

**ARTIFICIAL INTELLIGENCE (AI) AND
AFRICAN INDIGENOUS INTELLIGENCE (AII):
A CRITICAL SYNTHESIS TOWARDS THE
DECOLONIZATION OF THE AFRICAN MIND**

By

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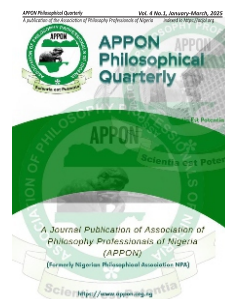
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ABSTRACT

Prior to Western colonization of Africa, indigenous intelligence was the means of ordering African societies. African Indigenous Intelligence (AII) displayed in traditional wisdom, knowledge, skills, crafts and innovative practices, were developed, utilized, and transmitted by Africans from generation to generation. These reflections of indigenous intelligence and their ultimate foundation were unfortunately displaced and replaced through Western intelligence and its resultant technologies. Artificial Intelligence (AI) is the innovative robots and Self Service Technologies (SST) which has replaced human functions in ingenious ways. AI, especially as built from Western intelligence and or episteme, fosters Western coloniality and neo-colonialism that is portending developmental retrogression, African ‘unfreedom’ and dependence. These consequences call for a complementary synthesis of AII and AI towards a more indigenous AI that is capable of advancing African freedom, technological independence, and answering African indigenous questions, needs, and authentic development. But how did indigenous intelligence sustain African continent prior to colonialism and AI era? How did the displacement of AII by Western intelligence affect the African mind, hence the need for its decolonization via the synthesis of AII and AI? How would AII and AI be complementarily synthesized towards decolonization of the African mind? This treatise interrogates these critical questions and argues for the synthesis of AII and AI towards complementary decolonization of the African mind.

Keywords: African indigenous intelligence, Artificial intelligence, African mind, Decolonization, Development, Freedom, Independence,

Introduction

Intelligence is native and universal among human beings. On this ground, some scholars taught about ‘native intelligence’ naturally displayed by diverse people in

diverse environments.¹ It is through this indigenous intelligence that human culture is crafted, and human societies and its processes are shaped and ordered. The episteme that has driven development in

¹ Tom Inyama, “The Concept Logic,” in *Logic & Critical Thinking: A Guide to Problem Solving*, eds. E.C Ezeugwu and P.C. Ejeh (Enugu: His Glory Publications, 2012), 16.

pre-colonial African societies emanates from this indigenous intelligence. But the question remains: why has African indigenous intelligence (AII) not continued to evolve innovative technologies like those of China, the Global North and their allies? Is it only the Western and Chinese minds that are then imbued with superior intelligence that evolves technological innovation like AI? Is it possible that science; and by extension, technology is a Western creation as the philosopher Hume claims? John Immerwahr and Michael Burke document that the thinker David Hume taught that the black Africans have no mental capacity for modern technological invention and ingenuity, hence they are inferior beings.² But since there was no record of Hume being in Africa, his submission contradicts the principle of empiricism he represents. This is as this principle limits its scope of knowledge to the sensible; implying that to make claims without directly observing the real situation is a contradiction

Yet, the fact that Africans have become onlookers in the fourth Industrial Revolution (4IR), in which AI is central seems to support the submission of Hume. African path to innovative science and technology have rather met colonial and neo colonial obstructions. But, what still can Africa do to become a player in the trending enterprise of science and technology despite arriving late at the scene? These critical questions predicate on the reality that “aptitude for science and technology is a natural gift to all men, tribes and tongues.”³ Hence, Africa has the capacity and chances of developing indigenous AI that would be a

synthesis of Indigenous Intelligence and Artificial Intelligence. This thesis contends that this indigenous technological innovation is a viable means of decolonizing Africa mind. The imperative of this decolonization reclines on the fact that the proliferation of AI in Africa disseminates foreign intelligence, episteme and culture. More so, the AI machines disrupt and transform socio-economic activities across industries in Africa, yet evidence emerges that the developers (sources) of these AI systems largely reap the benefits.⁴ Decolonization in this context is however not to recreate science and technology but to engage in indigenous technological innovation relying on African autochthonous environment, intelligence and episteme as framework. This task has become germane as Western indigenous intelligence and culture, and those of some Asian countries are now the innovated AI proliferating in the continent.

Unfortunately, instead of technologically re-engineering indigenous intelligence, African world is being structured in contingent upon the gains of these foreign intelligence and technology visible in the proliferation of AI. So, this now globalized machine culture predicating on Western intelligence and episteme has opened a new vista of interaction among people and nations as it has “narrowed the bridge that once separated nations of the world due to time and space constraint.”⁵ In fact, AI-driven systems and solutions are becoming common across the continent. In Kenya, it is being developed to assist farmers in agricultural issues and decision-

² J. Immerwahr & M. Burke, “Race and Modern Philosophy Course,” *Teaching Philosophy* 16, no. 1 (1993): 24.

³ Evaristus Emeka Isife, “African Environmental Ethics and the Challenge of Decolonizing Science and Technology for Africa’s Growth and Development,” *Aku: An African Journal of Contemporary Research* 4, no. 1 (2023): 39 & 41.

⁴ Rachel Adams, “AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent,” in *Policy Brief* 8 (Berlin: Africa Policy Research Institute, 2022), 2.

⁵ Evaristus Emeka Isife, “A Critical Analysis of Globalization, Postmodernism and the Fate of Africa,” *Nigerian Journal of Philosophical Studies* 1, no. 1 (2022): 1.

making about timing of planting and optimal harvest. In Nigeria, it is being employed to refine the skills of young data scientists in machine learning and advancing AI-driven technologies and industries. All over Africa, AI is now being employed to support businesses, human talents and leadership. Yet, the active players behind these AI operations are the foreign Tech companies and their home countries whose indigenous intelligence, episteme, culture and interests are coded in these machines to deepen the neo colonization of Africa.

Developed in foreign environment and coded with foreign data, AI sieges the African mind and deepens the marginalization of the indigenous intelligence. In the knowledge of this, Rachel Adams laments that Africa remains dominated by foreign technology and AI Firms that do not necessarily support the realization of national developmental priorities.⁶ The dire situation of Africa is that these machines has eroded Africa of her potentials and values as she has remained a key consumer continent instead of a key player continent as regard AI technologies. The gains notwithstanding, the larger population of Africa and her socio-cultural environment has being completely cut off from the conception, manufacturing, expertise and the needs that necessitated the AI technologies. Thus, Africa is playing a central role in the global AI supply chain, yet AI technologies dominate the continent with technological products and solutions that are largely incompatible with local needs and developmental priorities.⁷ This makes imperative the decolonization of the African mind with a more viable AI; a synthesis from AII that can function based on realities on African environment. This is a

complementary venture and all indices show that the present AI has vast potential to facilitate and revolutionize AII towards achieving technological intelligence that will be truly African and serve African needs.

