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Opinion

Effects of scientific modernization in the human society: A critical appraisal in the light of Jacques Ellul's thought with Nigeria in perspective

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ABSTRACT: The motivation for this paper is the clear strides made by science and technology in the world today together with the apparent abuse and dangers inherent in the same science and technology and the products therefrom. Ellul, the philosopher whose position in this area points out that both science and technology inhere a dialectic facticity of the good and the bad all at once, was chosen as the point of departure as well as of arrival in the treatment of this knotty problem. The methods of critical observation and library research were employed. And the rational tools of deduction, analysis, evaluation and synthesis were also used. It was discovered that science and technology have through modernization influenced human society very deeply; positively as well as negatively. The objective of the study then is to demand critical and rational assimilation and use of science and technology and their products, which are like a double-edged sword; they enhance human life in society if well used but could be very destructive if abused. Recommendations include: rational use of the products of science and technology in modern society, respect for the ambience of morality, punishment for unlawful use of the products for harming of humans, responsible manipulation of nature, etc.

Keywords: Human society, Jacques Ellul, scientific modernization, technology.

INTRODUCTION

Science and technology rule the world and have overriding influence on the affairs of man in human society. The level of development of a particular society has direct links to its scientific and technological abilities. Such abilities also determine the way of life of such society. Modernization is also directly proportional to a society's scientific and technological advancements. All these have their pros and cons. It is in this connection that this paper intends to dig into the philosophical position of Jacques Ellul on scientific modernization and human society to find out what his position was and how it remains valid for our world but Nigeria in particular. This paper does not limit the human experience to science alone but points out that there are other spheres of human existence, for example, the moral and the rational, which should also be taken into consideration in the face of scientific modernization. The purpose of this paper is to bridge the gap between scientism (as in Francis Bacon, Rene Descartes and Galileo Galilei) which holds that the only true knowledge is the scientific method with its rigorous attachment to observable, demonstrable procedures, and forms of dogmatism which cling to beliefs and opinions without critical scrutiny. Jacques Ellul's philosophical position comes in handy here as it makes a demand for criticality in the accession and use of science and technology.

The man Jacques Ellul (1912-1994)

Jacques Ellul was born on 6th January 1912 in Bordeaux, France to the family of Martha Mends and Josepha Ellul. He became a philosopher, sociologist, lawyer, professor

(University of Bordeaux), lay theologian and Christian anarchist. He was made to read the law by his father as against his original intention of becoming a naval officer. He attended the Universities of Bordeaux and of Paris. He got married to Yves Lensvelt in 1937 at the age of 25. He was one of the leaders in the French resistance during World War II.

Three philosophers were his special inspiration in the 1930s and shaped his thought: Karl Marx, Soren Kierkegaard and Karl Barth. He came in contact with Marxian ideology during an economic lecture course taught by Joseph Benz. At the same period, he also encountered Kierkegaard and Karl Barth whom some have regarded as the greatest theologian of the 20th Century. Bernard Charbonneau was his best friend. His father who introduced him to the world of ideology is also considered by him a special role model.

Ellul philosophically approached technology from a dialectical viewpoint (Marxian influence). He was constantly worried about the emergence of a technological tyranny over humanity. He has been credited to have coined the phrase “think globally and act locally”. He also explored the religiosity of the technological society. He died in his house in Pessac, very close to the University of Bordeaux, surrounded by friends, on 19th May 1994 after a long illness. His wife had earlier died before him in 1991.

Notion of modernization

According to Wikipedia (2017), modernization has to do with that model of a progressive transition from a “pre-modern” or “traditional” to a “modern” society. Modernization theory originated from Max Weber (1864-1920), a German sociologist, which provided the material for the modernization paradigm later developed by a Harvard sociologist, Talcott Parsons (1902-1979). Weber however was influenced by social Darwinism. Modernization theory while looking at the internal factors of a country assumes that “traditional” countries can be made to become similarly developed by towing the same or similar paths of more developed countries. For Wolfgang (2003), this was a dominant paradigm of the social sciences in the 1950s and 1960s before it went into a deep eclipse only to resurface in the 1990s though it remains controversial.

