

## THE RELEVANCE OF PHILOSOPHY IN POLYTECHNIC EDUCATION IN NIGERIA

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### **Abstract**

*Philosophy is the mother of all sciences; it aims at elucidating the principle assumed in all disciplines. Its duty is to lay the foundation for true and valid knowledge for all realities, offering guidelines with regard to how reality should be sought in every area of human experience and adjudicating in conflicting cases concerning what are relevance to reality and what should qualify as mere fiction. Philosophy is the foundation of all disciplines including science and technology. It is an intellectual enterprise that aims at understanding and interpreting the cosmos. As a critique of all disciplines, philosophy rationalises and makes it possible for disciplines to be further investigated in view of ultimate clarity and understanding. Philosophy provides cognitive or rational justification for doing anything. It is disheartening that with these good promises of this science of sciences, its relevance has been taken for granted in Nigeria. Most Nigerian polytechnics do not recognize philosophy and its relevance in the curricula content of learning. This, no doubt, is responsible for the inadequate progress in science in particular and sustainable national development in general. This paper argues that ensuring that all disciplines in Nigerian polytechnics are tailored by genuine philosophical, dialectical and higher rationality will help to solve the problems of ineffective performance and lack of productivity associated with polytechnic education or system in Nigeria. The paper therefore recommends a compulsory inclusion of philosophy in the curriculum of learning of polytechnics in Nigeria otherwise the country may not get anywhere in the yearning for scientific and technological breakthrough.*

**Keywords:** Philosophy, polytechnic, science, technology, sustainable national development, curriculum of learning

### **Introduction**

Liberal arts or the humanities are the oldest educational discipline established in classical antiquity. They include disciplines like philosophy, literature, languages, history, etc. These disciplines are commonly characterized by the idea that knowledge is pursued 'disinterestedly' for its own sake, that is, without

regard to economic or material benefits or considerations. They are generally designed to offer a curriculum that aims at imparting general knowledge and developing general intellectual capacities, in contrast to vocational or technical curriculum. As one of the major disciplines studied under liberal arts or the humanities, and sometimes under social sciences, philosophy is the oldest and broadest in perspective and scope compared to other disciplines. It can be applied to all things to the extent that one can say without contradiction that philosophy is everything, but everything is not philosophy. Philosophy can be applied to everything, but everything cannot be applied to philosophy. One of the areas that requires philosophical application especially to restrain and control its activities is science and technology, the essence of technical or polytechnic education.

Polytechnics all over the world are designed with a view to promote and enhance technological innovation and invention, and industry. Mercer & Ponticell submit that one of the oldest polytechnics in the world, the Ecole Polytechnique was established by Napoleon Bonaparte as early as 1794 and had already nurtured students of sound academic orientation to address the needs of the state or scientific and technical managers. In the United States of America, the oldest technological University is the Rensselaer Polytechnic Institute, which was founded in 1824. It was established for the purpose of instructing persons in the application of science to the common purpose of life. In Nigeria polytechnic education is established with a view to produce manpower required for industrial and technological development of the country. There is a maxim that the fundamental objective of polytechnic education is the training of technical manpower and human resources to achieve stated milestones. The problematic question is whether philosophy is not relevant for such a system. To answer this question, Professor Udoidem tells us how the West which serves as reference point for development in science and technological development understands that importance of philosophy, thereby ensuring that their Technological Institutes all have a department of philosophy. But in Nigeria, the issue is quite different as there is no known Polytechnic or University of Technology that has a department of philosophy. He puts it thus:

Science in the West, which Africans have come to idolize has a history and a process which we Africans can learn from. In the West for example, science and philosophy are found to be inseparable. In the West, there is no major institute of technology that is not backed up with a strong philosophy department with emphasis on the philosophy of science... But

in Nigeria, none of the University of Technology has a department of philosophy (1992:101).

