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Assessment of Lecturers' Acceptance and Adoption of Artificial Intelligence Technology for educational Testing in Tertiary Institutions in Akwa Ibom State, Nigeria

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Abstract: *This study assessed lecturers' acceptance and adoption of Artificial Intelligence technology in educational testing for educational testing in Akwa Ibom State owned tertiary institutions, Nigeria. The study was guided by two research questions and one hypothesis. The study adopted descriptive research of the cross-sectional survey type. The population of the study consisted of lecturers in state owned tertiary institutions in the State with a total of 1,794. A purposive sampling technique was used to select only the state-owned tertiary institutions in the area; one university, one polytechnic, and one college of education. The sample size of the respondent was 314 lecturers. A researcher's designed questionnaire titled, LAAAITET was used as the instrument for data collection. This instrument was validated by experts for face and content validity. Using SPSS, Mean and ANOVA were used to analyze the data. The findings indicated that lecturers in tertiary institutions in Akwa Ibom State accept and adopt Artificial Intelligence technology in educational testing. That area of specialization is not a moderating factor in the acceptance of Artificial Intelligence technology in educational testing among lecturers in tertiary institutions in Akwa Ibom State. Based on these findings, it was recommended that lecturers should be motivated and encouraged to incorporate the adoption of Artificial Intelligence technology in educational testing in tertiary institutions by organizing workshops through agencies such as; TETFUND. Also, lecturers irrespective of their area of specialization should be given equal opportunity to integrate and utilize Artificial Intelligence technology in educational testing.*

Keywords: *Acceptance, adoption, Artificial Intelligence, Educational Testing, Tertiary Institution*

Introduction

Looking around the society, it could be observed that almost everybody in one way or the other are engaged in technology. This perhaps may be due to the fact that, it can be applied in all aspect of human endeavors. For instance, in banking sectors business transactions are now done in the comfort of homes with the use of technology by enhancing money transferred and receipt

from any part of the world among others. Worthy of note is that, education sector is not left out of this trend, as it helps in facilitating teaching and learning processes. The trending nature of technology has metamorphosed into the emergence of one of the most recent technologies known as; Artificial Intelligence (AI).AI as it is fondly called was first coined in 1956 at a Dartmouth conference by John McCarthy (Adeyoju, 2019). According to Ekim, Essien and Essien (2024), it is a promising tool that was introduced to revolutionize numerous industries including education.

Base on its trending nature in all works of life, Ekim, Essien and Essien (2024) posited that AI-powered systems have been increasingly utilized in education by enabling personalized learning experiences, adaptive feedback, and automated grading. Adepoju again, stated that AI is a field which combines computer sciences and robust datasets to enable problem-solving. It is intelligent machines that can process and interpret language; mine and analyze data; create artistic; and original works. That is, it is the capability of machines or computer programs to imitate human intelligence and perform tasks that typically require human cognition, such as learning, reasoning, problem-solving, and decision-making. In recent years, AI has gained significant attention in the field of education as mentioned earlier may be due to its potentials to enhance and transform traditional educational approaches. With these rapid advancements, there has been a growing interest in exploring the potential of AI in enhancing educational practices and improving learning outcomes. In the nut shell, AI has the ability to transform traditional educational approaches, making them more personalized, adaptive, and effective in meeting the diverse needs of learners (Singh and Ritzhaupt, 2019). Thus, the use of AI in education has gained significant attention due to its potential to address the challenges the current education system faces. These challenges include providing personalized learning experiences, adapting to the changing demands of the job market, and bridging the gap in educational access and quality across different regions and socio-economic backgrounds.

One of the key areas where AI has been applied in education is in educational testing. One of the most commonly used assessment tools or instrument in education is test. Beyond being considered as an instrument, test is as viewed by Eduwem, Ekim and Offiong (2023), is an engine that drives learning since it functions in measuring the level of students' learning. Tests are designed to measure the quality, ability, skill or knowledge of a sample against a given standard, which usually could be deemed as acceptable or not. In educational practice, tests are methods used to determine the students' ability to complete certain tasks or demonstrate mastery of a skill or knowledge of content. Tests can be classified in different ways among others are; according to who conducts and who construct it. By this, test can be called; internal or external and teacher-made test or standardize test respectively. According to Manichander (2016), although tests have been interchangeably used to mean assessment or even evaluation, the distinguishing factor of a test is the fact that it is a form of assessment. Maybe this is the reason Ukwuije and Opara (2012), explains a test to mean the administration of an instrument to the tastes for determining some previously identified objectives in the individual. According to them, the objectives here may vary from achievement, attitudes, interest, personality, social adjustment, psychomotor skills and so on.