On the other hand, in sociology, according to Kumar (2023), modernization is “the transformation from a traditional, rural, agrarian society to a secular, urban, industrial society” (p. 1).

He (nd.) talks about two modernizations; the First Modernization and the Second Modernization. The First Modernization started in 1763. The Second Modernization will take 130 years (1971-2100). For He (nd.), “Science is the engine of the development of the society, and innovation is the spirit of the progress of the civilization” (p. 1).

Modernization theory does not only stress the process of change but also stresses the responses to it. In looking at social and cultural structures and the adaptation of new technologies, it also looks at internal dynamics. This theory holds that as traditional societies adopt modern practices, they will become developed themselves. Adherents posit that modern societies are wealthier and more powerful than traditional ones and that their citizens are freer and enjoy higher standards of living. They see the development of new data technology, communications and better transport systems as sufficient for accepting modernization as a necessity. In modernization, abstract principles determine forms of government rather than traditional cultural traits, religious beliefs and practices or superstitions.

Modernization is linked by historians to urbanization, industrialization and greater education. To Kendall (2007), "urbanization accompanied modernization and the rapid process of industrialization" (p. 11). In sociological critical theory, modernization leads to rationalization. And when this is the case, the individual becomes more important than the family or community as the basic unit of society.

Modernization has its influence on social development, government (forms of government; democracy), globalization, science and technology, etc. but our interest in this paper is on science and technology which entails scientific modernization.

Scientific modernization

Science and technology go hand in hand. Modernization entails new technology, which is a major source of social change. Since modernization has to do with the social transformation from agrarian societies to industrial ones, it is expedient to consider the technological viewpoint; nevertheless, new technologies do not change societies by themselves. But it is the reaction to technology that causes change. For He (nd.), science and education had a direct impact in many countries such as UK and Germany, etc. during the process of the first modernization; then in the process of the second modernization, science and high education enhanced the progress in such countries such as the USA and Finland etc.

According to Wen (2008), “the history of modernization is in essence a history of scientific and technological progress. Scientific discovery and technological inventions have brought about new civilizations, modern industries, and the rise and fall of nations” (p. 1). Continuing, Wen holds that China as a result of modernization is currently engaged in a developmental strive unprecedented in the history of the entire humanity.

The human society

For Adelola (1987), “society may be likened to an assemblage of human beings; the individual is the bedrock

of the society. The individual is the physical person that we can see, therefore society is not merely an abstraction" (p. 107). The several individuals that makeup society usually have interactional patterns of relationships. We may also see society as the sum total of individuals that make it up. Without individuals, there is no society. Inasmuch as what is talked about here is a society composed of human persons, then it is the human society that is being talked about. Among other definitions of society, Mish *et al.* (1990) define it as "an enduring and cooperating social group whose members have developed organized patterns of relationships through interaction with one another" (p. 1119). It is also seen as a large grouping of people, nations, and communities whose members have common traditions, customs, collective activities, institutions and interests.

The term "human" has to do with the man who is a homo sapiens. This individual is a person whom Boethius defines as "an individual substance of a rational nature". The assemblage of persons, therefore, makes a human society. In human society are developed institutions that help to make life meaningful, productive and enjoyable. The basic institutions include family, marriage institutions, political institutions, economic institutions, technical/ scientific institutions, religious institutions, and even military institutions, etc. And this human society is contradistinguished from other forms of society such as plant and animal societies. Just as society is also for Mish *et al.* (1990), "a natural group of plants usually of single species…the progeny of a pair of insects when constituting a social unit (as a hive of bees); broadly; an interdependent system of organisms or biological units" (p. 1119). However, human society is the locus of consideration of the effects of scientific modernization using Ellul's philosophical input, in this paper, though these other societies invariably get affected by human society.