Conceptualizing African Indigenous Intelligence and Artificial Intelligence

African Indigenous Intelligence (AII) encapsulates the indigenous ability of the Africans to comprehend; understand and profit from experience. AII thus, boils down to the indigenous ability to comprehend; understand and profit from the laws and principles of nature, mathematical equations and measurement that accompanies science and engenders technology. AII, too depicts the capacities of the Africans to functionally understand, gather and apply the product of experience (knowledge) derived from their encounter with nature and environment in skills and technology that aid work. Referring to this ability (intelligence), Ngozi Nzenagu records that “ancient African communities extensively exploited their environment which gave rise to their mastery of iron working with arts, textile weaving and dyeing, herbal drugs, agriculture etc.”⁸ In this direction, knowledge is the product of intelligence. Hence, AII also represents the systematized applicable knowledge that prevailed in various parts of the African continent prior to Western colonialism.

Particularly, AII was outstandingly reflected by traditional sages, craftsmen/women, musicians, herbal doctors, farmers, etc in their diverse arts that displayed their knowledge, wisdom of nature and apprehension of its laws. This implies that AII has the responsibility and

⁶ Rachel Adams, “AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent,” in *Policy Brief* 8 (Berlin: Africa Policy Research Institute, 2022), 3.

⁷ Rachel Adams, AI in Africa, 1.

⁸ Ngozi Ezenagu, “The Blight of African Indigenous Technology in the 21st century: The Way Forward,” *Journal of Tourism and Heritage Studies* 3, no.1 (2014):59.

operation of gathering information or knowledge. The wealth of knowledge or information gathered was then interpreted based on intelligence for the development of the traditional society. Horsthemke alludes to the reality of AII contending that “the motivation for a focus on indigenous African knowledge, science and technology is fairly easy to explain especially when one considers the denigration, suppression and exploitation of traditional knowledge systems during and even after colonialism.”⁹

Artificial Intelligence (AI), on the other hand, is the non human intelligence visible in computerized Apps, programmes and robotics that are developed to perform specific tasks. AI is thus the coded intelligence that aids robotics in working sequentially. This coded intelligence enables robotics and computer systems to address well-defined isolated problems sequentially and faster. As a coded intelligence, AI enables the machine's capacity to improve its performance without relying directly on human drive to complete a job. This makes AI, some computer designs, computer programmes and computerized technologies that are programmed to behave intelligently. In this sense, AI induces robots and technological systems to sense their surroundings (environment), situations or conditions, reason them, make sense of them and act or respond to them as required. All these meanings describe the fact that the capacity of a system or technological device to independently learn, comprehend and process data to achieve certain goals through flexible adaptation is artificial intelligence.

From these understanding, it means that AI consists of machines, computerized programmes and systems that execute things

that would have required intellect and manpower if done by humans. Going by this, AI denotes cognitive devices or systems that replicate cognitive functions and carry out physical tasks like learning (taking instructions), data assessment, processing and management, communication, situation predictions, manipulation and movement of items, sensing and perception, problem-solving, decision-making, and innovation that are associated with human and human intelligence (HI).¹⁰ This is why AI is generally viewed as machines that think and act like human beings, or computerized programmes and intelligent entities that portray or represent human intelligence and knowledge through reasoning and language. From these indices, AI points to some machines programmed to mimic human intelligence in facilitating jobs better, creating greater efficiencies and driving economic growth. AI is thus a programmed device imbued with the capacity (intelligence) to more efficiently perform specific roles and tasks currently performed by human beings.

Some Aspects of African indigenous intelligence

In many ways, attempts to systematize intelligence appeared in various parts of Africa prior to Western colonialism. These attempts were glaring in astronomy and mathematics systematized in the Dogon People's (Mali) knowledge of Sirius, Yoruba *Ifa* and Igbo *Afa* mathematical divination processes. The *Ifa* (Yoruba) and *Afa* (Igbo) divination processes, for instance, depict some logical processes. These logical processes are visible in the specialized communication signs that

⁹ Kai Horsthemke, “Indigenous (African) Knowledge Systems, Science and Technology,” *The Palgrave Handbook of African Philosophy*, eds. A. Afolayan and T. Falola (2021): 2 -3.

¹⁰ Agyemang Kwasi Sampene, Fredrick Oteng Agyeman, Brenya Robert & John Wiredu, “Artificial Intelligence as a Path Way to Africa's Transformations,” *Journal of Multidisciplinary Engineering Science and Technology* (JMEST) 9, no. 1 (2022): 14940.

symbolically generate knowledge that not only relate to the past and future but determine social action when decoded into common language. On this ground, Ayodele refers to *Ifa* and *Afa* as sign system that “transmit meaning from the finite province to the world of everyday life.”¹¹ The harmonization of forces involved in this practice to unfold a cause or depict the past and future was indeed a display of indigenous intelligence.

The practice of medicine and healing is a pointer to the potent of AII. Examples of these practices laden with indigenous intelligence were the traditional herbalism, such as the Devil’s Claw, Hoodia, Yoruba Orisha and Maasai traditional medicine. For the African, sickness is a threat to life but healing is tantamount to giving life. Africans value life and this value underscore the importance they attached to traditional medicine and healing. Herbal practices require the knowledge of herbs and their uses, as well as some amount of intelligence necessary for its brewing and correct application. The knowledge and intelligence surrounding herbal practice is often bequeathed from a master to an apprentice, or inherited from either side of the maternal or paternal lineage. The intelligence and knowledge of herbal practice or traditional medicine is still displayed by some specialists and patronized by many people even in present Africa.

The management of the ecosystem was also another form of systematization of AII. Such indigenous intelligence was visible in the Maasai wildlife management, Zulu traditional agriculture and the indigenous forest management in the Congo basin. Throughout history, nomads have reputation

for their intelligence gathered from the experiences as they wander the environment. The nomadic Massai of East Africa was no exception. With their accumulated intelligence, the nomadic Massai “dominated the grassland of the Great Rift valley in present-day Kenya and Tanzania.”¹² Indigenous intelligence also showed in their use of the vast, dry grasslands as pastures for their animals and crop production. AII was also systematized in various philosophies that underlined social organization and governance that ordered African societies in pre-colonial time. Such philosophies like *Ubuntu* in Southern Africa, *Ohacracy* driven by the Igbo council of elders in Eastern Nigeria and Ashanti confederacy’s democratic system in Ghana, all stood as products of AII that command reference in modern time. Through these social organizations and the resultant quality governance, laws and order were maintained, community affairs were managed and people’s wellbeing was guaranteed.

