

## THE CULTURE OF PEACE, AND NON-VIOLENCE IN THE PRACTICE OF ENGINEERING AND TECHNOLOGY

<sup>1</sup>(Ifeanyichukwu, H.I., Department of Agricultural and Bio-Environmental Engineering Technology, School of Engineering Technology, Federal Polytechnic Oko, Anambra State, Nigeria)

<sup>2</sup>(Onebunne, J.I. (PhD), Department of Philosophy, Faculty of Arts, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria) [juno.anyi@gmail.com](mailto:juno.anyi@gmail.com)

Corresponding Author's E-mail: [hifeanyichukwu2016@gmail.com](mailto:hifeanyichukwu2016@gmail.com)

**ABSTRACT:** Engineering and technology are basic necessities of life. They indeed has persisted from the prehistoric times, manifesting their vitality and benefits to mankind. Through engineering and technology, one acquires most of the skills and acumen consistent with adequate survival through human resource training and cultural values which include culture of peace and non-violence in their practices. Some problems confronting engineering and technology practices can be seen in lack of peace, culture and violence coupled with increase in crime rate and extreme poverty. A hungry man is prone to crime. These problems are further aggravated by the fact that most engineers, technologists, technicians and craftsmen/draught men normally lack employment or are not self employed. With policies like the peace culture and non-violence laws enacted and enforced, these tides will be stemmed. We know that policies are behavioural science; this will help to put this noble practices in the right direction. These aspects like the concept of engineering and technology, peace and non-violence as a culture, causes of lack of peace-culture, prospects cum way forward of peace and non-violence in this practice as well as conclusion and recommendation. All these exposed culture of peace and non-violence as highly important factors to be considered in engineering and technology practice.

**KEYWORDS:** Culture, Peace, Non-violence, Practice, Engineering, Technology

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### I. INTRODUCTION

The notion for culture of peace and non-violence arose because the practice of engineering and technology involves interactions among the four cadres of engineering family which are the engineers, technologists, technicians and the draught men together with the society at large. There are components that helped to elucidate the goals and methods of intentional development of peace culture and non-violence in the practice of engineering and technology, they are:

- Power being redefined not in terms of violence or force, but of active non-violence. This component builds upon the experience of active non-violence as a means of social change, strategy and its proven success, being consistent with the other components of a culture of peace.
- Upholding peace culture and non-violence in order to build understanding, tolerance and solidarity in engineering and technology practices for developing unity at the centre of deliberations and actions.
- The hierarchical characteristics in the engineering family represent a tactical means and a strategic end engaging people in decision and policy making.

- d) Secrecy and control of information by those in power is replaced by the free flow and sharing of information among everyone involved.
- e) The male-dominated culture of violence and war is replaced by a culture based upon power sharing between men and women exploiting caring and nurturing of women needed for peace building.
- f) Co-operation and sustainable development is replaced for violence and war which are intrinsic with social justice.

#### **A. THE CONCEPT OF ENGINEERING AND TECHNOLOGY PRACTICE**

Engineering is the profession in which knowledge of physical, natural, biological and management sciences, humanities and arts, gained through study and experience is applied with good judgment to develop ways of utilizing economically the materials and forces of nature for the benefits of mankind (Ohika et al., 1999). Engineers apply scientific theory to design, develop and analyze technological solutions. The application of engineering knowledge could be in the areas of conception, design, development, manufacture, selection, testing, adoption, operation, maintenance of machines, implements, equipment, tools, structures and systems aimed at improving the infra-structural, technological, economics and complete mechanization of the activities of humanity. Technology is the body of organized knowledge, tools and machines used by the technologist to manipulate his environment to satisfy his basic needs. Technology comprises of the hardware which are the machines with technical devices and the software of production and services which are the application of certain rules, procedures and scientific principles. However, Ajayi 1995 reported that engineering involves air exploration of the relationships and interactions between man and nature, nature and society. This is because man is constantly trying to mould his natural environment to ensure his survival and reduce his dependence on it. To this end, he fashions various tools and creates structures, devices and systems that seek to control and adapt nature to meet his needs. This relationship is not unidirectional since nature in turn continues to exert its influence on man and society. The environment in which man lives is thus a product of the interaction between man and nature. An interaction in which the practice of engineering plays a major role allowing the atmosphere of culture of peace and non-violence be felt in the practice of engineering and technology. Here nature seems to obey man, tranquility and harmony bridges the interactions of man with nature. The understanding of engineering and technology practices foster this ever-yearning culture of peace and non-violence in nature. If observations and experimental data are coordinated into formulated laws, there would be order and serenity in nature or universe and human lives. Ideas and practices originating from innovative and creative thinking of humans in their attempt to combat the challenges of nature, threatening their survival brings about the culture of peace and non-violence by nature and man. For engineering and technological advancement in human existence, accepted practices must gear up in meeting its demands in terms of the three basic needs of man which are feeding, clothing and shelter through food production, water supply, electricity, industries, building structures (house), life in cities establish governments, protect the environment and transport goods and services from one city to another. It is discernable from the list of engineering technology activities and achievements, showing the level of these practices in a nation are often seen as major index of that nation's level of development. Advancement in engineering and technology practices has chain effects leading to advancement in other sectors of the economy/nation. This led to the grouping of our nations into first world, second world and third world or developed and under-developed nations.