EFFECTS OF SCIENTIFIC MODERNIZATION ON HUMAN SOCIETY

Science and technology are two faces of the same coin. They go hand in hand. And for technology brings about innovation in society and causes great social change. In fact, modernization can be summarily said to be the dramatic industrial, economic and social changes that have evolved through the centuries. They cause great developmental changes in society. The use of the internet has positively affected millions, if not billions of lives throughout the world. In the comfort of your room, you can gather virtually all information you need for work or research through the modernization of access to information called the internet. This has made literacy increase. The cell phone has also changed millions of lives world over, but especially in Africa and the Middle East where there is low cost communication infrastructure. But even in the so-called developed world, the present way of life with respect to cell phones vis-à-vis their previous way of life denotes also a significant positive change possibility of interpersonal interactions. Widely dispersed populations are connected through cell phones making business-to-business communication easier.

Modernization of the health sector in developing countries does not only entail replacing traditional methods with Western technological methods but also the reorientation of the ideological and political mindset. Modernization is responsible for the phenomenon of globalization that the world is experiencing today. This is what some refer to as the homogenization of world cultures. Modernization is responsible for the spread, across borders, the integration of social, political and economic cultures, which is globalization. Since the discovery of new continents in the early modern period by Europe, modern trade has grown continuously; especially with the Industrial Revolution and by the adoption of the shipping container by the mid-20th century. For Wikipedia (2017), trans-border tourist arrivals on the annual basis rose to 456 million by 1990 and were expected to double and reach 937 million per annum by 2010. Another major area that has grown due to modernization is communication, which has enhanced the spread of capitalism throughout the world. Television broadcasts, telephony, online service and news services which are products of modernization have played a momentous part in globalization.

But it must be noted that scientific modernization has also had adverse effects on human society. We all know about the Greenhouse effect; pollutions of various kinds, air pollution, water pollution; toxic wastes coming out of modern factories, etc. Thus, Ibeh (2003) writes:

> The greatest threat to the environment is posed by the industrial sector, be it waste generation and inadequate treatment, water, land, air or noise pollution. Smoke, dust, automobile exhausts, and gaseous wastes from factories, vehicle assembly plants, iron and steel, cement, petroleum and petrochemical, pulp and paper, …thermal power stations- all affect the quality of the air. (p. 132).

Such pollutions as described above have serious health implications for human beings living in human society especially for the elderly and the very young. This negative side to modernization captured Ellul's attention in his philosophizing about scientific modernization and human society.

JACQUES ELLUL'S PHILOSOPHICAL POSITION IN THE FACE OF SCIENTIFIC MODERNIZATION OF SOCIETY

Ellul made a historical excursus of science and technology. Considering the 16th -18th centuries technology, he

noted it was the time regarded as the renaissance in science and technology, that is, the era of modern science where Francis Bacon is regarded as the father of modern science. There were copious advancements in the areas of building, mining, agriculture, transportation, communication, etc. Otto Von Guericke, engineer and physicist, invented the electric generator in 1650. Soon the clock was also invented. Capolla (1700) quoted by Nwaegbo (2013), noted that the clock soon assumed a status symbol, human activities became timed in such a way that was unimaginable prior to its discovery, and people became time conscious. Punctuality became emphasized in such a way that it was not only a virtue but also an obsession. The clock became an inalienable necessity demanded of and from all in such a way that science became enslaved to technology.

In the 19th Century and early 20th Centuries, science and technology led to the industrial revolution. The states that emerged were truly conscious of themselves as autonomous in selecting whatever served their interests. This was actually a rip-off of the French Revolution. Different types of machines were invented which led to the breaking down of the processes of production and making the engagement of physical human energy very much reduced, and increasing productivity, efficiency and manufacturing. In this period, science and technology became merged. And for Ellul (1964), in the 19th Century and early 20th Centuries, the link between scientific research and technological inventions resulted in the enslavement of science to technology. Today they are inseparable; science has become the theory and technology the practice. This industrial revolution yielded hi-tech advancements- internal combustive engines, electric dynamos for motor cars, industrial developments, and rockets. Mathematics and physics were the utility models.

