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All correspondence should be directed to:

Editor

Prof. S. D. Osaat

Department of Educational Foundations

University of Port Harcourt, P.M.B 5323, Port Harcourt, Rivers State, Nigeria.

Sunday.osaat@uniport.edu.ng

osaatsundan@gmail.com

+234 803 673 1057

+234 703 440 6894

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Philosophy of Education and Awareness of Artificial Intelligence: Technology Empowerment for Digital Education among Students of NnamdiAzikiwe University Awka, Anambra State, Nigeria

Rev. Fr. Dr. Ezeanolue, Aloysius .O

Department of Educational Foundations
Nnamdi Azikiwe University Awka
ao.ezeanolue@unizik.edu.ng
07061888431

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&

Rev. Fr. Dr. Eke Greg

Department of Educational Foundations
Nnamdi Azikiwe University, Awka
08030533141

Abstract

Philosophy of education as education in action is concerned with ideal practices in education. Digital education is one of the ideal practices of 21st century innovation and technology in education. In 2001, Federal Government of Nigeria adopted a national policy for information technology to be applied in every sector of the nation's life and particularly in education. The policy is designed to ensure that Nigeria as a nation recognizes the strategic importance of information technology that makes the work of an employee relevant and making him a valuable asset to any employer. Hence, university students need this technology to help them develop skills for competition in the global market. This study examined students' level of awareness of the potentials of artificial intelligence technology for digital education in Nnamdi Azikiwe

University Awka, Anambra State, in the light of the aims of philosophy of education. The study adopted the descriptive survey research design. Two research questions were formulated to guide the researchers in conducting the study. The population of this study consisted of 29,976 students of Nnamdi Azikiwe University Awka out of which a sample of 300 was used. A questionnaire of 20 items designed with a four-point likert scale was used as instrument for data collection. Mean ratings were used to answer the research questions. The study found out a general low level of students' awareness of the empowering potentials of artificial intelligence technology for digital education. Based on the findings, it is recommended among others, that Government agencies, university management and students' union government should organize regular seminars and conferences to intimate students on the empowering potentials of artificial intelligence technology for digital education.

Keywords: Philosophy of Education, Awareness, Artificial Intelligence Technology, Empowerment, Digital Education.

Introduction

Philosophy of education as education in action is concerned with ideal practices in education. Digital education is one of the ideal practices of 21st century innovation and technology in education. In response to the demands of the 21st century, universities are not only being held accountable for validating the content of their courses through advisory boards and accrediting bodies, but they must also graduate students who are empowered to meet the ever changing needs of business and industry (Dryden, 2008). Obanya (2009) stated that universities must strive to meet common 21st century challenges of providing students with an education that is viewed by employers as relevant and valuable, and that education must be technologically driven. Artificial intelligence (AI) is a type of technology that makes the work of an employee relevant and a valuable asset to any employer. This is in line with Okebukola (2006) who recognized that technology empowerment holds the promise of increased productivity and development for the 21st century. Artificial intelligence (AI) is the catalyst that will force the vital changes that are needed. This is not to say that artificial intelligence (AI) is itself the key to digital education, but it is the catalyst that will accelerate the acquisition of both curricular and digital skills.

Artificial intelligence (AI) is a wide-ranging branch of computer science that aims to build machines capable of performing tasks that typically require human intelligence. AI is an interdisciplinary science with multiple approaches, advancements in machine learning and deep learning in particular, creating a paradigm shift in virtually every industry. Artificial intelligence (AI) describes computers that can “think” like human recognizing complex patterns, processing information, drawing conclusions and making recommendations. It is concerned with making computers behave like human beings (Asemi and Asemi, 2018). The term was coined in 1956 by John McCarthy at the Massachusetts Institute of Technology (MIT). AI is used in many ways, from spotting patterns in huge piles of unstructured data to powering the auto correction on one's phone. Ajah and Chigozie-Okwum (2019) stated that AI includes the following areas of operation: expert systems – programming computers to make decisions in real life situations, game playing – programming computers to play games against human opponents, natural language – programming computers to understand natural human languages, neural networks – systems that stimulate intelligence by attempting to reproduce the types of physical connections that occur in human brains. AI also involves fuzzy logic, evolutionary algorithms, case based reasoning, image processing, speech recognition and robotics.

