



THE PLACE OF ARTIFICIAL INTELLIGENCE (AI) IN THE TEACHING PROFESSION IN THE 21ST CENTURY.

¹ Dr. Igwebuike, Felicia Kenechukwu
feliciaigwebuike@gmail.com

&

² Dr. Anebi, Joseph Paul Mgbede
emmanuelanebi10@gmail.com

^{1 & 2} Department of Education Management, College of Education,
Michael Okpara University of Agriculture Umudike, Abia State.

Abstract

The study was carried out to examine how the Artificial Intelligence (AI) program can enhance the teaching profession in Nsukka Education Zone of Enugu State. Two research questions and two null hypotheses tested at 0.05 level of significance guided the study. The study adopted descriptive survey design. The population of the study was 221 comprising of 88 male teachers and 133 female teachers. There was no sampling as the population is manageable. The instrument for data collection was a questionnaire developed by the researchers titled "Enhancing Teaching Profession through Artificial Intelligence (ETPTAI)." The instrument was validated by three experts. The reliability of the instrument was 0.73 derived using Cronbach Alpha Statistics. Data collected were analyzed using Mean and Standard Deviation to answer the research questions, while t-test was used to test the hypotheses. Result of the data analysis revealed that the use of AI program to a high extent enhance the teaching profession, as global access to quality education has been greatly enhanced with the use of artificial intelligence programs such as smartphone and internet connections which gives access to education tools and information that makes and keeps one educated. Based on the findings, it was recommended among others that both teachers and learners must grapple with and acquire training on ethical AI technology usage for the enhancement of the teaching profession.

Keywords: Artificial intelligence, Teaching, Profession.

Introduction:

Teaching is central to the societal growth and development. It has existed for ages such that tracing precisely when it started and how it started becomes extremely an uphill task. This is because the concept is as old as man himself and an integral part of man. Today one can hardly acquire knowledge and skills without being taught by somebody. According to Isa (2015), teaching is a systematic process of presentation of facts, ideas, skills, values and methodologies to the learners so as to transform them in their behavior positively. So teaching is an activity that consists of a body of actions intended to induce learning through the conscious and deliberate efforts of an experienced persons to impart knowledge, information, skills, attitude and beliefs to an inexperienced persons. From the definitions, Teaching is a two way traffic involving learning process between someone whose profession is teaching and the learner in an interactive manner.

A profession on the other hand is an occupation or vocation that requires specialized knowledge and often long and intensive academic preparation and advanced education. As stipulated by Postera and Gerald in Agbo (2021), a profession is a body of disciplined group of individuals who adhere to



ethical standard and who positioned themselves as possessing special knowledge and skills in a widely recognized body of learning derived from research and education.

Many educationists agreed that teaching is a noble profession that calls for the highest degree of responsibility with a dazzling impeccable professional track records imbued with transparent honesty, equity, hard work, love and compassion to all learners. Professional teachers according to Rodney (2019), with colossal intellectual, industry and sympathetic understanding of the students peculiar needs live eternally in the minds of their students and future generations. Effective teaching and interesting learning would produce functional literate persons with high moral values required for personal and societal development. The relevance of the teaching profession has been recognized both in developed and developing countries world over. Teachers are known to be resourceful. It is imperative to provide all the materials and technology needed to make them more effective in their profession, thereby giving a better and successful life to the recipients in particular and the society in general. For one to have successful life, there is need for good education. This has necessitated the need to improve the education system which is being done through changes in curriculum and teaching techniques. The world is changing at a rapid pace and education must adapt to this changes. Artificial intelligence is one of the tools in technology being used to make these changes especially in the education sector.

Artificial intelligence (A.I) as defined by Tyra (2023) is the ability of a digital computer or computer controlled robots to perform tasks commonly associated with intelligent beings. Artificial intelligence allows machines to execute tasks that have traditionally required human cognition. A.I programme can solve problems, understand and mimic natural language and learn from unstructured data (Lynch 2021). From the above definitions it is deduced that A.I mimics human behavior. As stated by Ugwu (2023), artificial intelligence program system is the most useful technology of modern times which help us not only in our daily lives but also in professional duties.