Nevertheless, it was the same indigenous intelligence that led to the ancient achievements like Egyptian pyramid’s construction, Nubian (Sudan) arches and architecture and Zulu (South Africa) basketry and weaving. Between 3000 and 2500 BC for instance, the Egyptians erected pyramids in an innovative form glaring in improvement from the earlier edifice.¹³ Thus, the ancient Egyptians in display of intelligence innovated from pyramids to Tomb chambers (Sphinx) hewn out of gigantic solid rocks. Similar aspect of AII reflected in Nubian arches and architectures; a civilization that flourished from 6000 BC to 350 AD.¹⁴

¹¹Ayodele Olalekan Shotunde, “The Logic of *Ifa* literary Corpus in African Philosophy,” *LASU Journal of Philosophy* 2, no. 1 (2019): 132.

¹²Perry Marvin, Allan H. Scholl, Daniel F. Davis, Jeannette G. Harris and Theodore H. Von Laue eds., *History of the World: The Modern Era* (Boston: Houghton Mifflin Company, 1994) 598.

¹³Quest George, *The March of Civilization* (Ibadan: Spectrum Books, 1983), 10.

¹⁴Innocent Onyewuenyi, *The African Origin of Greek Philosophy: An exercise in Afrocentrism* (Nsukka: University of Nigeria Press, 1994), xi.

Another display of AII was in the aspects of cognitive sciences and philosophy. Some of the examples of these cognitive sciences and philosophy are the Yoruba *Ifa* and Igbo *Afa* philosophical practices. Others are cosmology and metaphysics of the Dogon (Mali), the interconnectedness of the *Ubuntu* (Zulu, South Africa) and the relatedness of *Umunna* (Igbo, Nigeria). As a product of AII, the phenomenon of cognitive sciences and philosophy among many Africans embed on unity of forces and realities, and extended self. This unity of forces and realities, and extended self, further premise on the larger correspondence of the parts to the whole. The parts as microcosms largely reflect the whole that is the macrocosm. This enables and drives cognitive sciences and philosophy as visible in Yoruba *Ifa* and Igbo *Afa* systems. The cognitive philosophy among the Igbo is also visible in their realization of the social nature of man which they reflect in communalistic practices.¹⁵

Moreover, AII is reflected in the study and use of African indigenous languages. It even reflected more in the sign languages and tonalities invented in various parts of Africa to argument indigenous languages. Instances of these indigenous tonal system and sign languages are the Yoruba language's tonal system, South African sign language (SASL) and Ghanaian sign language. The tonal system unfolds in the use of the pitch of the voice during the formation of words and speech. Sign languages, on the other hand, are beautiful and expressive languages that use hands, body and face to convey ideas, information and share news in an illustrative manner.

AII and the Development of Pre-Colonial Africa

Pre-colonial Africa showcased remarkable achievements in various areas that demonstrate African indigenous intelligence and ingenuity. This indigenous intelligence was indubitably the catalyst of practical application of intelligence, knowledge and technique to productive processes. The AII induced development prevailed in Africa from the dawn of human history as "evidently proven with the discovery of early human remains in the Great Rift valley with tools."¹⁶ Attempts to systematize indigenous intelligence appeared in Egypt. Hence, the Egyptian mystery schools are even referenced as the forerunners of the present day Universities. Those mystery schools conducted studies and researches in astronomy, alchemy, geometry, surveying, religion, ethics and lots of other disciplines.¹⁷ The Egyptians were not only able to perfect a system of writing and calendar, their indigenous intelligence gave rise to many scientific developments in agriculture, architecture and medicine visible in irrigation, embalmment, surgery and pyramids.¹⁸

There were also thriving civilizations in ancient Egypt, Nubia, Axum and Great Zimbabwe. In these parts of Africa were large and complex state systems that supported division of labour and allowed the growth of science, engineering of public works and unimaginable technologies based on indigenous intelligence. The magnificent ruins of the temples at Karnak and Luxor, for instance, coupled with other monuments like the obelisk (Cleopatra's needle) testify to the Egyptian architectural prowess.¹⁹

¹⁵ Pantaleon Iroegbu, *Treatise on the Human Person*, (Owerri : Eustel Publications, 2000), 109.

¹⁶ Ngozi Ezenagu, "The Blight of African Indigenous Technology in the 21st century: The Way Forward," *Journal of Tourism and Heritage Studies* 3, no.1 (2014):29.

¹⁷ Chukwudi Ezeugwu, "Historical Development of Science," in *History & Philosophy of Science*. eds., E.C. Ezeugwu, C. E. Nnadi, & C. U. Udabah (Enugu: His Glory Publications, 2015), 31 & 33.

¹⁸ Burton F. Beers, *World History; Patterns of Civilization* (New Jersey: Prentice Hall, 1991), 31.

¹⁹ Quest George, *The March of Civilization* (Ibadan: Spectrum Books, 1983), 12.

There are also indubitable references to the Egyptian thriving civilization in the areas of agriculture, architecture, writing, painting, spinning, weaving and metal fabrication. The indigenous intelligence of people in the kingdom of Axum (now in Ethiopia) was behind their success in agriculture and trade within the Mediterranean world and Asia.²⁰ Similar civilization via indigenous intelligence was recorded in Nubia and the kingdom of Zimbabwe. Burton Beers documents that the indigenous intelligence of great Zimbabwe was made visible in the large complexes, stone houses, temples and palaces built by the pre-colonial people.²¹

Indeed, popular in sophisticated knowledge systems like astronomy, mathematics and herbal medicines were respectively demonstrated by the Dogon, Egyptian and Igbo Africans. These sophisticated knowledge system indeed led to tangible developments that stood the test of time. These sophisticated knowledge systems could also be said to have reached its highest level in ancient Egypt. For the early Egyptians combined all forms of learning. This was why the famous Egyptian scholar Imhotep majored as a priest, author of wise proverbs, physician, architect and civil Engineer.²² With these sophisticated knowledge systems, pre-colonial Africans were able to achieve a balance or harmony of opposing beings.

The pre-colonial development of Africa via indigenous intelligence was also visible in crafts and industry; textiles, weaving, wood carvings, and other rich cultural heritages preserved in oral traditions. Pre-colonial African societies were places where culture was indeed part of daily life. The cultural heritages were transmitted via oral traditions while skills were bequeathed to

the new generation through apprenticeship. Musicians and dancers eulogize these cultural heritages at funerals, weddings and other ceremonies for entertainment and informal education. Africa developed a wide range of musical instruments and cultural materials like horn, xylophone, bells, indigenous guitar, artifacts, etc. Story telling was another means through which pre-colonial Africans sustained their rich cultural heritages.