According to Asemi and Asemi (2018) Artificial intelligence (AI) is a type of technology which completes tasks that are normally done by humans in an effort to increase efficiency, productivity and overall success rates. AI is also one of the technology skills. Acquiring technology skills makes a individual more appealing to employers and may help him or her obtain or maintain certain job positions. Examples of these vital skills range from simple word processing, e-mailing of data management and user experience (UX) skills. Technology has been central in industries, its development is continuing to grow and expand. It is therefore essential for us to start growing and learning tool (Dryden, 2008). Artificial intelligence refers to computer systems that are capable of performing tasks traditional associated with human intelligence such as making predictions, identifying objects, interpreting speech and generating natural language. AI systems learn how to do so by processing massive amounts of data and looking for patterns to model their own decision-making. Artificial intelligence (AI) allows machines to match or even improve upon the capabilities of the human mind. AI aims to provide machines with similar processing and analysis capabilities as humans, making AI a useful counterpart to humans in everyday life. AI is able to interpret and sort data at scale, solve complicated problems and automate various tasks simultaneously, which can save time and fill in operational gaps missed by humans (Ajah and Chigozie-Okwum, 2019).

According to Asemi and Asemi (2018) artificial intelligence (AI) systems work by using algorithms and data. First, a massive amount of data is collected and applied to mathematical models, or algorithms, which use the information to recognize patterns and make predictions in a process known as training. Once algorithms have been trained, they are deployed within various applications, where they continuously learn from and adapt to new data. This allows AI systems to perform complex tasks like image recognition, language processing and data analysis with greater accuracy and efficiency. The primary approach to building AI systems is through machine learning (ML) where computers learn from large data sets by identifying patterns and relationships within the data. A machine learning algorithm uses statistical techniques to help it “learn” how to get progressively better at a task, without necessarily having been programmed for that certain task. It uses historical data as input to predict new output values. Machine learning consists of both supervised learning (where the expected output for the input is known, thanks to labeled data sets) and unsupervised learning (where the expected outputs are unknown due to the use of unlabeled data sets) AI systems improve on their performance of specific tasks, allowing them to adapt to new inputs and make decisions without being explicitly programmed to do so. In essence, AI is about teaching machines to think and learn like humans, with the goal of automating work and solving problems more efficiently. Many existing technologies use artificial intelligence to enhance capabilities. It is seen in smart phones with AI assistances, e-commerce platforms with recommendation systems and vehicles with autonomous driving abilities. AI serves as the foundation for computer learning and is used in almost every industry – from healthcare and finance to manufacturing and education – helping to make data – driven decisions and carry out repetitive or computationally intensive tasks (UNESCO, 2019).

Technology empowerment enhances the abilities of people to use artificial intelligence network systems to improve their life-skills. Such empowerment could be facilitated through awareness and motivation for artificial intelligence computer network systems. Awareness refers to having knowledge of and understanding the potential opportunities of using new technology like artificial intelligence (AI). Motivation is desire and interest to use AI applications in all kinds of learning and development. According to United Nations

Economic and Social Commission for Asia and the Pacific (2000) a student is said to be technologically empowered when he/she has in-depth awareness, access to technology applications, motivation, competence and knowledge to participate in technology network systems. Such technology network systems include computer operating systems, internet and simulations. Studies have found that with AI technology awareness and motivation, students gain new abilities and ways to participate and express themselves in a technology driven society (Mishra, 2003; Lallana&Uy, 2007). This empowerment is likely to influence a student's digital education. Students' technological empowerment, as the pew internet and American life project (2003) stated, is quite crucial because the world is changing fast. New ideas, new technologies and new economic and social imperatives at work are bringing nations and regions closer together both as partners and as competitors in technology. Unfortunately, Dryden (2008) observed that nearly every educational system in the world is trying to get to grips with AI technology, but nearly all is doing it without empowering students to master AI technology. On the basis of this background, the current study sought to examine students' level of awareness of the empowering potentials of Artificial Intelligence technology for digital education in NnamdiAzikiwe University Awka, Anambra State of Nigeria in the line of the aims of Philosophy of Education.