He warns that if there is to be any scientific breakthrough in Nigeria, then, Nigerians must take the study of philosophy seriously. He argues that what we need most in Nigeria and Africa at large today, whether among the empirical scientists or social scientists is philosophically minded scientists. History, according to him, has a lot to teach us; from Copernicus to Galileo, and Newton to Einstein, it is impossible to find a scientist who was not a philosopher. Nigerians and Africans in general may not get anywhere in the yearning for scientific breakthrough as long as science education is left in the hands of teachers who have little or no grounding in the history, philosophy and methodological foundations of science.

### **Meaning and Nature of Philosophy**

Philosophy is a critical and rational inquiry into all things for the reason of proffering solutions to the ultimate questions and problems arising from human experiences and reflections. Its essence is to critically penetrate to understand the vast, varied and complex human and societal problems with the aim of proffering rational solutions to them. Omoregbe (1990) defined philosophy as a rational search for answers to the questions that arise in the mind when we reflect on human experience. It is a science that reflects on the outcome of other sciences with a view to reach some general conclusions as to the nature of the universe, and as our position and prospect in it (Broad 1923). Harry Schofield explains that at different times philosophy brought forth off-springs. These were called science, mathematics, history, theology, etc. And each of these children of philosophy gathered a store of knowledge of its own. When their store of knowledge was great, philosophy called them to show them what knowledge they had discovered. Being older and wiser than her children, she was able to derive great meaning from the knowledge each provided. She herself acquired no factual knowledge, but putting side by side all the knowledge that her children brought to her, she was able to develop an overall understanding and to look at all the variables. Sometimes there were gaps in the overall pattern. On such occasions, she did not produce knowledge of her own, neither did she criticise her off-springs for providing her with sufficient information; instead, she made suggestions that would fill in the gaps, and interpretations that would provide greater coherence in the picture. Philosophy is thus the foundation of all sciences. Other sciences derive their principles, laws, ends and purposes from

philosophy. The principles of philosophy regulate almost all the applications of the sciences. It is an inclusive science; the science of being qua being because it concerns itself with the final, ultimate, most universal, all-embracing principles or causes of the universe.

In addition, and very importantly too, philosophy continues to play a supervisory role over virtually all other disciplines. For example, it is appropriately the task of philosophy as a second order discipline to inquire into, and critically evaluate the theoretical foundations, moral content and epistemological credentials of science (Nbeti 2014: 5).

Philosophy is the science of all sciences because while science looks for immediate and specific causes of things, philosophy searches for the ultimate and most universal causes of things. This means that if science is the knowledge of things and their causes, philosophy is the knowledge of things and their ultimate of fundamental causes. Hence, philosophy goes beyond science, to analyses its concepts and methods. Philosophy is described as the science of first principles of being or reality because it studies those principles that are at the very beginning of thinking about being or reality. These principles are so important because they are truths upon which scientific reasoning is based. They include the principle of non-contradiction, the principle of identity, the principle of sufficient reasoning, the principle of excluded middle and the principle of finality.

Hence, philosophy without sciences is inadequate. Science, too, are incomplete without philosophy. Sciences are isolated from one another unless they are co-ordinated and unified by philosophy. Philosophy, therefore is empty without science, and science is blind without philosophy. They are complementary upon, each other. The sciences without philosophy are an aggregate without unity, a body without a soul; philosophy without the sciences, is a soul without a body, different in nothing from poetry and its dreams (Sinha 2006: 22).

However, we find parts of the above view unfortunate in the face of what philosophy actually is; it seems to be based on a very narrow understanding. To say that philosophy without science is empty, inadequate and a body without a soul is a complete misconception of it. Philosophy is holistic, total and absolute in itself, while science is not. Philosophy does not need science in any way, rather science needs philosophy in many ways. Science qua science does not have any ontological basis, that is, it does not exist as anything. What makes something

scientific is not in content but in method. Everything is science if and only if it is subjected to scientific method. Only method makes science scientific.