Onah(2022), conjecture testing as a method of measuring a person's ability, knowledge, or performance in a given domain. That is, it is a process of measuring single or multiple concepts, under a set of predetermined conditions. AI in testing has a rich history dating back to the 1960s when researchers first explored the use of computers for automated scoring of multiple-choice tests. Since then, AI has evolved to encompass a wide range of assessment types, including open-ended questions, simulations, and adaptive assessments. Artificial Intelligence (AI) has the potential to revolutionize educational testing in several ways, making it more efficient, accurate, and accessible. The importance of AI in educational testing cannot be overemphasized. AI can streamline the test administration process by automating tasks such as test scheduling, test delivery, and test security measures. This can result in more efficient and cost-effective testing processes. For instance, AI-based remote proctoring solutions can monitor test-takers in real-time using video and audio analysis, reducing the need for in-person proctors (Singh and Ritzhaupt, 2019).

AI can facilitate the creation of high-quality test items by automatically generating test questions based on predefined criteria, such as learning objectives or cognitive levels. AI can also analyze large amounts of data, such as students' performance data, to identify patterns and create adaptive test items that are tailored to the individual learner's ability level. This can result in more valid and reliable assessments(Shute and Kim, 2014). AI can improve scoring accuracy in educational testing by leveraging natural language processing and machine learning algorithms to automatically score open-ended responses. AI-based scoring systems can reduce human bias in scoring and provide consistent and objective scoring across a large number of test items and test-takers(Attali and Burstein, 2016). AI can provide personalized feedback to learners based on their performance in educational tests. AI-based feedback systems can analyze test results and provide tailored feedback to help learners understand their strengths and weaknesses, and guide them towards areas that require improvement. This can support learners in their self-directed learning and promote continuous improvement. (Dascalu, Dessus, Trausan-Matuand McNamara, 2017). The implementation of AI technology in testing suggests that the attitude towards testing tasks, interaction and communication can be improved and therefore it increases the ability to test.

Area of specialization is among the factors that the researcher considered important as been tested in the research. Even taking into account that this factor is significant; there is still no clear understanding of how and why this factor may affect lecturers‟ acceptance of Artificial Intelligence technology in educational testing for educational testing in tertiary institutions. Also, the literature associate's acceptance to personal characteristics (mediated factors) such as area of specialization. Assessing lecturers' acceptance of Artificial Intelligence technology in educational testing for educational testing in tertiary institutions is yet another area in which area of specialization may manifest itself. However, it is generally often neglected in technology utilization for testing studies (Gefen and Straub, 2017). Area of specialization is the discipline individual lecturers in the tertiary institutions specialized on (Daramola, 2011). In the tertiary institutions, area of specializations can be grouped into Arts, Social Sciences, Sciences and many others. Regardless of the lecturers' area of specialization, the use of AI technology for educational

testing cannot be over-emphasized. However, lecturers specialize in many areas of specialization such as; Arts, Social Sciences, Sciences among others.

The Arts, which offer children the opportunities for progressive acquisition of skills in mental and motor activities, as well as the cognitive, help to lay the solid foundation for technological development (Okeke, 2018). By the definition, it can be seen as a heart of cultural expression and societal progress. Art has multiple functions that make its definition difficult. It has philosophical, ideological, religious, socio-cultural and aesthetic meaning, and this is the reason it is not easy to pin it down to a particular definition. Recently, this field of specialization due to the help of AI has evolved from a traditional craft to a multifaceted area of specialization. Arts encompass; fine arts, performing arts, digital media, cultural studies, and interdisciplinary practices. Arts as academic programmes and professional industries increasingly recognize the transformative potential of creative pursuits especially with the advent of AI and has thus, become an essential pathway for fostering innovation, critical thinking, and social engagement. This is evident in educational institutions that are reimagining their curricula to bridge the gap between theory and practice.

To this end, tertiary institutions have begun offers courses in visual arts, music, theater, film, and digital art, among other disciplines for specialized degrees. This shift not only nurtures individual creativity but also supports community development by promoting cultural heritage, local talent, and industry partnerships. Furthermore, arts discipline have also gained prominence as it offers a unique blend of creative exploration and professional training. Students and practitioners are empowered to experiment with new media, traditional practices, and interdisciplinary projects that challenge conventional norms. As a result, arts graduates are well equipped to tackle complex societal issues through innovative perspectives, whether in the realms of public policy, community development, or global cultural dialogue. Cultural institutions and community initiatives such as; galleries, performing centers and community theaters also play a significant role in this transformation as AI allows them to provide platforms for emerging artists to showcase their work, engage with audiences, and contribute to a broader cultural narrative. These local entities are often at the forefront of experimenting with new artistic formats and blending traditional art forms with modern techniques, thereby continuously enriching the cultural landscape. Therefore, the role of arts cannot be over estimated in recent times. The rapid expansion of digital technologies has further broadened the scope of arts specialization. Digital art, animation, and virtual reality are now recognized as legitimate fields of creative inquiry, merging technology with artistic vision. The integration of these digital tools not only modernizes traditional art forms but also democratizes access to creative expression, enabling a new generation of artists to engage with global audiences(Guardian Nigeria Art, 2025). With this, it can be closely observed that the success of these disciplines' hinges on the quality of faculty and research initiatives in tertiary institutions. For this reason, the lecturers ought to bring fresh perspectives and extensive professional experience to the classroom to enrich the learning environment.