AII and colonization of Africa

The potent of AII in pre-colonial Africa was felt. Yet, it did not translate into formidable technologies; hence it was less difficult for the colonists to make inroad into Africa aided by their more sophisticated technology. The devastating blow of colonialism is easily located in the disruption of indigenous knowledge systems. The colonists denigrated and despised the indigenous knowledge systems to enable their continuing domination and plunder of the continent's resources. This disruption extended to purposeful questioning of the assumptions in indigenous knowledge systems using Western practices as paradigms. Thomas Kuhn admits that there is even a scientific community in the West that not only accepts a paradigm but defines and decides what paradigm must be accepted and applied.²³ Such colonial community had its influence felt even in Africa. Disruption of indigenous knowledge system was indeed part of the Western craft to situate permanent domination of the psyche of the Africans.

With the disruption of the indigenous knowledge systems, intellectual freedom of the Africans was hijacked and portrayed indigenous knowledge came under

²⁰ Burton F. Beers, *World History*, 245.

²¹ Burton F. Beers, *World History; Patterns of Civilization*, 248.

²² J.C.A Agbakoba. "On the African Origin of Philosophy," *UCHE Journal of the Department of Philosophy, University of Nigeria Nsukka* 10 (2004): 63.

²³ P. C. Ejeh. "Introduction to History and Philosophy of Science," in *History & Philosophy of Science*, eds., E.C Ezeugwu, C. E. Nnadi, & C. U. Udabah (Enugu: His Glory Publications. 2015), 10.

censorship. Some intelligent quest and knowledge even became classified and not made open and accessible to the indigenous people. It has been argued that “in most of these cases, Africa’s needs and peculiar academic trajectory are neglected ” as the natives were made to “focus on addressing issues that are of interest to the Global North in order to gain acceptability.”²⁴

Consequently, recognition of intellectual output became dependent on whether the tune was called or funded by the colonists or any of their agencies.

Besides, AII derives from an education integrated in the actual everyday’s living. This education and its pedagogy were forcefully replaced by Western education that generally separates the school from the family and life as it responds to Western industrial and technological needs. Western education was an education not intended to develop the African person and society, but to produce low level clerical officers that will support the colonial and neo colonial administrative structure.²⁵ Such training or indoctrination brought the crisis of personhood facing the modern Africans. This was as indigenous people were not only developed as instruments for achieving the goals of the colonists but made to denigrate and undermine their culture and language. Imposition of Western educational curriculum and cultures then westernized the Africans and would entrench Western dominance on the psyche of even the future African generation.

Colonialism also suppressed traditional practices and cultures via colonial preferences and policies. The colonial suppression of traditional practices has even continued; like in May 2020 WHO rejection of Madagascar’s “herbal remedy “Covid-

Organics” for COVID-19”; a rejection as some Al Jazeera analysts insinuated embeds from its non emergence from any of “the known research institutions or agencies in the Global North where scientific outputs and clinical trials are monolithically taken to be certain.”²⁶ In colonial Africa therefore, recognition of traditional practices and culture was dependent on its consonance with the goal of colonialism. Adding to this colonial orientation was the control and exploitation of Africa’s natural resources. The West has for years coveted Africa for these natural riches underground her continent. The earliest contacts and interactions between the West and Africa and the subsequent colonization of Africa predicate on this exploitation of African natural resources.

Impact of colonization on African Indigenous Intelligence

The consequence of colonialism on AII was enormous and pervasive that its coloniality even subsists in modern Africa. The area of cultural identity burdens the greatest impact of this colonialism. Culture is the greatest fount of human ideals for solving problems as well as a people’s way of being. This is in the sense that culture holds values and norms that constitute a people’s image and personality and make a people live in a particular way in their communities. Colonialism struck a shattering blow on virtually every aspect of this culture through instilling of western cultures and languages via policies, education, entertainment and public orientation. Chinua Achebe depicts African cultural identity loss to colonialism when he says : “the white man has put a knife on the things that hold us together, and we have fallen apart.”²⁷ The impact of

²⁴ Azubuike Uchenna Ezeogu & Gregory Emeka Chinweuba, “Geopolitics and the Challenge of Academic Freedom in Africa,” *Academic Freedom in Africa*, eds., Y. Ndasauka, and G. Kamchedzera 65(New York: Routledge, 2025), 65. DOI: 10.4324/9781003516248-5

²⁵ Walter Rodney, *How Europe Underdeveloped Africa* (London: Bogle-L’Ouverture, 1972), 263.

²⁶ Azubuike Uchenna Ezeogu & Gregory Emeka Chinweuba, *Geopolitics and the Challenge of Academic Freedom in Africa*,65.

²⁷ Chinua Achebe, *Things Fall Apart* (London: Heinemann, 1958) 124-125.

colonialism on AII thus signals loss of indigenous culture that breeds indigenous intelligence and constitutes the interiority of the being of the African and the internal equilibrium of his personhood.

Through colonialism, the contribution of African indigenous intelligence was obscured. A typical instance in this context is the Igboukwu arts and bronze casting that existed before 9th century.²⁸ The discovery of Igboukwu bronze casting made by the British colonial government in 1959 through the department of antiquities led by Thurston Shaw posed a downturn for Igboukwu art and bronze works. This unfolds as the colonial government provided no means for nurturing this indigenous intelligence, science and technology. Rather, the colonists wielded absolute control over the continent and ensured maximum exploitation of its resources and people. In line with this mode, indigenous Africans were expected to only produce raw materials for western industries and markets for sale of their finished products. Since only the producers of these crops and raw materials were entitled to cash payments, government consideration and benefits, such money economy left indigenous Africans with the lone option of focusing on trending means of earning cash to ensure survival. This resulted in occupational and technological drift from craft; bronze casting and iron smelting to production of cash crops and raw materials.

As Africans embraced the new occupation, they equally embraced the foreign intelligence, knowledge and attendant technology behind it. The people now rely on undomesticated foreign intelligence and technology to confront their basic environmental challenges, and look upon the colonists for solutions to other arising needs. The erasure of Igboukwu and other indigenous African crafts was deepened by the colonists' educational and

enlightenment programmes that did not value and recognize indigenous crafts. Hence, they systematically replaced them with western lifestyle, tastes, occupation, crafts and values through educational curricula and other means.

There was also the marginalization of traditional knowledge. Since language is the vehicle that drives indigenous knowledge, instilling of western languages in the Africans became a suppression of indigenous African languages and the traditional knowledge and intelligence it drives. Indigenous languages express, communicate, sustain and preserve traditional intelligence and knowledge. Language is the primary means of exporting indigenous intelligence and knowledge. To suppress a language therefore is to suppress the indigenous intelligence, knowledge and practices whose heart and soul such language is. Educating a person in a particular language is also to instill in the person the heart and soul of the culture; knowledge and intelligence such language drives. This whole colonial development in Africa amounted not only to the suppression of African languages but the cognitive practices it drives; like the Yoruba *Ifa* and Igbo *Afa* divinations.

