

ARTIFICIAL INTELLIGENCE AND EDUCATIONAL DISCOURSE IN CONTEMPORARY NIGERIA: A HEIDEGGERIAN PERSPECTIVE

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Abstract

This paper is an interpretative and a reconstructive study of Heidegger's phenomenological postulations on education and artificial intelligence in contemporary Nigeria. It adopts the hermeneutic-narrative research methodology. The work begins with conceptual clarification of key concepts, namely: technology, intelligence, artificial intelligence and authenticity. The central argument of the paper is that, for Heidegger, modern technology is enframing. What this connotes is that sophisticated computational systems and other digital tools like Machine Learning, Deep Learning and Generative Artificial Intelligence have the potential of enriching and bringing greater purpose to the learner and the school system. In line with this ontological consideration, the paper opines that if the school system in contemporary Nigeria is to overcome the problem of negative tendency and experience authenticity; then, classroom teachers will need to inspire learners to acquire and demonstrate such 21st century soft skills as lateral thinking, collaboration, creativity, global awareness and radical problem-solving. The pedagogical implications of this Heideggerian model for artificial intelligence discourse in contemporary Nigeria was further examined. In spite of the strengths of this phenomenological philosophy of education, the paper concludes by stating that it is not without some logical flaws.

Key Concepts: Technology, Intelligence, Artificial Intelligence, Authenticity, Heidegger, Contemporary Nigeria.

Introduction

The practice of education in contemporary Nigeria presents the picture of a negative tendency (Oguejiofor, 2023). This gloomy scenario is characterized by such factors as bookish knowledge, overcrowded classrooms, mismatch between content of instruction and learners' learning styles, lack of extensive internet access, unavailability of adaptive tutorials and poor academic performance in public examinations, among others (Ojerinde 2000; Dibia, 2013; Ekechukwu & Osaat, 2023). Attempts have been made by various scholars and other stakeholders to proffer

solutions to this ugly situation, but the problem has not abated (Ojo, 2006; Okeyi, 2024; Adedaja & Oguntunde, 2018; and Bayode, 2021).

Against the background of this sad narrative, this paper recognizes that the phenomenological postulations of Heidegger (1954, 1962, 1966), a 19th century German philosopher, may be the elixir needed if the practice of education in Nigeria is to remain on course. This is particularly so because of the central argument of Heidegger (1977) that modern technology is enframing (*Gestell*). What this connotes is that sophisticated electronic machines (e.g., Computers) and other digital tools like Machine Learning (ML), Deep Learning (DL) and Generative Artificial Intelligence (GAI) have the potential of enriching and bringing greater purpose to the 21st century learner and the school system (Scharff & Duesk, 2014). The application of these algorithmic technologies is expected to take such diverse forms as custom-tailored education for learners, task automation for teachers, interactive educational games, chatbots and intelligent content creation. These are some of the antedotes needed if the school system in contemporary Nigeria is to experience authenticity (to use the Heideggerian phraseology).

The methodology of this paper is hermeneutic – narrative discourse. This is a philosophical technique which combines critical reflection, detailed analysis and constructive interpretation. This research methodology has its origin in the writings of 20th century continental European philosophers, namely: Ricoeur, Gadamer, Schleiermacher, Dilthey and Heidegger himself (Ogunyemi & Olaiya, 2020). In adopting this methodology, we foraged for useful materials from the writings of Heidegger and other scholars. We systematically recreated and reorganized these texts to suit our context of discourse.

Consequently, the paper is divided into five major sections. Section one is clarification of concepts. Section two looks at Heidegger's phenomenological postulations on education. It is followed by section three where we examined pedagogical implications of the Heideggerian model for artificial intelligence discourse in contemporary Nigeria. The penultimate section is a critique, while the last aspect of the paper is conclusion.

Clarification of Concepts

Four concepts are central to this paper. They are technology, intelligence, artificial intelligence and authenticity. We shall now examine them, one after the other.

Meaning of Technology

Etymologically, technology comes from two Greek words, viz.,: “techne” which means art, skill, craftsmanship or production (Akinpelu, 2005; Kouppanou, 2018) and “logos” meaning discourse, science or study (Onwuegbusi, 2003). Based on this etymological revelation, technology may be defined as the collection of techniques, methods or processes used in the production of goods and services, or in the accomplishment of objectives (James, 2018).

For Goulet (1977), it is the systematic application of collective human rationality to the solution of problems by asserting control over nature and human activities. This definition is closely related to that put forward by Heidegger. According to Heidegger, technology is the means or activities by which man seeks change and manipulates his environment through “ready-to-hand” entities (*zuhanden*) or “equipment” (*das Zeug*; see Heidegger, 1977). This instrumental and utilitarian conception of technology is unique because it conditions every attempt to bring the human person (*Dasein*) into the right relation to technology (Ibidapo-Obe, 2018).

