Asia-Africa Journal of Education Research (AAJER) The Official Journal of the International Association for the promotion of Asia-Africa Research, India Volume 4, Number 1, 2024 ISSN: 2814 – 3639

https://journals.iapaar.com/index.php/aajer

# Intersection of AI with the inculcation of Educational Psychology skills in teachers and Sustainable Development in Nigeria

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**Abstract**
*This study investigated the influence of Intersection of AI with Educational Psychology in Sustainable Development in Nigeria. Specifically, to investigate the influence of the intersection of AI With inculcation of skills in human perception, emotional intelligence, transformed communication and with personality management in Educational Psychology had on Sustainable Development. The sample was made up of 150 teachers. The instrument used was researchers designed and had a reliability index of .84. Linear regression techniques were then used to analyze the data. The Results suggest that there was significant influence of the intersection of AI with inculcation of skills in human perception, emotional intelligence, transform communication and personality management in Educational Psychology of teachers on Sustainable Development. It was recommended that educational psychology should be emphasis by stakeholders.*
**Keywords:** educational psychology, artificial intelligence, sustainable development

## Introduction

Artificial Intelligence (AI) has penetrated various sectors and effecting changes., The intersection of AI in education is gradually becoming a reality, especially as it involves personalized learning. There is no commonly accepted definition of AI (Murensky, 2000). For the purposes of this paper, we will use a broad definition of AI as "Computers which perform tasks, usually associated with human minds, particularly learning and problem-solving." (Baker & Smith, 2019). It is called artificial to differentiate it from human intelligence (Brown, Smith, & Williams, 2021).

Emotional intelligence is the ability to understand, use, and manage one's emotions in positive ways to relieve stress, communicate effectively, empathize with others, overcome challenges and defuse conflict (Walker, Double, Kunst, Zhang, MacCann 2022). On the other hand, communication based on the development of qualities such as empathy, integrity, responsibility, assertiveness, and leadership. Actually, the use of the internet, social media, instant messaging, video conferencing and other digital technologies makes communication faster (Ahmad, 2024). Personality refers to the enduring characteristics and interrelated behavioral, cognitive and emotional patterns of relatively stable behavior that comprise a person's unique adjustment to life, including major traits, interests, drives, values, self-concept, abilities, and emotional patterns(van der Linden, Pekaar, Bakker, Schermer, Vernon, Dunkel, Petrides, 2017).

Sustainable development is an approach to growth and human development designed to meet the needs of the present without compromising those of future generations. The aim is to have a society where living conditions and resources meet human needs without undermining planetary integrity and to balance the needs of the economy, environment, and social well-being. (United Nations General Assembly,1987).

In Nigeria, where the pursuit of the United Nations Sustainable Development Goals (SDGs) is a national priority, the intersection of AI and educational psychology offers a promising approach to tackling longstanding educational challenges and promoting sustainable development. Educational psychology, which focuses on how individuals learn and develop in educational settings, is essential for creating effective learning environments. By incorporating AI into this field, there is potential to improve educational outcomes, support teachers and administrators, and foster inclusive education, which aligns with Nigeria's broader sustainable development goals.

Nigeria's education sector faces numerous challenges, including overcrowded classrooms, limited resources, a shortage of qualified teachers, and significant disparities in educational access, especially in rural areas. These issues are further exacerbated by the country's rapidly growing population, which adds more pressure to an already strained educational system. The SDGs, particularly Goal 4, aim to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. However, achieving these goals requires innovative solutions that go beyond traditional educational methods.

AI offers a promising way to address these challenges by providing tools that can enhance the quality of education, personalize learning experiences, and improve overall educational outcomes. The integration of AI with educational psychology is particularly relevant in this context, as it enables the development of AI-driven educational tools that are informed by psychological principles. This ensures that these tools meet the cognitive, emotional, and social needs of students.