When A.I is used in reference to education. What comes to mind is those scenes in science fiction where computers and robots teach our children, doing the work of teachers thereby reducing the human element from what is a fundamental human activity. But A.I is not about humanoid robot as a teacher, but it is about using computer intelligence to help teachers and students and making the education system much better and effective (Docto 2023). According to Lynch (2023), artificial intelligence in education refers to using technology to address cognitive, physical, academic, social and emotional factors that impart learning. It is widely used to gather information, carryout research or add to knowledge of various subjects. It is a repository of materials that can be beneficial for students and teachers in the classroom. Artificial intelligent programme system can generate smart content in area of digital lessons. In this contemporary time, everything is becoming digital including education. Some schools engage in digital learning with customization options, e- books, study guides and A.I audio-visual learning. Visualizing things rather than listening is much more efficient to understand in a better way and keep in mind for a long time. With A.I programme system, the study information can be perceived in new ways of visualization, simulation, web- based environment. This makes the study more interactive and make students feel more comfortable and smarter as they explore many things apart from their syllabus (Igwebuike and Modebelu 2020).

Though a lot of benefits accrue to educators and students in the use of Artificial intelligence, implementing A.I in education comes with challenges such as cost of implementing and maintaining A.I systems can be a barrier for some schools. More so, there is the issue of availability of reliable data and need for specialized technical experts. It is quite interesting to note that Artificial intelligence is gradually becoming part of our everyday lives as new technologies have improved access to education making it more accessible. The gender gap that has discouraged girls to pursue education and career in technology subjects has affected the use of technology in the classroom, limiting the ability of Artificial intelligence to impart the critical 21st century skills needed for creativity in this digital world since the teaching profession is comprised of males and females. This has raised the question, what is the place of artificial in education? Whether A.I will have positive or negative impact on the teaching profession.



Statement of Problem

In today's rapidly advancing world, the role of Artificial intelligence is becoming more prominent in various sectors including the education sector which is evolving and Artificial intelligence is paving the way for more opportunity and growth in an ever dynamic- changing world. As artificial intelligence permeates into our daily lives including the classroom, nations (including Nigeria) are influencing an endeavor to integrate artificial intelligence into their schools, it is crucial to understand its potentials and challenges. It is against this backdrop that the researchers tried to ascertain the place of Artificial Intelligence in the teaching profession in the 21st century

Purpose of study:

The purpose of the study is to investigate the place of Artificial Intelligence in the teaching profession in the 21st century. Specifically, the study sought to:

1. Ascertain the extent artificial intelligent driven programme enhance the teaching profession.
2. Determine the extent of the challenges of the use of Artificial Intelligence to the teaching profession.

Research questions.

The following research questions guided the study.

1. To what extent do Artificial intelligence enhance the teaching profession in this 21st century?
2. What are the extent of challenges of Artificial intelligence to the teaching profession?

Hypotheses

Ho1: There is no significance difference between the mean response of male and female teachers on the extent Artificial intelligence enhances the teaching profession.

Ho2: There is no significant difference between the mean responses of male and female teachers on the extent of challenges of Artificial intelligence on the teaching profession.

Methodology

The study adopted a descriptive survey design. The study was carried out in secondary schools in Nsukka education zone, Enugu state. The population for the study was 221 teachers comprising 88 male teachers and 133 female teachers. There was no sampling as the population is manageable. The instrument for data collection was a 20- item questionnaire titled "The Place of Artificial Intelligence in the Teaching Profession" (PAITP) designed by the researchers. A four point scale was used and the values are as follows; Very High Extent (VHE), High Extent (HE), Low Extent (LE), and Very Low Extent (VLE) weighted 4,3,2,&1 respectively. The instrument was face validated by three experts. Two from the department of Educational Management and one from department of Measurement Evaluation unit, Science Education department, College of Education, Michael Okpara university of Agriculture, Umudike. The reliability of the instrument was established using Cronbach Alpha statistics which obtained a reliability index of 0.73. The instrument was administered to the respondents by the researchers with the help of two research assistants. A total copy of 221 copies were administered. 24 copies were wrongly filled, 9 copies mutilated and 11 copies could not be retrieved, making a total of 44 copies. So 177 copies of the questionnaire were used for data collection. The data collected was analyzed using mean and standard deviation to answer the research questions. T-test was used to test the null hypotheses at 0.05 levels of significant. Precisely real limit of numbers was used to answer the research questions since they measured the extent of enhancing the teaching profession. Any item with a mean of 3.50 and above was considered as Very High Extent (VHE), 2.50 – 3.49 as High Extent (HE), 1.50 – 2.49 as Low Extent (LE), 0 – 1.49 Very Low Extent (VLE). The hypothesis was accepted where