The whole idea behind colonial erasure of indigenous intelligence was to ensure dependence on western epistemology. Apart from colonial policies set to achieve this erasure, there was also destruction of citadels of learning like University of Sankore (Timbuktu) through colonial control and policies. Central here was the French policy of assimilation which reversed the curriculum of these pre-colonial citadels of learning in the continent. Adding to this was the construction of hierarchies of knowledge where Western knowledge and intelligence were prioritized and made universal while indigenous knowledge and intelligence systems were

²⁸ A.N. Ebizie, & B. C. Eloanyi, *Introduction to Nigerian History* (Enugu: Anches Publishers, 2018), 118.

denigrated as non-existent or too inferior to worth including in worthwhile curricula.²⁹

Neo-colonization through AI

Evidently, the replication of Western colonial past in Africa is gradually unfolding via Tech adoption of AI in the continent. Indeed, “there is a great nexus between science/technology and colonialism.”³⁰ Invasion of Africa is now being conducted through AI technological deployment. This is as these technologies avail their developers and home countries not only the opportunity of dominating the users’ minds but the national policies of the user countries. The neo colonialism through AI is visible in the foreign data it embodies. These data are products of foreign intelligence, knowledge and culture through which indigenous people are economically exploited and changes in human thinking and behaviour are gradually effected. Often, local data is also exploited for economic gain.

Some of the AI systems perpetuate discrimination and inequality among people; thereby increasing the bias of many people in the continent. For instance, the facial recognition systems or biometric AI are controversial technologies in Africa. These facial recognition technologies are “used to verify individuals based on facial records and are increasingly being used within the digital ID and biometric systems.”³¹ It was found that these

technologies discriminate against women, racial minorities and non-white populations. Rachel Adams attests to this as she says “that the use of facial recognition technologies in African cities, from Kampala to Johannesburg, presents a series of issues where such technologies have been developed elsewhere and not trained on local facial data.”³² Owing to these discriminations, inequalities and other inaccuracies, Meta, the parent company of Facebook, Whatsapp and Instagram halted the use of facial recognition technologies on its social media platforms. Yet, these neo colonial discriminations have continued in cash machines and public institutions like banks where access is arbitrarily denied.

Because technological independence is being discouraged, the importation of foreign AI to Africa is a cultivation of foreign technological industries for the purpose of fostering the technological domination of Africa. Its bright spots notwithstanding, these AI technologies being developed in non cognizance of African freedom, culture, worldview and indigenous contribution makes them instruments of digital imperialism. They are developed elsewhere not for indigenous African skill development, without reflecting larger indigenous contents nor meaningful testing and impact assessment. In this digital imperialism, AI systems are embodied with foreign values which Africans adopt as they adopt these AI

²⁹ Felix Maringe, Amasa Ndofirepi and Ruksana Osman, “Clash of Ideologies in Post-colonial Education Systems: Convergences and Divergences,” In *Higher Education in the Melting Pot: Emerging Discourses of the 4IR and Decolonization*, ed. Felix Maringe (South Africa : AOSIS Publishing, 2021). 14. DOI. org/10. 4102/ aosis. 2021. BK305

³⁰ Evaristus Emeka Isife, “African Environmental Ethics and the Challenge of Decolonizing Science and Technology for Africa’s Growth and Development,” *Aku: An African Journal of Contemporary Research* 4, no. 1 (2023): 40.

³¹ Rachel Adams, “AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent,” in *Policy Brief* 8 (Berlin: Africa Policy Research Institute, 2022), 5.

³² Rachel Adams, “AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent,” in *Policy Brief* 8 (Berlin: Africa Policy Research Institute, 2022), 5.

systems. This makes these AI systems means of imposing foreign values and technological culture. The more evident of this digital imperialism lies in the AI machines being structurally designed to foster anti-Blackness, with every structure, practice and approach powerfully made in depiction of the values of the West, China or their allies. This raises a critical question of Western intention as regards African emancipation if not absolute demise.³³ So, Africans are subtly made to use technologies whose “material, cultural, aesthetic, symbolic and intellectual production are pointed in a direction away from us.”³⁴ The AI technologies are increasingly oppressing African civilization as it fundamentally portrays ‘whiteness’ as the only legitimate or superior source of intelligence and technology.

Moreover, Africans are required to excel in epistemological, conceptual, ethical, and practical aspects of these AI systems in order to use them. This prioritization of Western knowledge and intelligence continues to be evident through further research, development and innovations that position these technological machines as instruments of neo-colonialism. The imperial nature of AI technologies is even more visible in the way these technologies have become instruments of multinational monopolies and means of undercutting local businesses.

Indeed, Western AI portrays science as “a unique creation of the West” and technologies as the intelligence uniquely developed “by the West as a system of preserving their thoughts.”³⁵ Going by this, AI portends African technological dependence on the West. The continuous

application of these foreign technologies and all they embody would be a deepening of the undoing of Africa. This is much so as AI technological dependence limits African chances of indigenous innovation and autonomy. Adding to these neo colonial characters of AI is its epistemic injustice revealing in the ignominy of African knowledge and perspectives, which is as much as ignoring African voices. Voices are developed languages that express thoughts and reflect who people are, how they live, what they live for and how they feel about these modes of living.

Towards a Synthesis of AII and AI

For popular appreciation and greater performance in the continent, there is need to deploy technologies to Africa that are synthesis of African indigenous intelligence and Artificial intelligence. This would refocus AI in African context; involve more indigenous tools and strategies, and make digital interaction more African and suitable to the African people. Domesticating AI in African space will thus warrant its synthesis with AII and other aspects of African culture and life; like language, technology, data, images, and so on. This predicates on the rationale that Africa needs AI that would largely embody and convey cultural expressions, economic value, African identity, personhood and meaning.

The cultural integration in AI involves the incorporation of African languages into AI systems and making them the language of AI systems in the continent. Advancement that still requires popularization has been made in this direction by the Nairobi based UTU

³³ Athinangamso Nkopo “Of Air Running Out,” in *Rhodes Must Fall: The Struggle to Decolonise the Racist Heart of Empire*, eds., Roseanne Chantiluke, Brian Kwoba and Athinangamso Nkopo (London, UK, Zed Books Ltd, 2018), 159.

³⁴ Lwazi Lushaba, “Decolonising Pedagogy: An Open Letter to the Colonizer,” In *Rhodes Must Fall: The Struggle to Decolonise the Racist Heart of Empire*, 272.

³⁵ Evaristus Emeka Isife, African Environmental Ethics and the Challenge of Decolonizing Science and Technology for Africa’s Growth and Development, 39.