### **Polytechnic Education in Nigeria: its Evolution and Purpose**

Polytechnic education sprang up as response to the Industrial Revolution in the early 20<sup>th</sup> century. With the emergence of this education, higher education began to shift focus to the teaching of agriculture, science, and engineering rather than the historical emphasis on the liberal arts. The term *polytechnic* is a French word *polytechnique* from the root word *poly* which pertains to many (technical) subjects. It smacks of many arts and hence embraces the school of applied sciences and the industrial art majorly (New International Webster's Encyclopedic Dictionary of the English Language, 2003). Polytechnic, according to Hornby (2005:1124), is a college for higher education, especially in the scientific and technical subjects. The word *technical* is used in the sense of tools to achieve specific scientific purpose. Polytechnic education focuses on hands-on experience and technology-related courses. Fafunwa (1974: 195-196) traces the evolution of technical education in Nigeria to the British and later these technical colleges were upgraded to polytechnic status awarding diploma in the applied sciences and allied courses.

The evolution of polytechnic in Nigeria, according to Sanni (2009: 511) is traced to 1932 when the British Colonial Government experimented with the concept of technological education with emphasis on the "training of professional character with great attention devoted to practical manipulation of skills in the area of engineering, medicine, survey, forestry, teacher training and commercial studies". They saw a nexus between technical education and national development. With the Federal Government Decrees No. 23 of 1969, the Yaba High College was established as an autonomous institution charged with the responsibility of providing instructions and teaching in technology relevant to Nigeria's needs and research. In 1979, the Federal Military Government established seven Federal Polytechnics with the mandate to produce middle level manpower. Later, the Federal Government established Monotechnics. From the National Board for Technical Education, recent statistics indicate that there are 12 Federal Polytechnics, 21 Federal Monotechnics, 38 State Polytechnics, 16 State Monotechnics and 18 private Polytechnics. Polytechnic education as observed by Ukpai (2017), is classified under the tertiary level with the following objectives:

- i. To contribute to national development through high level relevant manpower (human resources) training.

- ii. To develop and inculcate proper values for the survival of manpower (human resources) training.
- iii. To develop the intellectual capacity of individuals to understand and appropriate their local and external environments
- iv. To acquire both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society.
- v. To promote and encourage scholarship and community service
- vi. To forge and cement national unity and promote national and international understanding and interaction.

Polytechnic education is one of the institutions of higher learning, which is influenced particularly to offer technical programmes for the scientific and technological development of a nation. Its emphasis is on technological and scientific innovations. It is established to train high level technical manpower and provide teaching and learning in science and technology, the essence of which is to contribute to workforce and economic growth to meet the need of the country. It is the kind of education that exposes the students to practical industrial work experience, which qualifies them as skilled professionals, technicians, technologists, and therefore self-reliant and enterprising. It conducts applied researches for the purposes of developing new knowledge and technologies to address specific infrastructural deficits or problems. Such researches focus on the discovery of solutions and the development of educational programmes that disseminate knowledge and technology to an identified clientele. An ideal polytechnic education strategic plan ought to emphasize an interdisciplinary learning or convergence, experimental and applied problem-based learning for community and global engagement and sustainable national development. They are designed to blend theory and practice to solve “real world problems for the benefit of society”. The students are trained or prepared to be innovators and entrepreneurs. This is responsible for the objectives of technical/ polytechnic education in Nigeria as articulated in the 1998 National Policy on Education. Ukpai (2017) captures these objectives thus:

- i. To promote training manpower in applied sciences, technology and commerce particularly at sub professional grade
- ii. To provide technical knowledge and vocational skills necessary for agricultural, industrial and economic development

- iii. To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man.
- iv. To give an introduction of professional studies in engineering and other technologies
- v. To give training and impart the necessary skills leading to the production of craftsmen, technicians and other enterprising and self-reliant professionals
- vi. To enable young men and women have an intelligent understanding of the increasing complexity of technology.