Modern Technology (technology of today) according to Ellul covers the period from 1945 till today. It is marked by hyper-technology and informed by automation; computers, robots, space exploration, nuclear technology, health technology, improved agriculture, hyper-military technology and complex network and communication, all of which are becoming more complex and sophisticated by the day. And for Ellul, the problem in this is that this scientific technology contains within itself an inherently inseparable element of the good and the ugly each of which supports and reinforces the other. Nuclear power serves lots of use but can be used to wipe off the whole earth in a twinkle of an eye, for example.

Jacques Ellul was very interested on how man would be able to maintain sanity and morality in the face of the ills of technology. He recognizes that “technique” from which technology is derived as rigorously objective not giving room for any subjectivity. For Ellul (1964), “Modern technology has become a total phenomenon for civilization, the defining force of a new social order in which efficiency is no longer an option but a necessity imposed on all human activity” (p. 17). Rather than technology being subservient to man in modern society, Ellul posits that it has rather become the master of man. Human beings have no choice but to succumb to the demands of science and technology. Ellul holds that it is crucial for man in modern society to make a serious choice on what to accept and what to reject with his last ounce of energy regarding scientifico-technological development; judging between what is legitimate development and what is not. Ellul regards the environment as that which enables us to live. In this context, even scientific and technological gadgets are part of our environment. He however warns that such gadgets may end up becoming inimical to our existence.

In his *magnus opus*, “The Technological Society (1964)” Ellul enunciated and treated the characteristics of technology. Those characteristics, for him, are responsible for efficiency and they are: rationality, automation of technical choice, artificiality, efficiency and self-augmentation.

Rationality

Rationality for Ellul is making use of mathematical calculations, systemization and the creation of the acceptable standard. Rationality and reason are methods applied in the analysis of data gathered through observation. If a process of analysis or evaluation does not yield high objectivity, logicality and is not mechanical, then it is irrational. Rationality simply means working within the confines of the brain as to willingly take particular actions (in the face of possible multiple options) that will yield the best possible result.

Automation

This is the use of control system such as numerical control, programmable control and their industrial control system in conjunction with other applications of information technology like computer assisted technologies to control the industrial machines and processes which make full human intervention unnecessary. It is a step beyond mechanization which is the process of man using machines to facilitate work. In automation, the process becomes self-directing. In banks, we have automated teller machines (ATM), in telecommunication, rather than thousands of telephone operators we have switch boards and answering machines, etc.

Artificiality

The artificial is that which is made by man in contradistinction to that which is natural. Ellul considers this as the

character of technology in that the products are not natural but replete with imitations of natural things, creating an artificial world that is radically different from the natural world. And Ellul holds that technology has artificially destroyed nature to a very large extent.

Efficiency

For Ellul, this is the "maximum yield with the least amount of effort". The measure of an efficient information system has to do with its productivity, time of processing, operational time and level of automation. But the measure of information is the product. Product deals with the spread of processing, solution's functionality, ease of the use of the solution and output, and the cost of the processing of the information.

Self-augmentation

To augment is to "add to" and thus make better. For Ellul, self-augmentation is that character of science and technology whereby the field continues growing and increasing without relying on any other field. Ellul recognizes three laws here: (i) technical progress is irreversible, (ii) any new technique makes room for other possible ones, and (iii) technical progress acts in geometric progression.

