

THE ROLE OF ENVIRONMENTALIST IN THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY IN NIGERIA: THE CASE OF BAUCHI METROPOLIS

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ABSTRACT

This work examined the fundamental requirements in term of equipments, training and practice for the effective role to be played by the environmentalist in the advancement of Science and Technology in our present day global village. It dwell on factors negating the effective role of environmentalist and the potential advantages of using technological innovations by professionals in the building industry in the advancement of science and technology in Nigeria taking into consideration geographic information system (GIS) and virtual reality (VR) as some of the innovations. Questionnaire formed the primary source of data collection while data obtained were analyzed using simple mean statistics. The study discovered the lack of latest equipments and expertise to handle most of the latest technological breakthrough of modern science and technology as some of the negating factors, and therefore recommend among others, the need for radical approach and high degree of honesty on issues of power supply and environmentalist to equip themselves with latest technologies in the field of environmental studies.

Keywords: Environmentalist, Technological Innovation, Virtual Reality (VR) and Geographic Information System (GIS).

INTRODUCTION

Science and technology strongly influence growth, development and prosperity of all modern societies including Nigeria. The development of science and technology has potential to provide such benefits as would improve the overall standard of living of the people, while providing the country the ability to: increase the nations productive capacity and efficiency; address issues related to achieving sustainable development; stimulate the ingenuity of the people to devise and implement solutions to technical problems, such as localized flooding and traffic congestion, and alleviate certain type of ills, and minimize the effect of poverty. In fact, it has been shown that in the modern age, effective utilization of science and technology is a key to sustainable national development and prosperity. Thus, there is the need for greater research capacity, further scientific and technological education, skills development, knowledge expansion and improvements in technological design and utilization, and for more innovation, resourcefulness and problem solving capacity. According to A.S. Hornby (2000), an Environmentalist is a person who is concerned about the natural environment and Want to improve and protect it, while science means knowledge about the structure and behavior of the natural and physical world, based on facts that you can prove.

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In view of Webster's II (1995) Technology refers to that body of knowledge that is concerned with application of science in order to improve or to come up with the positive or negative impact within a certain setting in order to improve, or degrade what it was intended. The positive impact of all professionals experts in the field of Environmental studies i.e. The Architect, Builders, Quantity Surveyors, Estate Managers, Services Engineers, Town Planners, Surveyors etc. could only advance scientifically and Technology wise if we imbibe the good culture of identifying the following as stated by Sa'ad (2001) and if we ensure the holistic approached in applying them within our three tiers of our government for radical approach to solving our environmental issues.

- (i) Concern for the Environment and climate change.
- (ii) Technological innovation especially information Technology (IT).

High technology response such as the use of modern technology and materials that protect and conserve energy, recycling of waste materials in buildings and the production of intelligent building that respond appropriately to environmental factors and forces such as climate change (Bello, 2007). Similarly, Paul (2007) asserts that effective application of technological innovations will enhance architectural design and construction that can improve sustainability and healthy living. The environmentalist have important roles to play in science and technology advancement considering the technological innovations such as computer aided design (CAD), Geographic information system (GIS), Virtual reality (VR) etc. These and other environmentally related issues will be the focus of this paper.

OVERVIEW OF TECHNOLOGICAL INNOVATIONS

The role of environmentalist with advancement of Science and Technology could easily be seen or felt through the usage of various soft ware such computer aided design (CAD), Archi CAD, Geographic Information System (GIS) virtual reality (VR) etc. in order to provide quick solution and save time to the various professional within the field of Environmental Studies or Environmental experts.

The Geographic information system (GIS)

In planning, decision-making, and management, GIS may be considered just one among the most advanced tools available to deal with complex problems in a balanced mediation of economic, environmental and social objective (Tailor and Francis, 2006).