Technologies since 2017. The Swahili *Utu* meaning humanity was adopted as the brand name of the AI hub.³⁶ Similar language incorporation has also been made by Google AI lab in its collaboration with rural farmers in promoting food security in Tanzania. Google created machine-learning application *Nuru*, a Swahili meaning light, to diagnose early stages of cassava plants.³⁷ Even without internet connectivity, *Nuru* works on subscribed or customized farmers' cell phones; reminding them to intervene early enough in identifying and managing cassava plant diseases. Along with this, Masakhane members had by February 2020 developed online 35 translations of over 29 African indigenous languages in an open access GitHub repository.³⁸ These support the fact that AI tools can be employed to facilitate the use of indigenous African languages and promotion of linguistic diversity while automating translation, natural language processing (NLP), voice recognition, and text-to-speech systems.

Besides, the western context reflection of the current AI gives a clue to the fact that AI can be developed to reflect African context; worldview, cultural nuances and understanding. This is what Octavio Kulesz had in mind when he advocates for dominant AI players to "intervene simultaneously in all modes of the creative chain and generate works based on user behaviour, in order to maximize consumption" and concentration in "the creation, production and distribution of cultural goods and services."³⁹ In this kind

of innovation, "cultural expressions would have economic value."⁴⁰ The synthesis of AII and AI also has to integrate relevant African indigenous knowledge into AI systems and decision making. This knowledge is the psychological result of Africans' experiences, perception, reasoning and learning within their environment.

Apart from cultural integration, the synthesis of AII and AI has to involve African philosophical integration. These are relevant philosophical postulations about African continent that shapes human behaviours towards just existence, human emancipation and sustainable development. The synthesis of AII and AI thus requires a conscious re-alignment of this technology in a way it affirms African approaches and functions through the lenses of African cultural philosophies like *Ubuntu*. *Ubuntu* is a philosophy replete with principles and modes of African community, communalism and interconnectedness. This alignment will transform AI into an African technology that would be more appreciable and utilized by the African public. A synthesized AI based on African Indigenous worldviews like *Ubuntu* will also invoke '... a spirituality in which who we are, and what we do are intimately related.'⁴¹ By way of explication, "spirituality is a framework through which black Africans understand themselves and their relationship with nature, hence an inseparability of

³⁶ UTU Technologies, "About us - UTU". 2021. <https://utu.io/about-us/>

³⁷ Fred Alcober, "AI takes Root, helping Farmers identify diseased Plants". 2018. <https://www.blog.google/technology/ai/ai-takes-root-helping-farmers-identity-diseased-plants/>

³⁸ Arthur Gwagwa, Erika Kraemer-Mbula, Nagla Rizk, Isaac Rutenberg and Jeremy De Beer, "Artificial Intelligence (AI) Deployments in Africa: Benefits, Challenges and Policy Dimensions," *The African Journal of Information and Communication (AJIC)* 26 (2020): 9.

³⁹ Octavio Kulesz. "Culture, Platforms and Machines: The Impact of Artificial Intelligence on the diversity of Cultural Expressions," UNESCO Information Document, 7-8. https://en.unesco.org/creativity/sites/creativity/files/12igc_inf4_en.pdf

⁴⁰ Octavio Kulesz. Culture, Platforms and Machines, 841

⁴¹ M. J. S. Masango, "African Spirituality that shapes the Concept of Ubuntu," *Verbum Et Ecclesia* JRG 27, 3 (2006): 930.

spirituality, human beings, and nature.”⁴² Such inseparability reflecting in synthesized AI would enhance the utilization of more technology on African soil. This will be more so as it balances individualism and collectivism in its functional processes, “considering *Ubuntu* as a pan-African philosophy that views others within their own contexts, as connected to each of us, and yet also distinct.”⁴³ For the synthesized AI to be truly Africa, it must embody and reflect African values of respect, empathy, human solidarity and cooperation. The possibility of embodying the synthesized AI with these indigenous values predicates on the reality that the current AI is developed to disseminate Western values. This means that the synthesized AI can as well be developed to disseminate African indigenous values.

In this synthesis, there is also great need for methodological and technical integration glaring in adoption of indigenous-centric methods, approaches and technologies across the continent. These indigenous technologies and approaches (like participatory approach), adoption of indigenous data, symbolic images and language can be used to operationalize local benefit while elevating pan-African knowledge and intelligence. Indeed, the objective of the synthesis of AII and AI “should be to benefit the communities from whom knowledge is drawn and this can only be achieved if the values and ethics of such communities shape the methods of extracting knowledge.”⁴⁴ As such, synthesized technological solutions for African people must be largely informed by African indigenous research methods, symbolic images, language and

technologies which have to do with spirituality, consensus building and dialogue.

Decolonisation of the African mind via synthesized AI

The most beneficial decolonization Africa will undergo is the mind. It is this mind that a synthesized AI tends to dominate in order to get Africans back to their root and autochthonous nature. Considering the larger indigenous cultural components that have to comprise it, synthesized AI would be clearly rooted in Africa. Decolonization of the African mind via synthesized AI therefore amount to instilling its integrated indigenous components in the minds of the African population. Larger application of synthesized AI in African spaces fastens this decolonization towards restoration of African cultures, identity, intelligence and epistemology. This is as synthesized AI will gradually change the present Western mode of thinking and perception to the African authentic mode. Synthesized AI has the potential to embody and foster change in other aspects of life and the African societies. This decolonization has now become germane as despite the opportunities and transformation Western AI offers, Africa is with the AI revolution steeped once again in a colonial model. This is as the current AI structures, approaches, and purposes parallels the culture of the Global North, China, and those Asian countries aligned to them. AI application in the continent thus reflects Africa’s commitment to Western domination. Thus, these AI machines rely largely upon the Western conceptions of knowledge to shape

⁴² Mishack T. Gumbo, Christopher B. Knaus & Velisiwe G. Gasa, “Decolonising the African Doctorate: transforming the Foundations of knowledge,” in *Higher Education* 88(2024): 1611 – 1627.
<https://doi.org/10.1007/s10734-024-01185-2>

⁴³ Mishack Gumbo and Micheal Gaotlhobogwe, “African Indigenous Knowledge and Practices to combat Covid-

19 Pandemic,” *Journal of Management, Spirituality and Religion* 18. no. 5 (2021): 462–481.

⁴⁴ Rosemary Chigevenga, “Decolonising research Methodologies in the Global South: Experiences of an African social Scientist,” *African Journal of Social Work* 12, no. 4 (2022): 200.

the African landscape and entire societal processes. So, AI application in Africa; and by extension knowledge construction in Africa, has remained fixed to Eurocentrism. Decolonization must therefore remain a process in which African “indigenous communities, indigenous voices and epistemologies are the centre in the research process.”⁴⁵