significant P- value was greater than alpha value of 0.05 level of significance: otherwise the null hypothesis was rejected.

Results.

Research Question 1: To what extent do Artificial intelligence enhance the teaching profession in Nsukka education zone?

Table 1: Mean and standard deviation of the respondents on the extent Artificial intelligence enhance the teaching profession in Nsukka Education zone.

The data derive shows that the calculated t-value is - 0.54 while the t-critical value is 1.97 at 0.05 level of significant and at 175 degree of freedom. Since the t-calculated value is less than the t-critical value, the null hypothesis was not rejected. Therefore, there is no significant difference between the mean ratings of male and female teachers on the extent of challenges of Artificial intelligence to the teaching profession in Nsukka Education zone.

Discussion of findings.

The findings of this study reveals that Artificial intelligent enhance the teaching profession to a high extent as it helps in provision of high teaching resources. In this manner, it promotes intelligent tutoring systems for some subjects to support students learning. This finding gives credence to Ugwu (2023) who stated that for most teachers, the greatest impact of Artificial intelligent on their roles as teachers is having been to more content, resources and materials for teaching in the classroom and greater ability to keep up with development in their field. Ugwu's assertion corroborates Abubakar and Salmon (2018) stressed that by having access to thousand books, games, websites etcetera, teachers can provide a world of knowledge to their students. In line with supporting students learning, Lyrich (2021) noted that students have different intelligence quotient. Not all students are smart enough to grasp at once all that is being taught by the teacher. They need additional supports to help them in understanding study materials which can be provided by A.I-tutor driven programs, students can learn fundamentals of courses or subjects.

Through the findings of the study, it was revealed that Artificial intelligence can change the role of the teacher as a facilitator. A.I has digitalized learning. Students can learn anywhere and anytime. They can explore study materials whenever they want to learn without waiting for a teacher. This corroborates Igwebuike (2021) who stated that technological tools help in accessing high-quality courses and materials from all over the world at the comfort of their homes. Working professionals, students and others can get the high quality education needed for career advancement despite geographical and other constraints.

The findings also revealed that Artificial Intelligent to a high extent help students with learning disabilities. Development of A.I powered braille tutor applications can help address the needs of students with visual impairment. These applications can convert physical braille characters into digital text via optical character recognition (OCR) (Khawlah, Algahazo and Tahat 2023). Stressing the fact that A.I ensures access to education for students with special needs, these authors noted that A.I tools are being used to train students who have some learning disabilities for example, the deaf or hard hearing, visually impaired, the cripple etcetera. With the adoption of innovative A.I technology, such students can have access to education.

It was equally discovered in this study that A.I poses some challenges to the teaching profession. Such challenges include minimal human contacts between teaches and learners, no specialized technical experts, high cost of maintenance and implementation, lack of appropriate technological equipment, poor electricity supply, increased reliance on technology, lack of human elements etcetera. Social skills and good communication are important skills that students need to learn which cannot be gotten by A.I driven program. This assertion supports Kazimerz (2024) who in his study opined that A.I will not be



able to recognize unique talents and inspire students who don't fit the pattern. The author also stated that A.I would not display such qualities as empathy and good listening skills which great teachers are known for. More so, it should be noted that most of the key skills for students are based on interaction with others rather than acquisition of knowledge. Therefore, A.I will not be able to impart the critical 21st century skills needed for creativity and good communication.