Social science is a dynamic and evolving area of specialization in academics that examines human behavior, social relationships, and societal structures. Indresh (2020), stated that Social

Science is the study of the activities of the physical and social environment. He added that, it is basically the study of human relations or the scientific study of human society. By these definitions the discipline enhances in the understanding of human behavior, societal structures, and interactions, enabling individual to analyze complex issues, make informed decisions, and contribute to a better society. This discipline of historiography according to (Nisbet and Greenfeld, 2025), is traditionally made up of different fields like; Anthropology, Sociology, Geography, Psychology, Economics, and Political Science. Scholars in this area have recently, been expanding and redefining the scope and methodologies of Social Sciences in order to address some contemporary challenges and leverage technological advancements. Thus, the advancement of AI in social science. Raman (2023), in relation to this posited that, Artificial Intelligence (AI) has emerged as a game-changer, revolutionizing the way researchers collect, analyze, and interpret data in social science research. Raman further explained that the transformative technology is not only accelerating the pace of discovery but also help in expanding the horizons of what is possible in understanding human behavior, society, and culture.

According to the oxford dictionary, science is the systematic study of the structure and behaviour of the physical and natural world through observation, experimentation, and the testing of theories against the evidence obtained. In general terms, science involves a pursuit of knowledge covering general truths or the operations of fundamental laws. As a discipline, it is a systematic endeavor that builds and organizes knowledge through testable hypotheses and predictions about the universe, often divided into natural and social sciences (Wikipedia). Still, the Wikipedia explains that science is typically divided into different branches based on the subject of study. The Physical Sciences study the inorganic world and comprise the fields of Astronomy, Physics, Chemistry, and the Earth Sciences. The biological sciences such as Biology and Medicine study the organic world of life and its processes. Social Sciences like Anthropology and Economics study the social and cultural aspects of human behaviour. Due to its vast area of study and their relevance to the society, is, the discipline dynamic in nature. Thus, the emergence of AI technology in science to help FastTrack its rapid development to suit the dynamic world.

Teaching and learning have shifted from the teachers‟ point of view to student centered and there is a move from the traditional classroom environment to a virtual classroom environment since the former was no longer meeting the need of the contemporary society. Thus, technology since then has been changing many aspects of education most importantly at the higher level in terms of e-learning, in the way of testing, communication media and in all other aspect of teaching and learning processes. The adoption of technology (Artificial Intelligence, AI) in post-secondary institutions in Nigeria especially in Akwa Ibom State has therefore become an important research topic. Tertiary institutions have to take advantage of the potential applications of the AI technology for educational testing. Thus, they have to provide special environment to make use of the AI technology in developing the lecturers‟ capabilities in testing and giving them the opportunity and access to the new innovations to reach a high level of excellence and creativity.

It is also important to ascertain lecturers‟ acceptance and adoption of AI technology for educational testing before the utilization of AI technology in testing because lecturers are central in the dissemination of the curriculum at the tertiary level of education. There was more research work on adoption and perception of computer for instructional delivery but a few on AI technology in testing. Few empirical works have been done on Awareness and Attitude of lecturers towards the use of AI for instructional delivery. But not much has been done on lecturers' Acceptance and Adoption of AI for educational testing. Hence, there is the need to assess acceptance of AI technology for educational testing in tertiary institutions in Akwa Ibom state, Nigeria.

The general purpose of this study is to assess the lecturers' acceptance and adoption of artificial intelligence technology in tertiary institutions. Specifically, the study is to:

1. Find out if the lecturers accept AI technology for educational testing in tertiary institutions.
2. Assess the Mean acceptance of AI technology according to lecturers' areas of specializations.

Research Questions

1. Do lecturers accept AI technology for educational testing in tertiary institutions?
2. What is the Mean acceptance of AI technology according to lecturers' areas of specialization

Research Hypothesis

There is no significant difference in the Area of Specialization of lecturers' acceptance of AI technology for educational testing in Tertiary institutions.