CRITIQUING THE IMPACT OF SCIENTIFIC MODERNIZATION ON THE HUMAN SOCIETY (WEARING JACQUES ELLUL'S BINOCULARS)

Positive effects of scientific modernization on the human society

Medicine

In the traditional system of medicine, so many medical conditions were beyond the competence of medical practitioners to handle. But today, as a result of scientific modernization in the area of medicine a whole lot of medical interventions are now possible. Neurologists can now with the use of computers and other accessories perform wonders like surgeries on the human brain thereby giving back life to the apparently hopelessly ill and hence increasing the joy of families and society. There is also the intervention called psycho-surgery which is made possible today through advanced medical technology. For Pazzhayampallil (1997) "The operation is performed on the mentally ill in order to remove certain psychic disturbances or worries, pain, depression, so that they may live a more practical and agreeable social life" (p. 1408). Again, ailments like polio, tuberculosis, leprosy and even the dreaded HIV/AIDS are all brought under control due to advancements in modern medical technology. Some diseases are even taken care of at the embryonic stage of human development so that the individual develops into a healthy adult contrary to what they were genetically programmed to become.

Information and technology

The society today is awash with the use of cell phones, internet, social media platforms and all this makes the world truly a global village. Information is very easily and readily transmitted over long distances and very cheaply too. By video calls on *Skype*, *Whatsapp, imo beta,* families far apart communicate and see each other and very cheaply too, thanks to scientific modernization.

Transportation

Heavy goods are carried over long distances by train, ship, trucks and planes thanks to scientific modernization. This has enhanced efficiency and reduced suffering. As often stated, it is even possible now to have breakfast in Nigeria and lunch at London because of scientific modernization of the means of transportation. Man has been on the moon and is today exploring the planets such as Mars.

Agriculture

Today, with mechanized agriculture and improved seedlings together with advanced aquacultural science and technique, a large part of the world has achieved food sufficiency such that human beings in such places no longer worry about food. They now devote their time to other endeavours. Excess foods from such places are also transportable to areas of need, thanks to scientific-technological modernization.

Industrialization

Science and technology in the modern era have engendered mass production of goods and commodities as against the drudgery of primitive and traditional means of production. This has enhanced the quality of the man in society where practically all he needs for meaningful existence are readily available.

Robotics

Robots now perform so many jobs that man would have suffered himself to personally perform. This has provided more space for man to have a more enjoyable life. "Robot"

was derived in 1921 from the Czech word *robota* which means work. It is therefore a machine made to have artificial intelligence and to work as man. For Anozie and Ihejirika (2000), "robots are products of the creative-constructive imagination of man (science) which was actualized in active technological innovations of the contemporary era of the 1930s till date" (p. 31).

The negative effects of scientific modernization

Climatic and environmental degradation

Depletion of the ozone layer: This is closely related to global warming. As a result of the emission of carbon monoxide into the atmosphere by industrial machines, automobiles and burnings, the ozone layer in the atmosphere has been depleted. As a result, the sun's radiation hits the earth crust with greater intensity causing intense heat. This in its multiplier effect has led to the melting of the ice in ice regions of the world; exposing the wildlife in those regions to the danger of extinction as well as causing floods in many places. Such flooding has been taking place all over the world. Even Nigeria has had her fair share in it. It happened in the Victoria Island, Lekki and Epe areas of Lagos in the month of July 2017. This year, 2022, there are flooding in Northern parts of Nigeria and even in some Southern parts like Asaba in Delta State where people have been rendered homeless. This is a negative byproduct of scientific modernization. People have been dying and many displaced, properties and businesses destroyed. Ozone layer depletion is summarily ascribed to over industrialization, exploitation and manipulation of the environment.

Global warming: The cause is already explained in our discussion on ozone layer depletion. It is one of the most serious challenges confronting world leaders today.

Pollution: We have air pollution, water pollution and noise pollution resulting from the over "scientification" of the world today. Large volumes of vehicular traffic, radio and blaring of music all over the place have increased noise beyond the agreeable decibel and this has affected reflection and deep thinking necessary for interior recollection and authentic self awareness. Oil spillage in the activities of oil companies all over the world but especially in Nigeria has been destroying the ecosystem and impoverishing the soil for agricultural productivity. For Ibeh (2003), "Drilling of oil wells naturally alters the environment physically. Both exploration and drilling destroy the vegetation during the process. The soils from the wells are all disposed of in the immediate environment" (p. 137). All this naturally and negatively affects the agricultural practices of the people, impoverishing the land. Gas flaring in oil industries has reduced the quality of air leading to lung diseases and other diseases.

