub-sector of the Nation’s economy.

Inadequate funding of the Science and Technological Training Centres is an identified major constraint and challenge to quality Science and Technological vocational development. It is this study’s recommendation that this should be adequately addressed and forthwith, should lip-service be paid to this very important sub-sector of the Nation’s developmental pursuits

Updating the facilities at the training centres together with very good incentives provided the trainers to attract the best brains to this sector with formidable interest in the promotion of this sector's wheels of progress.

The issues of personal disinterest by the female-folks in Science and Technology will soon be a thing of the past if patronage of female scientists and technologists is given a boost by both private and Governmental agencies across the country.

It is the opinion of this study that when above recommendations are put in place, the future of female gender participants in Science and Technology would soar and new entrants would be encouraged to come on board the sailing ship of Science and Technology in the nearest future.

The traditional religious practices which posit that the female gender in the society should only be seen and not heard require to be jettisoned by modern societies and embrace the civilized norms that afford all gender equal opportunities in Science and Technological field of study as being done currently in the developed nations of Europe and Asia which have seen the female gender being involved in space travels and space explorations. As the popular saying affirms that "What a man can do, a knowledgeable woman can do even better" when given a fair trial.

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