Globally, AI technologies such as adaptive learning systems, intelligent tutoring systems, and personalized learning platforms are increasingly being used in educational settings. These technologies use data analytics and machine learning algorithms to create personalized educational experiences tailored to individual students' needs (Johnson, 2021). In Nigeria, where challenges like overcrowded classrooms and varying levels of student preparedness are common, AI can significantly improve learning outcomes by offering customized learning paths that align with students' unique abilities and learning styles.

Recent studies have shown the effectiveness of AI in enhancing educational outcomes. For example, an AI-driven adaptive learning system implemented in a Nigerian secondary school was found to significantly improve students' performance in mathematics, particularly among those who had previously struggled with the subject (Oyelere et al., 2022). By analyzing students' learning patterns and providing personalized feedback, the system helped students better understand the material and develop the skills necessary for academic success.

In addition to benefiting students, AI can also provide substantial support to teachers and educational administrators. In Nigeria, where teachers often face overwhelming class sizes and heavy administrative responsibilities, AI can help alleviate some of these burdens by automating routine tasks such as grading, tracking student progress, and identifying at-risk students. This allows teachers to focus more on the psychological and emotional aspects of teaching, such as motivating students, addressing behavioral issues, and creating a positive learning environment (Smith & Williams, 2020).

Moreover, AI-driven analytics can offer educators valuable insights into student performance, enabling them to identify trends and make informed decisions about curriculum design, teaching strategies, and resource allocation (Brown et al., 2021). By integrating AI into

educational psychology, not only can teaching effectiveness be enhanced, but the broader goals of sustainable educational development in Nigeria can also be supported.

Ensuring that all students, regardless of their background or abilities, have access to quality education is one of the key challenges in Nigeria's education sector. AI has the potential to promote inclusivity in education by providing customized learning materials that cater to the diverse psychological needs of students, including those with learning disabilities or those in rural areas with limited access to quality education (Adebayo & Ogunleye, 2021). For instance, AI-powered educational tools can be developed to create learning modules that are accessible to students with visual or hearing impairments, ensuring they receive the necessary support to succeed academically.

Furthermore, AI can help bridge the gap between urban and rural education in Nigeria by offering online learning platforms that deliver high-quality educational content to students in remote areas. These platforms can be designed to accommodate different learning styles and preferences, ensuring that all students have the opportunity to learn and thrive in a supportive educational environment (Okafor & Eze, 2022).

In recent years, there has been extensive research on the use of AI in education, with many studies highlighting its potential to transform the learning experience. AI-driven adaptive learning systems, in particular, have proven to be highly effective in personalizing education, allowing students to learn at their own pace and according to their individual needs (Johnson, 2021). These systems use algorithms to analyze students' learning behaviors and provide tailored feedback and recommendations, helping them improve their understanding of the material and achieve better academic outcomes.

In Nigeria, while research on AI in education is still in its early stages, the results have been promising. For example, Oyelere et al. (2022) conducted a study on the use of an AI-driven adaptive learning system in a Nigerian secondary school and found that it significantly improved students' performance in mathematics. The study also emphasized AI's potential to reduce teachers' workloads by automating routine tasks, allowing them to focus more on the psychological and emotional aspects of teaching.

Educational psychology plays a critical role in the design and implementation of AI-driven educational tools. By applying psychological principles to the development of these tools, educators can ensure that they meet the cognitive, emotional, and social needs of students (Smith & Williams, 2020). For example, AI-driven tutoring systems can be designed to provide personalized feedback that is not only academically relevant but also emotionally supportive, helping students build confidence and resilience in their learning.

Moreover, educational psychology can inform the design of AI-driven interventions that address specific psychological challenges faced by students, such as anxiety, motivation, and self-regulation. Research has shown that AI-driven interventions that incorporate psychological principles can be highly effective in improving students' psychological well-being and academic performance (Brown et al., 2021).

Sustainable development in Nigeria is closely linked to the quality of education provided to its citizens. As the country strives to achieve the SDGs, particularly SDG 4, there is an increasing recognition of the need for innovative educational approaches that can address the unique challenges of the Nigerian education system (Adebayo & Ogunleye, 2021). The integration of AI with educational psychology represents one such approach, offering the potential to enhance the quality of education, promote inclusivity, and support sustainable development.