Bio-scientific interventions and dehumanization of the human person

Because of the availability of scientific inventions, man sometimes begins to play God. He begins to make interventions on the human person to the extent that the dignity of the human person as a being endowed with inalienable and insuperable rights is at times compromised. The human person is thus used as a thing rather than an entity suffused with immeasurable dignity being a bearer of the image of God (*imago Dei*). Such interventions include:

Cloning: For Okechukwu (2001), "Cloning is a 'hyper-project'. It was used for years to propagate plants and in modern times, biogenetic engineers extend it to human beings for the purpose of genetic duplication of an already existing individual" (p. 43). And for Azuakor (2022), "Cloning, or more technically, somatic-cell nuclear transfer involves the fusion of a somatic (body) cell of an adult organism into the denucleated oocyte, that is an oocyte deprived of its maternal genome" (p. 232). This manipulative intervention has already succeeded in the production of a sheep, "Dolly", in Scotland in 1997. It has not yet succeeded with man but scientists are still working.

In vitro fertilization (IVF) and embryonic transfer (ET): In vitro fertilization means fertilization in the glass tube. This is usually done in the pretext of helping infertile couples to conceive. The woman is first given drugs to induce multiple ovulation, the eggs are "harvested" and put in a petri-dish the adequate conditions having been provided. Sperm which could come from the husband or a donor is then mixed with the eggs. Lots of the eggs are fertilized to form zygotes and subsequently embryos. In America, according to Flynn (1997), "Some of the resulting embryos are transferred by catheter to the uterus; extra embryos are frozen. There are approximately 32,000 IVF procedures annually, at an average cost of $7,800 each" (p. 61). This is toying with human life at its root.

Enslavement to machines

Science and technology claim to have liberated man from perils but many times man becomes enslaved to the machines he has created. People must depend on alarm clocks to wake up. They cannot move about freely without lifts and cars. Though lifts and cars make movement faster and easier but the negative result is that people no longer do enough exercise and so fall sick, at times terminally. Robots take up works that could have been done by human beings and thus render a lot of people jobless. This of course has socio-economic implications. Using the television and speaking in the light of the above, Ellul (1964) states: "Television because of its power of fascina-

tion and its capacity of visual and auditory penetration is the technical instrument which is most destructive of personality and human relation" (p. 377). Some marriages have been broken because of one party's attachment to the television or some other electronic gadgets like the telephone or computer to the disapproval and neglect of the other party.

Effects of modernization on our socio-cultural and moral life

In the name of modernization our culture has become negatively affected. Individualism is taking over the much cherished African communal life of our people. In the Western world individualism is already reigning supreme and they weep for it. It has made them more prone to depression and suicide. Pornography is available on social and electronic media. A lot of people log in to all that and morality has seriously suffered in Nigeria and other places. Machines in offices at times take over the very enriching inter personal relationships that ought to exist between individuals.

Weapons of mass destruction

Through science and hyper technology the modern man has developed weapons and arms for mass destruction. The greatest of them today is the nuclear weapon. And it is being proliferated. Great minds everywhere are warning against the possible outbreak of a 3rd World War because if it does, it will certainly be a nuclear war which might mean the end of the world. It is based on this that Azuakor (2016) writes:

> The most brilliant minds in the 20th Century like Albert Einstein and Bertrand Russell advocated and pressed that any future global conflict should not and must not be resolved by means of war inasmuch as a Third World War will not exclude use of nuclear weapons which will mean a total decimation of the universe (p. 61).

Man's scientific ingenuity in the name of modernization has thus become a snare to entrap him and even portend his end in the universe.

Cyber crimes

Through information technology and cybernetics, it is possible today- the modern world- to commit lots of theft and swindle people of their hard earned money even at the international level; this is rife in Nigeria. At times the traces are even perfectly concealed to the non-expert. It is also possible for governments around the world to hack into the secret information of other nations through the use of internet. Oftentimes, the less developed countries are at the receiving end.