Finding from the study also revealed that A.I in education brings about lack of human elements. This finding corroborates Kesley (2023) who noted that A.I technologies cannot understand students disabilities, whether mental learning or physical that exist within students population. In line with this, Khawlah (2023) wrote that of concern to A.I use in education is the potential loss of human interaction in the learning process, as A.I may not fully replace the nuanced dynamics of teacher- student relationships.

Conclusion:

It is quite interesting to note that A.I are gradually becoming part of our everyday lives. Education is evolving and A.I driven program is paving the way for more opportunity and growth in an ever dynamic world. A.I in education has come to stay, and its influence is being felt as a tool in helping teachers and students in the learning process. Within the realm of education, A.I offers a multitude of possibilities to augment the learning process. From personalized learning experience to increased efficiency, A.I is reshaping traditional educational approaches. This transformational technology holds the potential to enhance the teaching profession, encourage students' engagement and pave the way for more inclusive and effective educational landscape.

The aim of A.I in education is not to completely replace teacher, but to act as helping hands for teachers and students. It could also be said that while A.I helps in some teaching process, A.I cannot completely replace traditional classroom education. Striking a balance between technology innovations and preserving the human touch in education is crucial. The future of the teaching profession should be that of partnership between technology and human expertise working together to provide the best learning experience for the students.

Recommendations

1. Both teachers and learners must grapple with how to use the technologies responsibly; hence the need for teachers' development in such area to acquire training and expertise in the use of A.I.
2. There should be human centered approach to the use of A.I. technology to enhance and support teachers rather than replacing them with machines.
3. There should be a synergy between A.I. technology and teachers in teaching and learning process in order to provide maximum benefits for students, teachers and education in general.

References

- Abubakar,H. & Salmon,Y (2018). Impact of internet technology, usage on the job performance of senior secondary teachers in Kaduna state. *International Journal of curriculum and instruction*. 10(2) 152-167.
- Agbo, T.O. (2021) profession. In T.O Agbo & A.C Eko-Nweke (eds). Current professional ethics and social responsibilities in modern society pejas solution limited.
- Docto, J.R. (2023). Information and communication technology, utilization in the classroom. *World Journal of education and humanities Research* 3 (4) 129-134.
- Igwebuike, F.K. (2021). Managing distance education to enhance education for all in the 21st century. In U.N. Akanwa, A.E. Inaja & P.O. Obi (eds) Emerging issues in counselling and education. COED MOUAU.
- Igwebuike, F.K. & Modebelu, M.N. (2020). Lectures' perspectives in utilization of interactive white board in promoting 21st century teaching and learning in federal universities in South East Nigeria. *Lafia Journal of Education* 1(2) 227-237.



- Isa, J. (2015). Teaching in Nigeria. A profession or just a job? In G.N Uzoechinede (eds). Teacher education in Nigeria: innovations and Reforms. Global Academic Online Academic Resources.
- Kazimerz, R. (2024). Artificial intelligence in education. Will technology destroy education or save it <https://www.tidio.com.blog/rat.....>
- Kesley, J. (2023). Predicting the challenges of artificial intelligence use in schools. <https://www.simplelearn.com>chall>.
- Khawlah, M.A, Alghazo, C.M & Tahat, D (2023). Advantages and disadvantages of using artificial intelligence in education. Journal of educational and social sciences. <https://creativecommons.org/licenses/by-nc/u.ei>
- Lynch, M. (2021). My visions for the future of artificial intelligence in education. <https://educationhub.blog.gov.4/12/2023>.
- Rodney (2019). How Europe underdeveloped Africa. Abuja panaf publishers Tyrah, N.F. (2023). The use of artificial intelligence in education. (AIED). Can A.I replace the teachers' role *Journal of English education*. 12(1) 44-48.
- Ugwu, P. (2023). Amazing advantages of internet in education. <https://www.ada247.com/school/rolesandusesofinteractioneducationperformance>.