Statement of the Problem

In recent years, researchers have identified empowerment as an important element of digital education (Makinen, 2006 and Dryden, 2008). Particular attention has been directed towards using Artificial Intelligence (AI) technology as a tool for digital education in universities. University students are expected to be aware of and motivated to become competent in the use of Artificial Intelligence technology. One is, however, worried that the level of Artificial Intelligence technology awareness and motivation of Nigerian students have not been as impressive as expected (Okebukola, 2006; Mbakwem, 2008 and Ikediugwu, 2008). Although all the universities in Nigeria have made digital education compulsory for students, many university students appear not to reap the potentials of Artificial Intelligence technology in transforming their knowledge for digital development. The problem of this study is therefore to examine the students' level of awareness of the empowering potentials of Artificial Intelligence technology for digital education in NnamdiAzikiwe UniversityAwka – Anambra State of Nigeria in the light of philosophy of Education.

Purpose of the Study

The main purpose of the study was to examine the students' level of awareness of the empowering potentials of Artificial Intelligence technology for digital education in NnamdiAzikiwe University Awka – AnambraState of Nigeria in the scope of Philosophy of Education. Specifically, the study sought to determine:

1. The students' level of awareness of the empowering potentials of artificial intelligence technology for digital education in NnamdiAzikiwe University Awka – AnambraState.
2. The students' level of motivation in artificial intelligence technology empowerment for digital education in NnamdiAzikiwe University Awka – AnambraState.

Research Questions

The following research questions guided the study:

1. What is students' level of awareness of the empowering potentials of artificial intelligence technology for digital education in NnamdiAzikiwe University Awka – AnambraState?

2. What is students' level of motivation in artificial intelligence technology empowerment for digital education in NnamdiAzikiwe University Awka – AnambraState?

Method

The descriptive survey research design was adopted to conduct the study. The population of the study comprised all 29,976 students of NnamdiAzikiwe University Awka, of which 300 students were selected using simple random sampling technique. The instrument used for data collection was a 20-itemed questionnaire which was subjected to face and content validation by three experts, with the response categories of; Very High Level (VHL) from 3.50 – 4.00 points, High Level (HL) from 2.50 -3.49 points, Low Level (LL) from 2.99 – 2.00points and Very Low Level (VLL) from 1.00 – 1.49 point. A reliability coefficient of 0.82 was obtained from Pearson's Product Moment Correlation. The researchers personally distributed the Questionnaire to the respondents of which out of the 300 copies, 270 were retrieved and used for the study. This yielded 90 percent return rate. Data collected were analyzed using the arithmetic mean. The interpretation reveals that any item with a mean of 3.00 and above is regarded as high level of awareness, while an item with mean rating below 3.00 is regarded as low level of awareness.

Results

Research Question 1: What is students' level of awareness of empowering potentials of artificial intelligence technology for digital education in NnamdiAzikiwe University Awka –AnambraState?

Table 1: Mean Response of Studentson Level of Awareness of the Empowering Potentials of Artificial Intelligence Technologyfor Digital Education in NnamdiAzikiwe University Awka(N = 300)

Item No	Artificial Intelligence (AI) can empower an individual to:	Mean (\bar{X})	Decision
1	Learn technology skills for digital education.	1.19	Very Low Level
2	Produce network systems that stimulate intelligence.	2.31	Low Level
3	Process information through computer systems.	3.21	High Level
4	Process words through computer network.	3.26	High Level
5	Store information or data in computer systems.	3.28	High Level
6	Recognize speeches through system network.	2.36	Low level
7	Understand natural human languages.	2.32	Low Level
8	Make predictions through computer network.	2.30	Low Level
9	Make decision in real life situation.	2.34	Low Level
10	Identify and develop global workplace readiness skills	1.20	Very Low Level

In Table 1, seven items obtained mean ratings less than 2.50 indicating a low level of awareness of these items, while only 3 items obtained mean ratings above 2.50, showing high level of awareness of these items. By this analysis, the students indicated a low level of awareness of the empowering potentials of artificial intelligence for digital education in NnamdiAzikiwe University Awka – AnambraState.