Polytechnic education in Nigeria centres mostly on experimental learning favoured by John Dewey and grounded in making meaning from direct experience. It pays greater emphasis in science and technology, engineering and mathematics education. It would therefore not be wrong to say that polytechnic education in Nigeria is marked by utilitarianism. This is as opposed to the liberal arts or humanities, which is traditionally designed to impart general knowledge while developing students' intellectual capacities. This shift or dichotomy has negative impact on the students in the country

### **Relevance of Philosophy in Polytechnic Education in Nigeria**

A critical analysis of polytechnic education in Nigeria will reveal that irrespective of its complex quantitative and technical content, there is the glaring need for the teaching and learning of philosophy. Nweke and Nwoye (2016: 1) were right when they observed that "education is a life-lasting practice that has interpretation in purpose, type and level. It is a way of socializing people into the community for sustaining customs and traditions in addition to the modification or changing of same in line with extant ideologies, ideological expansion or reformation". A well-structured polytechnic course content is one that provides students with technical knowledge as well as holistic knowledge that will equip them to fit into a larger society and cope with the challenges arising therein. Polytechnics need to produce refined minds systematically and rigorously drilled in the tradition of critical thinking, logical reasoning and moral soundness, otherwise the country will have young men and women who will act in ways reminiscent of the French émigrés who were described as "learning nothing and forgetting nothing".

### **Independent Critical Thinking**

The essence of technical education cannot not be achieved without a basic philosophical study and framework. Such foundational framework must be systematically critical and logical. It is a general study in philosophy that is tailored to enhance or produce in the students the knowledge, skills, and proper temperament required for the enhancement of their academic pursuit in their different specialties. Criticism is an essential requirement in philosophy. It is informed by the fact that we cannot routinely trust our perception and memories. Philosophical criticism thus serves as an essential intellectual safeguard against drawing of unwarranted and illogical conclusions. In other words, it helps one to prevent the acceptance of unexamined beliefs and dogmas. Philosophy is highly sophisticated with the rigor of critical thinking which has the advantage of enabling whoever imbibes it to excel in intellectual engagements and daily communicative skills. It provides the opportunity for critical self-examination. This is important in order to avoid inherent danger of foisting on and stunting ideas. Philosophy trains the human mind to develop critical thinking ability. According to Socrates “that a man seek and possess knowledge so that he can free himself from the tyranny of unverified opinion, which may turn out to be false at any moment”. To train a student in philosophy is simply to train a critic. Philosophy undertakes to attack errors and contradicting ideas of society. It helps in the development of independent thought and critical judgement. Socrates’ existential assertions: “man know thyself”, “an unexamined life is not worth living” explain this better. The philosophy behind these assertions has far reaching implication, especially on the importance of self-knowledge, self-reflection, self-discovery and recovery, the essence of which is for man to escape from the clutches of ignorance and inauthenticity. According to Erasmus, “fruitless is the wisdom of him who has no knowledge of himself. This is because nothing destroys one more than erroneous beliefs, assessment and overrating of self. Udoidem writes:

If I were to be asked what I thought students would need most in preparing for the 21<sup>st</sup> century, my answer would be that they needed to cultivate the capacity for critical and creative thinking, a sense of judgement and the stamina to stick up for their beliefs. Here philosophy can lend a helping hand (1992:111).

Critical thinking ability enables the bearer to arrive at a good judgment which is a crucial part of decision making. For instance, in questioning and scrutinising one’s ideas or assumptions and those of others, one has to clearly analyse to

discover good reasons or points for his decisions or choices of actions. He needs philosophy to arrive at a rationally justifiable or warrantable decisions. A scientist who is equipped with philosophical reflective attitude will examine calmly and dispassionately all the aspects of his discovery, weighs the pros and cons, visualizes the benefits and consequences of the discovery and takes a decision whether to continue or not based on a critical objective assessment of the consequences of such discovery on the present and future. This is what it means to be orderly and logical. According to Otakpor, "No scientist, historian, lawyer, engineer, etc can afford to present his/her work in a disorderly manner and expect to be taken seriously because to be logical means to be orderly" (2000:5).