From the above definitions, it may be implied that technology is a pragmatic demonstration of scientific knowledge. For Akinpelu (2005) and Makinde (2010), it is actually applied science. What this means is that scientific principles instruct and are manifest in every technology (Fadahunsi, 2003). Proximally related to the concept of technology is intelligence.

Definition of Intelligence

Since technology is the ability of the human person to control the physical world (in the Heideggerian notion of the term); then, the aggregate capacity to meaningfully and purposely achieve this goal may be referred to as intelligence (Wechsler, cited in child, 1977). For Clayton (1982), intelligence is the ability to think logically, to conceptualise and abstract from reality. Ukpong (2011) corroborates this perspective. She says intelligence is the innate capacity of an organism to acquire and interpret information; and use same to effect behavioural changes.

Newell (in Searle, 1984) expands the frontiers of the definition of the concept. He declares that intelligence is a process which involves physical symbol manipulation. For him, any system that is capable of manipulating physical symbols in the right way is capable of intelligence in the same literal sense as human beings. Heidegger disagrees with Newell. He says intelligence (*Gescheit*) may be construed as the state of self-awareness and the ability to engage with the world (Heidegger, 1954; 1962; 1966 and 1977). For Heidegger, it is only the individual (*Dasein*) that is capable of intelligence or consciousness; artificial minds (as enunciated by Alan Newell) are not capable of this mental activity. This takes us to artificial intelligence.

The Concept of Artificial Intelligence

Artificial Intelligence (Ai) or “computational Intelligence” (to use the phraseology of Swazo (2024) is a branch of computer science which is concerned with the development of intelligent computer programs that simulate various aspects of intelligent human behaviour (Amit, 2018; Tella & Ajani, 2022). For Abraham (2019), it is also associated with the design, construction, operation and application of robots (including humanoid robots).

Like the natural (human) intelligence, artificial (machine) intelligence is capable of certain functions, viz.,: memory, cognition, volition and imagination (Omogbe, 2010). Based on this mutuality of functions, materialists (or mechanists) represented

by Needham, Huxley, Pollock, Newell and Turing equate sophisticated electronic machines (or computers) with the human mind. These materialists merely conceive the human person as an information processing machine. Consequently, for them, sophisticated electronic information processing machines, like human beings, are capable of “thinking” because they can carry out certain tasks which cannot be distinguished from those done by human beings. In fact, for Turing (1950), in some cases, what sophisticated algorithmic machines (i.e., computers or robots) do is better than what their human counterparts do.

Antimechanists (or Vitalists) represented by Heidegger, Bergson, Dilthey, Dreyfus and Omoregbe counter the mechanists. They argue that it is not enough to look at the sophisticated output of artificial minds and conclude that these machines are capable of thinking. For these antimaterialists, thinking is basically a state of consciousness. Hence, electronic machines, no matter their level of sophistication, do not have consciousness. Swazo (2024) buttresses this argument. He says no set of formal programs of symbol manipulation can provide the characteristic feature of the human mind which is the intentionality of its mental contents.

As a specialized area of computer science, therefore, artificial intelligence (Ai) is basically divided into three components, namely: Machine Learning, Deep Learning and Generative Artificial Intelligence (Kulkarni, Shivanan, Kulkarni & Gudivada (2023). Let us briefly examine each of these.

Machine Learning (ML) is a branch of Artificial Intelligence (Ai) which involves getting computers to “learn” to do things (i.e., recognize complex patterns) without being programmed. The basic idea is to fit models to data and generate useful predictions. ML is used for such tasks as spam filtering, data mining, games forecasting, image recognition and natural language processing, among others.

Deep Learning (DL) is a branch of Ai and a subset of ML that uses artificial neural networks to mimic the functionality of the human brain (<https://www.paloaltonetworks.com> accessed on 10th May, 2024). While ML is used for tasks with structured data, DL is most appropriate for unstructured data. Unlike ML which solves problems through statistics and mathematics, DL combines statistics and mathematics with neural network architecture (<https://aw.amazon.com>compare> accessed on 10th May, 2024). Like ML, DL is used in most common image recognition tools, natural language processing and speech recognition software. The major difference between these two digital tools is that DL uses multiple layers in the network.

Generative Artificial Intelligence (GAI) is the third component of Ai that harnesses the power of algorithms to translate thoughts into visual representation in the forms of texts, images, audios and videos. GAI has a capacity that goes beyond the scope of both ML and DL. This takes us to the concept of authenticity.

What is Authenticity?