The GIS

Is a tool that manages, analyses, and models data from our environment so that we can make decisions based on that information to better conserve its resources and protect its biodiversity (www.esri.com). GIS allows us to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports and chats. GIS benefits organizations of all sizes and in almost every industry, this is as a result of the growing awareness of the economic and strategic value of GIS. Top five benefits of GIS are: cost savings and increased efficiency, better decision making, improved communication, better record keeping and managing geographically.

Virtual Reality (VR)

Virtual reality (VR) is an artificial environment that is created with software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. On a computer, virtual reality is primarily experienced through two of the five senses: sight and sound (www.vrs.org.uk/virtualreality). The simplest form of virtual reality is a 3D image that can be explored interactively at a personal computer, usually by manipulating keys or the mouse so that the content of the image moves in some direction or zooms in or out.

Benefits/importance of (VR)

Using 3D and virtual reality environments as part of our training methodology allows students or workforce to experience an entirely new side of training. This type of technology breathes life back into traditional computer based learning and re-awakens the enthusiasm in users who are used to this technology in other circles outside of training. From both a trainer and trainee point of view, virtual reality technology can bring the following benefits: Making learning fun and interesting by engaging the user with breathtaking graphics, informative audio and interactive scenarios using 3D virtual environment, complex situations made easy, save cost, and safe environment. Computer based virtual reality has been a common part of modern popular culture and technology for decades now. The technology has many applications and its importance cannot be over emphasized.

Virtual Architecture

Architectural visualization is one of the applied uses of virtual reality today. A visual walk through on a building design, prior to its construction, can actually help Architects and their clients better understand what the building will actually be like to inhabit once built.

Pilot training

The training of pilots for the aviation industry is another popular use of virtual reality today. This is especially beneficial to airline pilots flying simulated commercial jetliners, as it offers the ability to practice something that is relatively risky and costly with an actual plane.

Science

There are certainly wide array of possible applications for virtual reality in science. One interesting way virtual reality is already being used is for the design of molecular compound. Scientist wears a virtual reality control gloves which allows them to position molecules in a virtual space.

Industrial Design

Industrial designers can easily manipulate and shapes the models they design through the use of virtual reality display. Some computer graphics cards have outputs specifically for use with stereoscopic headsets for this kind of application.

RESEARCH METHODOLOGY

The sources of data collection are both primary and secondary. Primary through the use of questionnaire, while secondary through review of published and unpublished

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books, journals and internet. Respondents are professionals in the building industries who are either in practice or in academics within Bauchi metropolis. Selection of respondents was done through random sampling.

The questionnaire was structured in two ways viz:

1. To establish the factors negating the effective role of environmentalist in the advancement of science and technology in Nigeria.
2. To establish the potential advantages of using technological innovations by professionals in the building industry for the advancement of science and technology.

A total of fifty five (55) questionnaires were filled and returned. Four point rating scale was used as response options for the questionnaire as follows:

Strongly agreed (SA)	4 Points
Agreed (A)	3 points
Strongly disagreed (SD)	2 Points
Disagree (D)	1 Point

Data collected will be analyzed using simple mean statistics; decision will be taken based on 4 point rating scale of items in the questionnaire. Thus any item with mean of 3.00 and above will be considered as agreed and any below 2 as disagreed.

DATA ANALYSIS

TABLE 1: NEGATING FACTORS

S/N	FACTORS NEGATING THE EFFCTIVE ROLE OF ENVIRONMENATLIST IN THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY IN NIGERIA.	RATING SCALE					
		SA 4	A 3	SD 2	D 1	MEAN	REMARK
1	Lack of skill personnel's who are ICT compliance	30	21	0	4	3.40	Agreed
2	Lack of skill Contractors who are ICT compliance	22	30	2	1	3.33	"
3	Lack of facilities or equipments such as: Geographic Information system (GIS), virtual reality (VR)and other soft ware's in the Environmental Science in your organization	28	27	0	0	3.51	"
4	Inadequate power supply	40	15	0	0	3.73	"
5.	The various tiers of Government find it difficult to acquire this facilities on the open market	20	30	2	3	3.22	"
6.	Personals, organizations are lacking the expertise of getting this facilities through online shopping	18	35	0	2	3.25	"
7.	Due to ignorance, organization are not given priorities to acquisition and usage of such facilities in the various place of work	35	18	0	2	3.56	"
8	Inadequate budgetary funding for the purchase of such facilities in the various work places.	32	23	0	0	3.58	"
9.	Lack of skill personnel that will ensure proper servicing and maintenance of such facilities	18	36	0	1	3.29	"