This is basically a shift in perspective of the African mind from viewing her environmental realities from foreign lenses to viewing it from African authentic lenses embodied in the synthesized AI. This is true because developing and applying AI in Africa from “a lens defined by the institutions of colonial power, and the intellectual apparatus carried over from the global North” remains a deepening of the existing neo colonialism in the continent.⁴⁶ Contrarily, synthesized AI implies development and application of AI that cognizes, incorporates and replicates the diverse functional African indigenous intelligence and the patterns of thought which synthesized AI embodies. Going by this, a decolonized African mind would then be intellectually and technologically holding a central place, and then defining questions and answers that would characterize subsequent synthesized AI. These processes have become germane as assimilating the provisions of external AI deepens African coloniality and neo-colonialism. Africans must then prioritize the manufacturing and use of an indigenous synthesized AI as only that can meaningfully advance inclusive and indigenous (authentic) economic growth and social transformation. Priority must also be given to AI policy responses that focus on

African national digital agendas; equitable access to digital, data and computing infrastructure. Decolonization in this context is thus a call for synthesized AI robotics and systems that reflect indigenous qualities and reduce African technological dependence and its resultant neo colonialism in the continent.

Development of Africa through a synthesized AI

Proponents of 4IR have argued that technological innovation and advancement has closed up the wide space and time that once existed among Nations. Occasioned by development in ICT, technological collaboration is now possible among nations despite their locations.⁴⁷ However, the reality on ground showed that the implemented AI in Africa has not recorded much assimilation nor has it solution to large African developmental problems and needs. Many of the deployed AI in Africa cannot even function because of their components that are incompatible with the realities in African spaces. Thus, a synthesized AI dominates the thinking about having authentic and functional AI systems in the continent. This signals that only a synthesized AI, developed in cognizance of the situation in African continent can really contribute meaningfully to African development. This is truer as based on the principle of comparative advantage; no country would even deploy her best technology to another country. Besides, the necessity of indigenous or synthesized AI dominates the thinking about African freedom and independence. This is as dependence obscures freedom and creativity that leads to development.

The rapid increasing population of

⁴⁵Mishack T. Gumbo, Christopher B. Knaus & Velisiwe G. Gasa, “Decolonising the African Doctorate: transforming the Foundations of knowledge,” in *Higher Education* 88(2024): 1611 – 1627. <https://doi.org/10.1007/s10734-024-01185-2>

⁴⁶Christopher Clapham, “Briefing Decolonising African Studies?” *Journal of Modern African Studies* 58, 1 (2020):138-139.

⁴⁷ Evaristus Emeka Isife, *A Critical Analysis of Globalization, Postmodernism and the Fate of Africa*, 1.

Africa is predicted to triple to 225 million by 2055.⁴⁸ African countries are already under pressure to offer services to this fast-growing population in the expanding urban areas and to improve performance in the area of economy. A synthesis of AI from AII would be a possible solution in addressing a whole lot of African societal issues. There is need to “build the younger generation's capacity by equipping them with the requisite skills that can enable them to contribute to the continent's development.”⁴⁹ Developing youths with synthesized techniques of AI and AII would lead to industrial revolution in the continent. With this synthesized technique, African countries would be enabled to harness their natural resources and raw material towards improving the livelihood of her larger population and achieving maximal sustainable development.

Towards an African Philosophy of Synthesized Indigenous AI

The achievement of a synthesized indigenous African AI depends on a system of rational belief. This achievement is preceded by a contextual philosophy that is a body of investigated technological process, possibility of its achievement and existence. The road map to pan-African AI is a critical step (a philosophy) in actualizing indigenous AI in Africa for the advancement of African freedom and independence. This philosophy of synthesized indigenous AI thus subsists in what and how of this indigenous technology. This philosophy insists on Africans exhibiting the aptitude and ingenuity for science and technology which is a natural human gift. The philosophy of synthesized indigenous AI is a complementary philosophy in which the

present AI is to largely integrate African indigenous intelligence (AII), knowledge systems and culture. This philosophy includes African technological stakeholders and policy makers; governments, technologists and scientists as developers of indigenous synthesized AI. These stakeholders would be crucial in the establishment of indigenous AI institutes to collect and process knowledge, technologies and talents necessary for development of functional indigenous AI.

Evaluation and Conclusion

This treatise explored African indigenous intelligence (AII) and Artificial Intelligence (AI) revealing the possibility of a critical synthesis towards decolonizing the African mind. This outcome (synthesis) transforms the whole scenario of AI in Africa as the study argues for African conscious AI investments to generate AI machine solutions that recognize African personhood, identity, languages, images, techniques, methods and socio-cultural milieu in disrupting the present African socio-economic process. The study finds that although AI may transform the continent; improve life and businesses; it sieges the African mind with colonial tenets; fosters African dependence and deprives African freedom. This makes it imperative for Africa to think of an indigenous AI that would largely have local contents and record wide application in the continent. But to enable African researchers, developers and AI users develop AI solutions; accessible data centers and pool of data are needed.

The establishment of indigenous AI services also requires other substantial resources like steady electricity, stable network and internet access. How then can a

⁴⁸ Clayton Besaw and John Filitz, “Artificial Intelligence in Africa is a Double-edged Sword,” United Nations University, One Earth Future (2019). <https://ourworld.unu.edu/en/ai-in-africa-is-a-double-edged-sword>.

⁴⁹ Agyemang Kwasi Sampene, Fredrick Oteng Agyeman, Brenya Robert & John Wiredu, “Artificial Intelligence as a Path Way to Africa's Transformations,” *Journal of Multidisciplinary Engineering Science and Technology* (JMEST) 9, no. 1 (2022): 14941.

synthesized indigenous AI be developed when Africa lacks the necessary pool of quality data and other central infrastructures in AI development and operations? The synthesis of AI in Africa is too faced by the changing business environment and information, and the limitations of underlying information pertinent to AI development and use due to predatory politics and governance. To develop an indigenous AI systems and solutions that support local development, address local problems and needs therefore, diverse African governments, policy makers and stakeholders must prioritize assembling reliable quality data base, centers, infrastructures and quality governance supporting AI operations.

Collective efforts and policy responses are also important towards achieving indigenous AI for national digital agenda, priorities and in direct support of local capacity, economies, infrastructure, skills development and ecosystems. Africa must abrogate the present national AI strategies that embrace foreign agreements and favour the Big Tech companies' policies that are incompatible with realizing African inclusive developmental priorities.

Bibliography

Achebe, Chinua. *Things Fall Apart*. London: Heinemann, 1958.

Adams, Rachel. "AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent." *In Policy Brief*, no. 8. Berlin: Africa Policy Research Institute (2022): 1-14.