#### **B. PEACE AND NON-VIOLENCE CULTURE EFFECT ON ENGINEERING AND TECHNOLOGY PRACTICES**

Peace has to do with values, knowledge and developing the attitudes, skills and behaviours to live in harmony and tranquility with oneself, with others and the natural environment (Ifeanyichukwu, 2022). To bring about the culture of peace, suffice it to mean that we should have desires for harmony especially in managing problems, confusions and conflicts. There should be adequate critical analysis of structural arrangements that produce and legitimize injustice and inequality. With culture of peace and non-violence, the engineers and technologists have energy, enthusiasm and ability to transform lives and help make the world a better place. Peace is described as the absence of physical and structural violence, the presence of justice. People should explore and be aware of human right laws, contract laws, industrial laws, general laws of this country and should be duly bound to obey them with strictest disciplines as to bring about social justice. Non-violence and social justice shows means or methods to achieving peace by manifesting physical and mental potentials, moving the society ever closer to their realization. Non-violence as a philosophy provides a code of conduct for the practice. Political, economic, social, environmental, technological, educational, physical are all encompassing for an effective peace and non-violence culture in this practice. We must uphold this culture so that we can co-exist among registered engineers of labour, contractors and the public.

Benerjee M. (2015), non-violence is the personal practice of not causing harm to others under any condition. It's reason can be considered as strategic or pragmatic to achieving physical or social change, thereby engendering formation of harmonious mutually beneficial relationships practices holistically. This involves the civic values necessary for consensual peace needed to be inculcated, such as commitment to the common good and to the well being of others; a sense of responsibility to contribute one's fair share of the work, equality and compassion when other members are in need as is encoded in engineers code of conducts and by-laws. Cooperative learning, constructive conflict and engineering technology practices create the process that promote the competences, attitudes and values needed to build and maintain peace and non-violence in engineering and technology practice. The effect is brought to bear by instructional and schooling processes through conducive environment and well structured-course programme learning situations. These eliminate witch-hunting, strife, unhealthy competitions, back-biting and their likes. These effects and impact brings about team-spirit between engineers and Agricultural engineers or mechanical; co-existence among employers of labour and the society etc. we should avoid the dynamics of "survival of the fittest" and dominance. Peace and non-violence culture should be congruent with engineering technology practices, concerned people, should be encouraged to promote this. It is while engaging in co-operative engineering technology practices that many of the attitudes and values needed for building and maintaining peace are inculcated. Engineers being at the helm of affairs with regards to constructions have to use this peace and non-violence effect to penetrate and permeate the society of diverse cultures so as to put up those essential amenities like the roads or even putting their God-given natural resources to good use like the crude oil in the Niger Delta area.

### C. CAUSES OF LACK OF PEACE AND VIOLENCE CULTURE IN THIS PRACTICE

Human beings whom God created are imperfect. No human being is an Island. One interacts with one another, have their likes and dislikes different from another. When human beings interact, there are bound to be conflicts, sometimes as a result of differences existing between two or more persons. Hornby (2010) defined conflict as the interaction of independent people who perceive incompatible goals and interferences from each other in achieving common goals. It is a type of power struggle over differences. These differences can be information, values, desires, beliefs, interests, finances, differing abilities to secure needed resources. It is this conflict that will give rise to violence if not managed properly. According to Jacob (2015), conflict and tension are inevitable conditions of living which are inherent in personal relationships. We have all these as causes of lack of peace and violence culture:

1. Education: When we have no education or low level education achievements, there is no-how we will experience prowess and expertise. We need to be trained being the basic impetus of the human capital for social and economic development as to avert lack of peace and violence culture. We need to re-orient our mindsets through mass literacy programmes to eschew bad conducts.
2. Policy Making: A society or people's policy may contain cause of lack of peace and violence culture. Engineers and technologists not involving themselves in politics deny themselves in following to establish these policies that will proffer conducive working environment for them. This can as well birth weak institutions of governments.
3. Value Upholding: Those at the frontiers of this practice are themselves lacking in values. We may suffer mere symbolism or self deceits stemming from cultural foundation. Corruption and embezzlement should stop for peace and non-violence culture sustenance.
4. Misconception: This is one problem causing lack of peace and violence. It is a situation whereby all the parties involved may not understand the motives of others.
5. Observance of Agreements: In this profession where we have multiplicity of unions, securing observance of agreement already entered into seems difficult sometimes. When we have breaches in agreements or understanding reached, the party in default is calling for lack of peace and violence culture which is not in the interest or good faith of engineering technology practice.
6. Infrastructural Development: There must be an aggressive infrastructural development if we want to nip at the bud lack of peace and violence in this practice. Infrastructure should have its pride of place so jobs can be created or made available for professionals in this profession so as to stop unleashing terror on others.
7. Lack of exemplary leadership of stake holders for example senior engineers.
8. Poverty: We have an adage that an hungry man is an angry man.

9. Funding and provision of research grants.
10. Non-protection of intellectual property.
11. Absence of code of ethics.
12. Dysfunctional Legal System: This can brew anarchy in this sector. Reduction in crisis and increase peace will be experience if all of these are checkmated.

#### **D. PROSPECTS CUM WAY FORWARD OF PEACE AND NON-VIOLENCE IN THIS PRACTICE**

Peace is not naïve and impossible. Peace should not be perceived as silent and non-confrontation thing. Peace is dynamic, active and is overt with its intention to confront, understand and resist violence. It is an indisputable and undiluted fact that engineering and technology practice is threatened by lack of peace and violent culture. Proffered solutions can help in curtailing the excesses of lack of peace and violence culture when we imbibe the spirit of professionalism. We have to respect the sensibility and dignity of others in their different disciplines as we are all dynamic and unique given the freedom to practice without intimidation. Since it is enshrined in the constitution that every person shall be entitled to freedom of thought, conscious and practice should be given equal consideration in our institutions learning professionally to avert any unforeseen conflict that may erupt. No discipline of engineering technology practice should be considered superior to one another, so creating a room for sense of belonging. Any form of agitation should be looked into to avoid escalations of chaos through consultations, dialogue, negotiations, and compromise. We have to build and maintain the interest of engineers and technologists through having partnership with national stakeholders and media. The promotion of critical awareness of engineering and technology to personal, social, economic and environmental well being by way of grant should be encouraged. Engineering and technology relevancies are increased, so having more personnel of sound minds into them. Being a multi-disciplinary profession, we will have more future professionals to solve human problems no matter what their contexts and contents are. Revitalizing and revamping the profession to bring it to world standard where a lot of factors are considered to the benefits of all parties involved i.e being aware of new trends and techniques.

Provisions of funds and infrastructures for research and learning of this profession by government, non-governmental organization etc. here are some points to be looked into:-

- i. Destabilization and stagnating of the country will be checkmated because the practice will be improved.
- ii. Loss of lives and properties will be averted.
- iii. There will be continuity and sustainability with regards to engineering and technology practice.
- iv. Displacement of people will be and job opportunities increase.
- v. Trust, reliability and discipline will be enthroned.
- vi. It is a catalyst to national development, encouraging democracy and stability.
- vii. It removes tension in the engineering profession and builds national interest.

In all these, if well harnessed, the personnel practicing engineering and technology will not be variance with anybody or institution. Man can proffer solution to stop lack of peace and violence culture to some extent, if human activities that are friendly are encouraged.

The profession should be place above any personal or family lives, without which peace, tranquility and development cannot be achieved. We have to keep intensifying effort on how to sustain this peace and non-violence culture in the practice of engineering and technology.

## II. CONCLUSION AND RECOMMENDATION

This work has examined the activities of engineers and technologists with regards to peace and non-violence practice. It is expected that we understood engineering and technology holistically, the effects of lack of peace and violence culture in this practice. We have to avoid the causes of lack of peace and violence culture, embrace the prospects and the dividends cum way forward there-in. it is recommended that we should avoid conflicts and violence in all and by all cause, so as to achieve and obtain the goodies and solutions offered in imbibing engineering and technology proper practices for mankind and the world at large.

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