Research Question 2: What is students' level of motivation in artificial intelligence technology empowerment for digital education in NnamdiAzikiwe University Awka – Anambra State?

Table 2: Mean Response of Students' Level of Motivation in Artificial Intelligence Empowerment for Digital Education in NnamdiAzikiwe University Awka (N = 300)

Item No	Item Statements on Artificial Intelligence Technology Motivation	Mean (X)	Decision
11	I am motivated by the AI production of network system that stimulates intelligence.	3.78	VHL
12	I feel happy when I download materials from the AI computer network system for my academic work.	3.69	VHL
13	I am motivated by AI's assistance in my identifying objects.	3.19	VHL
14	I enjoy data analysis through AI's network systems.	3.40	VHL
15	I feel happy identifying relationships in data through AI system network.	3.55	VHL
16	I enjoy detecting mistakes in digital information through AI's assistance.	3.60	VHL
17	I am thrilled by the interactivity and vast information in AI's system network.	3.57	VHL
18	I am inspired to see what students in other countries are achieving with AI technology.	2.73	HL
19	With AI empowerment, I will do well in life.	3.08	High Level
20	I enjoy playing games through programmed computer systems of AI.	3.46	High Level

In Table 2, only item 18 obtained mean rating below 3.00, rest of the items got mean ratings above 3.00. Therefore, there was a high level of students' motivation for Artificial Intelligence Technology empowerment in NnamdiAzikiwe University Awka – AnambraState, Nigeria.

Discussion

The findings of this study have indicated a general low level of students' awareness of the empowering potentials of Artificial Intelligence Technology for digital education. This finding is in line with Okebukola (2006) who reported a low level of students' awareness of the benefits of Artificial Intelligence Technology in selected universities in Nigeria. This low level awareness of the empowering potentials of Artificial Intelligence Technology might be as a result of most lecturers' failure to be involved in digital education.

Hence, Ikediugwu (2008) found that low level of new technologies use is a challenge to digital education in universities. With the low level of awareness, the stage has not been set for students to maximize the various potentials of Artificial Intelligence Technology which the developed countries have been enjoying in digital education. If students did not know enough about the empowering options or did not understand them, they might not see many reasons to utilize Artificial Intelligence Technology for digital education.

Another finding is that there was a high level of students' motivation for Artificial Intelligence technology empowerment. This finding agrees with Mbakwem (2008) who found that students in universities in South East zone of Nigeria were highly motivated to learn and use new technologies. Hence, if students are to be further exposed to Artificial intelligence Applications, they might become more aware of the limitless potentials of

Artificial Intelligence technology and more motivated to use AI technology for digital education.

It was finally found that there are a range of AI Applications which students can utilize for digital education. By utilizing such applications, university students can become AI empowered to be competently and meaningful involved in digital ventures. This can further accelerate the ability of these students to bridge the digital divide and become part of the networks of global digital activities.

Conclusion

The findings of this study call for serious actions from government agencies, University Management and Students' Union Government. Universities are in the business of preparing students for global market competition. To enhance this global market competition, it is imperative to ensure Artificial Intelligence technology empowerment among students. This study found that many Nigerian students have not been very highly empowered to utilize Artificial Intelligence technology for digital education.

Fortunately, AI computer system –based lessons and activities can equip students with digital education. One is optimistic that the utilization of the applications could lead to improved awareness and motivation of Artificial Intelligence technology for digital education.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Government agencies, university management and students' union government should organize regular seminars and conferences to intimate students more on the empowering potentials of Artificial Intelligence technology for digital education.
2. Universities should intensify digital training for students to help them become more aware and motivated for Artificial Intelligence technology empowerment.
3. Students should use the range of Artificial intelligence technology applications available on-line for digital education.
4. Holiday advanced computer training should be organized regularly for students to teach them Artificial intelligence manuals and peer tutoring to become more competent in the use of AI technology for digital education.
5. Federal government should invest more funds in awareness campaign of Artificial Intelligence technology to the universities.

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