Agbakoba, J. C. A. "On the African origin of Philosophy." *UCHE Journal of the Department of Philosophy, University of Nigeria Nsukka* 10, (2004): 61-67.

Sampene, A.k., Agyeman, F. O., Robert, B., and Wiredu, J. "Artificial Intelligence as a Path to Africa's Transformations." *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* 9, no. 1 (2022): 14939-

14951.

Alcober, F. "AI takes root, helping farmers identify diseased plants." (June 20, 2018) .
<https://www.blog.google/technology/ai/ai-takes-root-helping-farmers-identity->

Ayodele, Olalekan Shotunde. "The Logic of Ifa Literary Corpus in African philosophy." *LASU Journal of Philosophy* 2, no. 1 (2019): 132-145.

Besaw, Clayton and Filitz, John. "Artificial Intelligence in Africa is a Double-edged Sword." In *United Nations University, One Earth Future* (2019).
<https://ourworld.unu.edu/en/ai-in-africa-is-a-double-edged-sword>.

Burton, B. F. *World History; Patterns of Civilization*. New Jersey: Prentice Hall, 1991.

Chigevenga, R. "Decolonising Research Methodologies in the Global South: Experiences of an African Social Scientist." *African Journal of Social Work* 12, no. 4 (2022): 199–206.

Clapham, Christopher. "Briefing Decolonising African Studies"? *Journal of Modern African Studies* 58, no. 1 (2020): 137-153. Doi: 10.1017/S0022278X19000612

Ebizie, A. N. and Eloanyi, B.C. *Introduction to Nigerian History, Book One*. Enugu: Anches Publishers, 2018.

Ejeh, P. C. "Introduction to History and Philosophy of Science." In *History & Philosophy of Science*, edited by E.C. Ezeugwu, C. E. Nnadi, & C. U. Udabah 1-19. Enugu: His Glory Publications. 2015.

Ezeogu, Azubuike Uchenna & Chinweuba, Gregory Emeka. "Geopolitics and the Challenge of Academic Freedom in Africa." In *Academic Freedom in Africa*,

- edited by Y. Ndasauka, & G. Kamchedzera, 58-69. New York: Routledge, 2025.
DOI: 10.4324/9781003516248-5
- Ezeugwu, Evaristus Chukwudi. "Historical Development of Science." In *History & Philosophy of Science*, edited by E.C. Ezeugwu, C. E. Nnadi, & C. U. Udabah 30-51. Enugu: His Glory Publications, 2015.
- Gumbo, M.T., Christopher, B. K., & Gasa V. G. "Decolonising the African Doctorate: Transforming the Foundations of Knowledge". In *Higher Education*. Springer, 2024. <https://doi.org/10.1007/s10734-024-01185-2>
- Gumbo, M. T., & Gaotlhobogwe, M. "African Indigenous Knowledge and Practices to Combat Covid-19 Pandemic." *Journal of Management, Spirituality and Religion* 18, no. 5 (2021): 462–481. <https://doi.org/10.51327/edta1013>
- Gwagwa, A., Kraemer-Mbula, E., Rizk, N., Rutenberg, I., & De Beer, J. "Artificial Intelligence (AI) Deployments in Africa: Benefits, Challenges and Policy Dimensions." *The African Journal of Information and Communication (AJIC)* 26 (2020) : 1 - 28 . <https://doi.org/10.23962/10539/30361>
- Horsthemke, K. "Indigenous (African) Knowledge Systems, Science and Technology." *The Palgrave Handbook of African Philosophy*, edited by A.Afolayan & T. Falola, 2-3. 2021. doi. 10. 1057/979-1-1-137-592-0_38.
- Immerwahr, J. & M. Burke. "Race and Modern Philosophy Course." *Teaching Philosophy* 16, no. 1(1993): 21-34.
- Inyama, Tom. "The Concept Logic." In *Logic & Critical Thinking: A Guide to Problem Solving*, edited by C.E. Ezeugwu & P. C. Ejeh, 10-29. Enugu: His Glory Publications, 2012.
- Iroegbu, Panteleon. *Treatise on the Human Person*. Owerri: Eustel Publications, 2000.
- Isife, Evaristus Emeka. "A Critical Analysis of Globalization, Postmodernism and the Fate of Africa." *Nigerian Journal of Philosophical Studies* 1, no. 1 (2022): 1-19.
- Isife, Evaristus Emeka. "African Environmental Ethics and the Challenge of Decolonizing Science and Technology for Africa's Growth and Development." *Aku: An African Journal of Contemporary Research* 4, no. 1 (2023): 39-50.
- Kulesz, M. "Culture, Platforms and Machines: The Impact of Artificial Intelligence on the Diversity of Cultural Expressions." *UNESCO Information Document*. 2018, 1-8. https://en.unesco.org/creativity/sites/creativity/files/12igc_inf4_en.pdf
- Lushaba, L. "Decolonising Pedagogy: An Open Letter to the Coloniser." In *Rhodes must Fall: The struggle to Decolonise the Racist Heart of Empire*, edited by R. Chantiluke, B. Kwoba, & A. Nkopo, 272. Zed Books. 2018.
- Maringe, F., Ndofirepi, A., & Osman, R. "Clash of Ideologies in Post-colonial Education Systems: Convergences and Divergences." In *Higher Education in the Melting Pot: Emerging Discourses of the 4IR and Decolonisation*, 1–27. AOSIS Publishing, 2021. <https://doi.org/10.4102/>
- Masango, M. J. S. "African Spirituality that

- shapes the Concept of Ubuntu.” *Verbum Et Ecclesia JRG* 27, no. 3 (2006): 930–943.
- Ngozi, E. “The Blight of African Indigenous Technology in the 21st Century: The Way Forward.” *Journal of Tourism and Heritage Studies* 3, no. 1 (2014): 29.
- Nkopo, A. “Of Air Running Out.” In *Rhodes must Fall: The struggle to Decolonise the Racist Heart of Empire*, edited by R.Chantiluke, B. Kwoba, & A. Nkopo 158–167. Zed Books, 2018.
- Onyewuenyi, I. C. *The African Origin of Greek Philosophy: An Exercise in Afrocentrism*. Nsukka: University of Nigeria press, 1994.
- Marvin, P., Scholl, A.H., Davis, D.F., Harris, J.G., and Von Laue, T.H. *History of the World: The Modern Era*. Boston: Houghton Mifflin, 1994.
- Quest, George. *The March of Civilisation*. Ibadan: Spectrum books, 1983.
- Rodney, Walter. *How Europe Underdeveloped Africa*. London: Bogle-L’Ouverture, 1972.
- UTU Technologies. “About us - UTU,” 2021”. <https://utu.io/about-us/>