Authenticity is a mode of existence wherein an individual (*Dasein*) takes decisions by engaging in a calculus of choosing and, thereafter, accepts responsibility for such personal decisions (Fontaine, 2014; Ogunyemi, 2016). It involves self-understanding (Swazo, 2024). In the context of this paper, Heidegger believes that the choice of relevant technological tools is expected to promote authentic existence (i.e., a higher level of existence). Having examined the four major concepts that underlie this paper, the question that comes to mind at this juncture is: How do the phenomenological postulations of Heidegger navigate the existentiality of these constructs?

Heidegger's Phenomenological Postulations on Education

The thin line that cuts through our four major constructs is consciousness. It is the awareness of the human person's own experience (Omoregbe, 2011). For Heidegger, it presupposes a subject and an object. The subject is *Dasein* (i.e., the individual or the enquiring knower) and the object is that which is experienced (i.e., the content of instruction and ready-to-hand entities). In the light of this ontological consideration, Heidegger defines education as the process of "letting-learn" which enables *Dasein* (i.e., the individual) as a self-conscious being to take a stand on its being and be defined by that stand (Thomson, 2004). What this means is that the process of teaching and learning should propel the learner (i.e., the enquiring knower) to discover his/her potentials and fully maximize these potentials for the achievement of an authentic life.

Heidegger recognizes three fundamental aims of education. Prominent among these is the intellectual development of the learner. According to him, the educational system should broaden the cognitive capacity of *Dasein* (i.e., the individual). By this, he is referring to an entire world-view that takes in all events, things and all beings (including artificial minds) as resources to be allocated and channeled (Neufeld, 2012). This is coterminous with the notion of being able to engage with the world (Heidegger, 1954; 1962; 1966 and 1977). For him, a significant variable in the intellectual development of the learner is lateral thinking (or "active reflection"; Ogunyemi, 2016).

Secondly, education should enable the individual (i.e., *Dasein*) to interact with his/her environment. In this context, Heidegger refers to *Dasein* as a "being-in-the-world" and a "being-with-others". What this portends is that the learner is a social being who must necessarily interact with other beings, including artificial minds. In addition to this, Heidegger acknowledges the facticity (or thrownness) of the individual. It means the enquiring knower is not responsible for his/her own existence. Rather, he/she merely finds him/herself in the world without his/her own making or approval. For Heidegger, it is the responsibility of the educator (i.e., classroom teacher) to help the educand (i.e., learner) to find a "dwelling place" in this absurd world where he/she has been thrown (Neufeld, 2012).

Thirdly, education should enable the learner to master modern technology and put it to beneficial use. Heidegger frowns at a situation where *Dasein* (i.e., the human person) becomes one of the resources in the hand of modern technology. This is what he refers to as the destructive or nihilistic nature of modern technology (Yun, 2018). In this context, he postulates that the school system should help learners achieve “releasement towards things” (*Gelassenheit*; see Heidegger, 1966:55). This position does not remove from the fact that he expects learners to be proficient with ready-to-hand entities (*Zuhanden*) or equipment (*das Zeug*). Furthermore, he declares that technology is enframing (*Gestell*). What this means is that the character of modern technology is such that it is capable of enriching and bringing greater purpose to the lives of individuals (Scharff & Duesk, 2010; Ibidapo-Obe, 2018). In line with this argument, Heidegger opines that digital technologies should project the educand towards his/her desired height in life. This ontological condition is what is referred to as existentiality.

Unlike other existentialists such as Kierkegaard, Marcel, Jasper and Merleau-Ponty, Heidegger’s curriculum is not fluid. He adopts the ancient Greek and Latin concepts of liberal arts represented by the medieval trivium. This consists of grammar, dialectic and rhetoric. This educational system aligns with such classical values as freedom, tradition and cultural upbringing (Babich, 2017; Yun, 2018). In addition, his writings reveal a preponderance towards the teaching of science and technology related subjects.

Based on the above discussion, Heidegger will probably recommend such methods of teaching as drama, fieldtrip, excursion, Socratic method, learning by discovery and Computer Assisted Instruction (CAI), incorporating Machine Learning, Deep Learning and Generative Artificial Intelligence. This takes us to the next aspect of this paper.

Implications of Heidegger’s Philosophy of Education for Artificial Intelligence Discourse in Contemporary Nigeria

Heidegger’s phenomenological postulations on education have a number of implications for artificial intelligence (Ai) discourse in contemporary Nigeria. Most significant among these is the assumption that knowledge is a significant variable in the analysis of intelligence (Heidegger, 1954; 1962; 1966& 1977). Consequently, in our interpretation of Heidegger, if *Dasein*(i.e., the learner) is to be sufficiently motivated to learn; then, the curriculum content may need to be transmitted through the use of artificial intelligence. This is so when one considers the empirical fact that Generative Artificial Intelligence (GAI) empowers computational systems to understand and generate human language with remarkable fluency and creativity (Kulkarni, et al., 2023). In the light of this ontological consideration, the adaptation of artificial intelligence as a digital tool for enhanced teaching and learning has the tendency to improve the quality of knowledge acquisition, knowledge deepening, knowledge creation and development of such 21st century skills as collaboration,

global awareness, higher-order thinking (i.e., “active reflection”) and creative problem-solving.