Life that is logical is consistent and well organized. Life devoid of logic is whimsical, erratic, disorganized and disorderly. Life is logical if any action, decision, or attitude is appropriate in relation to a relevant occasion. It is illogical if the contrary is the case (Onyeocha 1998: 82).

Science and technology have their revolutionary basis and development from philosophy. The modern society, the economic and industrial layouts, the political ambience and the human social order also confer enormous philosophical challenges for proper understanding, interpretation, manipulation, control and 'revolutionalization'. Philosophy therefore is a very important lubricant or ingredient in the anatomy of social change, moral revival, political stability, freedom, justice and good governance.

### **Problem-solving Propensity**

The ability to solve problems is part of the crucial essence of any education, but unfortunately the reverse is the case with most students in our clime. Students are rarely taught how to solve critical and complex life problems in school. Philosophy offers framework for problem-solving; it enhances one's problem-solving capacities in a way that no other discipline does. Innovation in technical education alone cannot help any individual or society that wants to develop, it must be supported by problem-solving capacity. Philosophy enhances problem-solving through sequence of observation, intuition and logic. Philosophers are trained to solve complex fundamental problems by the methods of analysis, synthesis and synthetic-analytic methods. It enables one to organize his ideas to deal with issues of value, and to extract what is essential from masses of others available. Philosophical knowledge helps in the analysis and synthesis of concepts, ideas and problems. In research, philosophy is known for its

contribution in one's capacity to frame hypotheses, undertake research, and put problems into manageable form. Philosophical thinking strongly emphasizes clear formulation of ideas and problems, selections of relevant data and objective methods of assessing such ideas and proposals.

### **Tolerance and Open-mindedness**

Many people are brought up with a set of beliefs and values, some of which are dangerous to their lives and survival. Tolerance or open-mindedness is what is required for critical and rational thought. It leads to self-discovery, expansion of consciousness, and self-renewal. It nurtures power of individual achievement and self-esteem. Its values in the private life of a person is incalculable while its benefits in one's public life is innumerable. When one is open-minded, it becomes very easy for him to see all the factors that contribute to his problems, thereby making solution possible. It shows that one is considerate enough to see things from others perspectives, a quality of an educated person. When we are open-minded we are receptive to new and perhaps better ideas, arguments, information and beliefs, and the willingness to correct or review outdated or incorrect beliefs and ideas. Indeed, this is a positive attitude, but one of the most difficult things to do. One of the first things philosophy teaches is open or broad-mindedness. In fact, it will be difficult or impossible to be a student of philosophy without first and foremost concealing yourself from any form of prejudice or misconceived beliefs and opinions. Philosophy makes one open or broad-minded; it broadens one's intellectual horizon and understanding and enhances self-knowledge and a sense of direction. Philosophy assists in making one's thought and perception of reality to be expanded. It provides a holistic view of looking at and assessing the world and man's purpose in it. Philosophy is an encyclopaedic discipline. It is comprehensively broad and totally holistic.

### **Strengthening Moral Architecture**

Philosophy strengthens one's personal moral architecture. It awakens the moral conscience of the people and the government. Through its branch known as Ethics or Moral Philosophy, it teaches about character moulding of the individual through the exposition of moral principles that will enable one to live a good and morally upright and decent live. The need to compulsorily study philosophy in polytechnics in Nigeria is predicated on the fact that those who engage in higher studies have the propensity of becoming future leaders and since good leadership ought to depend on the good character dispositions and ethical considerations, they should have a strong foundation in philosophy,