Research indicates that AI-driven educational tools can contribute to sustainable development by improving educational outcomes, reducing inequalities in access to education, and supporting the psychological well-being of students (Okafor & Eze, 2022). As Nigeria continues to explore the potential of AI in education, it is crucial that these efforts are guided by the principles of educational psychology, ensuring that the tools and interventions developed are both effective and supportive of students' overall development.

**Purpose of the Study**

The Purpose of the Study was to find out the influence of Intersection of AI with Educational Psychology in Sustainable Development in Nigeria. Specifically, to investigate the influence that the intersection of AI With inculcation of skills in human perception, emotional intelligence, transform communication and personality management in Educational psychology has on Sustainable Development

**Research Questions**

1. What influence does the intersection of AI with inculcation of skills in human perception in Educational Psychology in teachers has on Sustainable Development?
2. What influence does the intersection of AI with inculcation of skills in emotional intelligence in Educational Psychology in teachers has on Sustainable Development?
3. What influence does the intersection of AI with inculcation of skills in transform communication in Educational Psychology in teachers has on Sustainable Development
4. How does the intersection of AI with inculcation of skills in personality management in Educational Psychology in teachers has on Sustainable Development?

**Hypotheses**

1. The intersection of AI with inculcation of skills in human perception in Educational Psychology in teachers has on Sustainable Development is not significant
2. The intersection of AI with inculcation of skills in emotional intelligence in Educational Psychology in teachers has on Sustainable Development is not significant
3. The intersection of AI with inculcation of skills in transform communication in Educational Psychology in teachers has on Sustainable Development is not significant
4. The intersection of AI with inculcation of skills in personality management in Educational Psychology in teachers has on Sustainable Development is not significant

**RESEARCH METHOD**

The research design used in this study was ex-post facto. This was adopted because the research has no direct control of the dependent variables. Ex-post facto was considered most suitable because the aim of the research was to observe the influence of what has already occurred.

The Area of the study was Nigeria however the study was delimited to teachers in Akwa Ibom State. The sample of the study consisted of one hundred and fifty (150) teachers. Purposive sampling technique was utilized. The research instrument used in this study was a questionnaire titled Teachers Characteristics Questionnaire (TCQ) and Students. This instrument was developed by the researcher on a 4-point rating scale of Strongly Agree (SA), Agree (A), Strongly Disagree (SD) and Disagree (D). All participants were requested to

indicate the extent of their agreement and disagreement by ticking (√) the items on the questionnaire. In order to ascertain both face of the instrument, the instrument was given to three experts in the department of measurement and evaluation all in the University of Uyo for vetting. They checked the quality and relevance of the items including appropriateness, and clarity. Their inputs in forms of corrections were implemented before the questionnaire was produced for use in the study. The supervisor did the final scrutiny of each of the items before they were administered to the students.

In order to establish the reliability of the instrument, it was administered to 30 teachers that were not part of the main study. The reliability coefficient using Cronbach Alpha which stood at 0.84. The value was substantially high enough to justify the use of the instrument.

The researcher with the help of one (1) assistant administered the instrument to teachers in the sampled schools. The researcher went with the letter of introduction to each school during official hours so as to meet teachers and principals in session. The teachers were informed of the relevance of the study and were told of their honest responses to the questionnaire items would bring to light the problems they were facing in their jobs due to their personal characteristics. The respondents were assured that their responses to the instrument would be treated with strict confidentiality. Two hundred (150) copies of the instrument were issued and all were retrieved in a usable form from the respondents. The data collected in the study were analyzed using regression and tested at. 0.05 significant level.

**Results**

**Table 1**

Summary of the R2 of the influence of the intersection of AI with inculcation of skills in human perception in Educational psychology in teachers has on Sustainable Development

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.878 | 0.770884 | 0.767884 | 2.232116 |

ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1748.436 | 1 | 1748.436 | 210.1223 | .000[b] |
| | Residual | 1231.514 | 148 | 8.321041 | | |
| | Total | 2979.95 | 149 | | | |

From Table 1 the R2 value is =.7678, hence the percentage contribution of the intersection of AI with inculcation of skills in human perception in Educational psychology in teachers on Sustainable Development is 76.78%.