Media and propaganda

Ellul holds that it is the emergence of mass media that makes the use of propaganda techniques on the society on a grandiose scale possible. He, as a philosopher, holds that propaganda is intrinsically misleading, serves either the state or market interest, and so morally reprehensible. The scale of propaganda going on in the electioneering process of Nigeria as we prepare for the 2023 presidential election lends credence to this claim and it is chiefly done via the mass media of the social media genre.

EVALUATION AND CONCLUSION

Because, as rightly stated by Ellul, scientific and technological gadgets can become inimical to our existence though we cannot do without them, we must, therefore, use them intelligently. Cell phones are very good examples of these in our modern world. Cell phones are exceedingly useful for communication, browsing the internet, conferencing and a whole lot more, but the radiations they emit, and their combustibility means they must be used with carefulness. It is now possible today to stay in Nigeria and have interstate, international and global conferences thanks to modern technological means of communication; people are also able to travel with greater ease in Nigeria today than our forefathers did. However, the wrong use of these has caused conflagration and accidents damaging human lives and property.

IVF and ET are very expensive. So even if it was morally acceptable, only the very rich can afford it; because if in 1997 as stated by Flynn it cost $7,800 in the USA, it must have reached at least $8,500 today. And using the exchange rate today of Naira to Dollar at the parallel market at the average of ₦745 = $1, then, a single procedure of IVF and ET should be costing about ₦745 x 8500 = ₦6,332,500 today. We know that this procedure has been going on in Nigeria and successfully too, but how many Nigerians can afford this? Moreover, there is no guarantee of success at first and even subsequent trials. Frozen embryos after IVF and ET are treated as just objects, the life in them is suspended and when they are not eventually needed they are simply discarded or destroyed.

Ellul is right in his position that artificiality destroys nature. For example, because of science and technology, it is possible for a person to undergo cosmetic surgery today, but the after-effects are at times disastrous; take the

case of Michael Jackson as an example, who had to undergo serious pains for some years as a result of the effects of the cosmetic surgery to his face, or the Late Mrs Stella Obasanjo, wife of the former military head and later civilian president of Nigeria who died undergoing cosmetic surgery.

Life on earth hangs on a balance because science and technology have given us nuclear weapons. Irrespective of scientific advancements, the quality of life in society has been significantly reduced as a result of various pollutions; Nigeria knows a good deal of environmental pollution today, especially in the Niger Delta areas.

Man now plays God (Nietzsche's *Superman*) because of the many possibilities and achievements in science. This has led to so many humanistic movements in the world today that have striven to unseat the laws of God, as contained in the Bible, to enthrone those of man- abortion is legit, so also homosexuality (in scientifically advanced countries) and maybe very soon, bestiality.

Though science and technology, in the modernized world, may have many adverse effects on human society, the positive contributions of science and technology in the areas of transport, food supply, manufacturing, communication, medicine etc, cannot be ignored and must be commended and Nigeria is a beneficiary of all this too.

Recommendations

1. Human beings in modern society should be rational in their use of scientific and technological gadgets. Cell phones, for example, should be used intelligently to avoid possible health hazards.
2. Religion and culture must be respected by science and technology in this era of modernization. Not everything that is scientifically possible is morally permissible.
3. While robots and other automation products have made man less able to exercise his muscles often with the attendant health implications, human beings must make physical exercise a compulsory routine to ensure good health.
4. Scientific modernization must be disciplined in the use of natural resources so that nature is not sacrificed at the altars of artificiality and manipulation to the detriment of man's authentic existence.
5. Governments the world over should provide, honestly and adequately implement, laws that universally punish criminal use of modernization products as in cyber crimes and the likes.
6. All decimating products of modern scientific technologies like nuclear weapons should universally be destroyed and never reproduced. The UNO has a role to play in this.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

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