particularly moral philosophy. Philosophy cultivates the knowledge, intellect and training needed to govern. It cultivates skills that leadership or ruling requires, such as, a good knowledge or understanding of man and his complexity or dynamism, a good understanding of the society and then, the economy. A good leader is one who does not only act to preserve the lives of his subjects, but also transforms them as human beings in the most proper sense. A good knowledge in philosophy enables one as a leader to instil or cultivates justice, fairness, respect for human rights and dignity as well as accountability. A good background in philosophy, especially in socio-political philosophy, enables one to properly understand the concept of justice, act and administer same to people. A philosopher is by training supposed to have a good character, a calm disposition and a sound mind. By training, he is supposed to have the qualities of a good ruler, namely, truthfulness, promise-keeping, discipline, forthright and courage. He should not be petty or mean, but public spirited and wise. He should always go beyond material considerations. Omoregbe corroborates with this view when he writes "Remove morality, remove honesty and public accountability, and what are governments but gangs of thieves and treasury looters" (1993:127).

Philosophy, through its branch known as Ethics, enables one to be able to formulate principles that will assist him shed light on the various choices and impacts brought about by the discoveries of polytechnic education, especially with regards to science and technology. It serves as a catalyst that intimates people on the implications of scientific and technological progress. There is no doubt that the application of modern scientific and technological discoveries have brought about industrial and chemical pollution of the environment. Science and technology have made devastation possible on the large scale with the massive production of weapons of war, including those that can destroy the human world in a matter of seconds. According to Julian Huxley:

In order to make science contribute to peace, security and human welfare, it would be necessary to relate the applications of science to a general scale of values. Guiding the development of science for the benefit of humanity will therefore imply the quest for a restatement of morality... in harmony with modern knowledge (1946: 41).

In the same vein, Strauss writes that in a society without morality, we cannot act morally anymore; we cannot live anymore as responsible human beings. The inescapable practical consequences is nihilism and underdevelopment. (1953: 6).

### **Philosophy Makes One Insightful**

According to Alfred North Whitehead, Philosophy is an insight and foresight and a sense of the worth of life. Life compels us to make choices and to act on the basis of some scale of values. We have to decide issues regarding truth and falsity, beauty and ugliness and of right and wrong. The search for standards and goals require us to look inwards and be insightful. We need to always examine the intellectual and spiritual foundations of our life. And if we have to decide wisely and act consistently then we need to discover values and the meanings of things. The rate of crime and criminality, suicide, abortion and other vices among young people is the result of un-insightful life and living. Philosophy enables one to be insightful in life, make right choices and decisions and live a good and responsible life.

### **Conclusion**

From the forgoing, it is crystal clear that meaningful education is for the total man. One of the avowed objectives of polytechnic education is to train technical students and equip them with appropriate skills to fit into the larger society. Such a task is arduous, hence the need for an integrative approach hinged on interrelatedness of disciplines. While the pivotal role of science and technology in national development is acknowledged, it must be stressed that in keeping with the global practices, a holistic approach must be adopted to expose technical students to the ideological orientation, wisdom and the capacity to resolve conflicts which can be guaranteed through philosophical knowledge. Sound reasoning, critical thinking, well-constructed views, mature judgement, strong sense of relevance, an enlightened consciousness, problem-solving ability, analytic and synthetic capacities are some of the benefits of studying philosophy. Philosophical training is required for the development of skills relevant for career development. It is a good preparation for positions of responsible leadership and management. This explains why regulatory bodies of University Education in the country recommend a mandatory course in philosophy and logic for all undergraduate programmes. Science and technology will not make any meaningful progress when students in our polytechnics are left with no grounding in philosophy. In conclusion, since the strategic role of philosophy cannot be overemphasized, it is hoped that polytechnic education in the 21<sup>st</sup> Century Nigeria will proffer pragmatic solutions to the teething scientific and technological problems in keeping with the country's National Policy on Education and Sustainable Development Goals. To achieve this, we recommend an urgent inclusion of the department of philosophy in all polytechnics across

the country. Among the courses to be taught in this department are general introduction to philosophy, logic and critical thinking, ethics and the society, philosophy of science, and philosophy of technology among others.

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