Heideggerianism as a philosophy of education reveals that a learning situation involves the learner with some combination of people (for example, a teacher, other learners, examination bodies and curriculum development agencies); real life resources (i.e., artefacts that are not specifically designed to promote school learning); and curriculum resources (i.e., materials specially designed to promote learning, such as textbooks, educational broadcasts and algorithmic technologies). The implication of this is that, just as computational systems can mimic or extend the range of real life resources, they can equally be used to replace or supplement conventional kinds of curriculum resources (Scrimshaw, 1989). In this context, their application may take such diverse forms as custom – tailored tutorials for learners, task automation for teachers, interactive educational games, chatbots and intelligent content creation, among others (Sanusi, Ayanwale & Chiu, 2023). This takes us to a critique of Heidegger’s thoughts.

Critique of Heidegger’s Philosophy of Education as a Model for Artificial Intelligence Discourse

Although Heidegger did not specifically write on artificial intelligence (Ai) because this phenomenon was not prevalent during his life time, however, his phenomenological postulations on education provide an ontological framework for this subject matter. According to Preston (1992), Wheeler (2007) and Osegenwune (2011), the ontology which he sets up is so rigorous and critical that it opens up possibilities for all kinds of human endeavours. In the light of this consideration, by postulating that modern technology is enframing (*Gestell*), Heidegger reveals that Ai as a contemporary tool of technological revolution is capable of enriching and bringing greater purpose to the enquiring learner and the school system (Scharff & Duesk, 2010). This is particularly so if one considers that Generative Artificial Intelligence (GAI) is a power house of innovation, reshaping the technological landscape and redefining the boundaries of what machines can achieve. It harnesses the power of algorithms to translate thoughts into visual representations or automates the creation of complex code (Kulkarni, et al., 2023).

In addition to the above, Heidegger’s educational postulations reveal that intelligence (*Gescheit*) is possible when learners, through appropriate pedagogy, are able to construct their own ideals from the knowledge acquired through their individual learning experiences. This existential condition is most achievable, in our interpretation of Heidegger, when the contemporary school system creates a technological environment that develops in learners digital literacy and attitude. From a phenomenological perspective, what this means is that Ai devices that genuinely help their users perceive their surroundings have pedagogical and utilitarian relevance.

In spite of the strengths of Heidegger’s phenomenological postulations on education, there are palpable flaws in his writings. Asouzu (in Ogunyemi, 2016), specifically

pointed out that the Heideggerian model is hegemonic and deterministic in nature. For Asouzu, it is an ideology which insists on approaching reality from one aspect, the perspective of *Dasein*. According to Asouzu, this is an extreme form of Aristotle's ontology of division and polarization which is incapable of fecundating 21st century soft skills such as critical thinking, teamwork, creativity and radical problem-solving.

Like Asouzu, classical positivists represented by Comte, Carnap and Ayer have equally demurred the Heideggerian model. They contend that since it grew out of a private "psychological metaphysics", the Heideggerian paradigm cannot stand as a universal model for artificial intelligence discourse. Preston (1992), Unah (1998) and Wheeler (2007), disagree with this. They contend that Heideggerianism provides an explicit analysis of the relationship between human intelligence and machine or computational intelligence. This is so because it broadens the anthropological horizons of *Dasein* (i.e., the individual learner).

Conclusion

This paper is an attempt at reconstructing and interpreting Heidegger's phenomenological postulations on education as they relate to artificial intelligence. We began with clarification of concepts. This was followed by an indepth examination of Heideggerianism as a philosophy of education. Thereafter, we looked at the pedagogical implications of these postulations for artificial intelligence discourse in contemporary Nigeria. The work wound up with a critique.

In the paper, Heidegger argues that teachers and learners should not be chained to technology. Rather, they should have a free relationship with it. For him, modern technology in the form of artificial intelligence (i.e. Machine Learning, Deep Learning and Generative Artificial Intelligence) is a means to an end. Consequently, by integrating this digital technology into the contemporary Nigerian school system, classroom teachers will inspire learners to acquire and demonstrate such 21st century soft skills as lateral thinking, collaboration, creativity, global awareness and radical problem-solving. These are the elixirs needed if the school system in the country is to experience authenticity.

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