10	Resistance to change from analogue to ICT compliance	30	25	0	0	3.55	“
11	Abundance of cheap labour using the analogue method	19	36	0	0	3.35	“
12	Inefficient internet services that will enhance team work among professional residing in different location	32	21	0	2	3.51	“

Source: Field survey 2014

TABLE 2: POTENTIAL ADVANTAGES

S/N	POTENTIAL ADVANTAGES OF USING TECHNOLOGICAL INNOVATION BY ALL PROFESSIONALS IN THE BUILDING INDUSTRY FOR THE DVANCEMENT OF SCIENCE AND TECHNOLOGY INNIGERIA	IMPORTANT SCALE					
		SA 4	A 3	SD 2	D 1	MEAN	REMARK
1	Time saving	40	15	0	0	3.73	Agreed
2	Encourage team work philosophy	17	36	0	2	3.24	“
3	Ensure accuracy	37	18	0	0	3.67	“
4	Encourage global competitiveness	27	25	0	3	3.33	“
5.	Encourage specialization among professionals	35	20	0	0	3.64	“
6.	Encourage Training of staff to be ICT compliance	19	36	0	0	3.35	“
7.	It will encourage better government policy on ICT i.e. over dependence on foreign exchange for importation of such item	20	30	2	3	3.22	“
8	It will enhance the built up environment i.e. less pollutant to the general eco system	17	29	4	5	3.05	“
9.	It will eliminate the corrupt tendencies of doing things	26	20	5	4	3.24	“

Source: Field survey 2014

Tables 1 and 2 shows that respondents agreed to all the factors negating the effective role of environmentalist and the potential advantages of using technological innovations by professionals in the building industry in the advancement of science and technology in Nigeria.

FINDINGS

- i. The revelations of this study indicate that substantial number of professionals within the three tiers of Government lack the latest equipment and expertise to handle most of the latest technological breakthrough of modern science and technology within the century.
- ii. Due to ignorance and the Nigerian factor reasonable number of our Nigerians do not understand the basic content of Decree 88 of 1992 and this by implication will have a negative consequence to advancement of science and technology in the field of Environmental studies and its practice.
- iii. Lack of sufficient power energy (i.e. Electricity) is causing a serious setback to the advancement of science and technological innovations in Nigeria.

RECOMMNDATIONS

- Government workers in our various parastatals and other agencies have to equip themselves with the latest equipment in the field of environmental studies and training in order to meet up with the present day challenges so that their positive impacts will be felt. Same should apply to non governmental organizations and private practitioners.
- Environmental experts and stakeholders in the field have to engage in massive campaign through public lectures, workshops, symposium, conferences, etc. both in print and electronic media.
- Enforcement of the content of decree 88 of 1992 within our various tiers of government will enhance serious advancement in science and technology.
- There has to be a radical approach and high degree of honesty on issues to do with sufficient power supply in Nigeria if at all we want to be among the 20 great economic nations by the year 2020.

CONCLUSION

The cardinal principle of environmentalist in the advancement of science and technology in Nigeria is to try and mould the thinking of Nigerian to be able to face the challenges before us in our global village. We have to work hard in order to fit in so that we can utilize the scientific and technological innovations for the betterment of our socio-economic and cultural values. This will go a long way in our nation building for sustainable development in modern science and technology.

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