The ANOVA table shows that the value of R value is significant at .05 significant level, hence The intersection of AI with inculcation of skills in human perception in Educational psychology in teachers on Sustainable Development is significant

**Table 2**

Summary of the R2 of the influence of the intersection of AI with inculcation of skills in emotional intelligence in Educational psychology in teachers has on Sustainable Development

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.867 | 0.751689 | 0.748689 | 2.251311 |

ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1743.214 | 1 | 1743.214 | 208.6101 | .000[b] |
| | Residual | 1236.736 | 148 | 8.356324 | | |
| | Total | 2979.95 | 149 | | | |

From Table 2 the R2 value is =.7486, hence the percentage contribution of the intersection of AI with inculcation of skills in emotional intelligence in Educational psychology in teachers on Sustainable Development is 74.86%.

The ANOVA table shows that the value of R value is significant at .05 significant level, hence the intersection of AI with inculcation of skills in emotional intelligence in Educational psychology in teachers on Sustainable Development is significant

**Table 3**

Summary of the R2 of the influence of the intersection of AI with inculcation of skills in transform communication in Educational psychology in teachers has on Sustainable Development

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.879 | 0.772641 | 0.769641 | 2.230359 |

ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1739.444 | 1 | 1739.444 | 207.5264 | .000[b] |
| | Residual | 1240.506 | 148 | 8.381797 | | |
| | Total | 2979.95 | 149 | | | |

From Table 3 the R2 value is =.7696, hence the percentage contribution of the intersection of AI with inculcation of skills in transform communication in Educational psychology in teachers on Sustainable Development is 76.96%.

The ANOVA table shows tht the value of R value is significant at .05 significant level, hence The intersection of AI with inculcation of skills in transform communication in Educational psychology in teachers on Sustainable Development is significant

**Table 4**

Summary of the R2 of the influence of the intersection of AI with inculcation of skills in personality management in Educational psychology in teachers has on Sustainable Development

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.854 | 0.729316 | 0.726316 | 2.273684 |

ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1752.567 | 1 | 1752.567 | 211.3276 | .000[b] |
| | Residual | 1227.383 | 148 | 8.293128 | | |
| | Total | 2979.95 | 149 | | | |

From Table 4 the R2 value is =.7263, hence the percentage contribution of the intersection of AI with inculcation of skills in With personality management in Educational psychology in teachers on Sustainable Development is 72.63%.

The ANOVA table shows tht the value of R value is significant at .05 significant level, hence The intersection of AI with inculcation of skills in personality management in Educational psychology in teachers on Sustainable Development is significant

**Discussion of Finding**

From the result, the percentage contribution of the intersection of AI with inculcation of skills in human perception in Educational psychology in teachers on Sustainable Development is 76.78%. It was also found to be significant which agreed with the work of Walker, Double, Kunst, Zhang, MacCann (2022).

Equally, the percentage contribution of the intersection of AI with inculcation of skills in emotional intelligence in Educational psychology in teachers on Sustainable Development is 74.86%. It was also found to be significant which agreed with the work of Walker Baker, & Smith, (2019). In addition, the percentage contribution of the intersection of AI with inculcation of skills

in transform communication in Educational psychology in teachers on Sustainable Development is 76.96%. It was also found to be significant which agreed with the work of Walker Murensky, (2000).

Additionally, percentage contribution of the intersection of AI with inculcation of skills in with personality management in Educational psychology in teachers on Sustainable Development is 72.63%. It was also found to be significant which agreed with the work of Walker Stanek, Kevin, Ones, Deniz (2018).

**Conclusion**

The Intersection of AI with Educational Psychology among teachers has a significant influence on Sustainable Development in Nigeria.

**Recommendations**

It was recommended that educational psychology should be given more emphasis in the training of teachers if we want to meet the goals of sustainable development. The interception should be considered in the designing of programmes and curricular design for the teachers

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