Methodology

The research design used in this study was descriptive research of the cross-sectional survey type. This is an approach that seeks to explain the phenomena by using predetermined instruments to collect numerical data for analysis using statistical techniques and also using a certain population to represent the entire population. The approach is particularly suitable for this study because it allowed the researcher to measure the diverse views, perspectives, and opinions of lecturers' acceptance and adoption of AI technology for educational testing in tertiary institutions. The study population study was1,794 lecturers in tertiary institutions in Akwa Ibom State, Nigeria. The sample size used for this study was 333 lecturers from the three public tertiary institutions owned by the state: one University, one Polytechnics and a College of Education. The researchers first used purposive sampling technique in selecting the three state-owned tertiary institutions among the five that are currently in existence. Thereafter, the sampled lecturers were selected using simple random sampling technique based on Israel's model. The model posited that given a total population of N, if ±3% is taken as precision levels where confidence level is 95%, and P=5, the sample (n) should be X (Israel, 2003).

The instrument for data collection was a questionnaire titled Lecturers' Acceptance of AI-Technology for Educational Testing (LAATET) developed by the researchers. The instrument comprises of 15 items built on a four-point scale. The instrument was face and content validated by three experts. For the reliability of the instrument, the instrument administered to ten lecturers in each of the higher institutions that were not part of the study. Thus, 30 lecturers were used.

Cronbach Alpha was used to calculate the reliability coefficient and a reliability coefficient of 0.83 was obtained.

For method of data collect, the researchers sought the permission of the Heads and their representatives of the sampled schools involved in the research. The questionnaires were administered by the researchers with help from the two research assistants who were members of staff in each institution that were used. The researcher sent out 333 copies of the questionnaire to lecturers in their respective institutions. Eight lecturers did not return their copies of the questionnaire, while 11 of the 325 copies retrieved were invalid. Hence, results presented are based on an overall sample size of 314.

In assessing lecturers‟ acceptance of AI technology for educational testing using questionnaire as an instrument, the statistical tools for this study were mean, t-test and ANOVA for analyzing the data collected. The questionnaire was coded and analyzed using Statistical Science Package for Social Sciences (SPSS) version 23.0 for windows. Mean was used to analyze the research questions while the hypothesis was tested using ANOVA. To answer the questions, mean and standard deviation were computed. A mean score of 2.49 and below was rated as non-acceptance of AI technology while a mean score of 2.50 and above was rated as an acceptance of AI technology by lecturers. For the hypothesis, when the p-value is less than the alpha level of significance of 0.05, the null hypothesis is rejected and when the p-value is greater than the level of significance, the null hypothesis is accepted.

Results

Research Question One: Do lecturers accept AI-learning technology for educational testing in tertiary institutions?

Table 1: Mean responses of Lecturers for Acceptance and adoption of AI Technology for testing

Item No.	Item	N	Mean	SD	Decision
1	I will accept the use of AI technology for examination.	314	3.37	.68	Acceptance
2	Given the technical know-how, AI technology is easy to manipulate for testing	314	3.25	.68	Acceptance
3	Anytime and anywhere, AI technology can be used for testing	314	3.21	.77	Acceptance
4	I accept AI devices as a tool for testing	314	3.03	.85	Acceptance
5	I accept to use AI technology for testing	314	3.12	.80	Acceptance
6	I Accept that AI enables me to achieve testing tasks more quickly.	314	3.28	.67	Acceptance

7	The AI technology is Compatible with other systems	314	3.08	.79	Acceptance
8	I use AI technology improves my collaboration with colleagues.	314	3.16	.74	Acceptance
9	I find AI technology very flexible	314	3.20	.65	Acceptance
10	Navigating with an AI technology is easy.	314	3.12	.73	Acceptance
11	I accept AI if it is made compulsory by the authorities	314	3.11	.77	Acceptance
12	I am looking forward to exploring with AI technology	314	3.23	.62	Acceptance
13	AI allows self-direction in teaching	314	3.22	.66	Acceptance
14	In testing If in dit motivating to use AI technology**.**	314	3.19	.63	Acceptance
15	I will recommend others to use AI technology	314	3.20	.71	Acceptance
1-15	**Grand Mean**	**15**	**3.1907**	**.08532**	**Acceptance**

Table 1 reveals the Mean responses of Lecturers for acceptance of AI Technology for educational testing in tertiary institutions. A grand mean of 3.1907 indicated lecturers‟ acceptance of AI Technology for educational testing in tertiary institutions in Akwa Ibom state.

Research Question Two: What is the Mean acceptance of AI technology according to lecturers' areas of specialization*?*

Table 2: Mean acceptance of AI technology according to lecturers' areas of specialization

	Arts	**Social Sciences**	**Sciences**
Mean	3.14	3.15	3.23
Standard Deviation	0.54	0.45	0.44

Table 2 reveals the Mean acceptance of AI Technology for educational testing in tertiary institutions according to specialization are Arts = 3.14, Social Sciences = 3.15 and Sciences = 3.23. The standard deviations are 0.54, 0.45 and 0.44 respectively. This indicated lecturers‟ acceptance of AI Technology for educational testing in tertiary institutions in Akwa Ibom state by area of specialization.

Hypothesis One: There is no significant difference in the Area of Specialization of lecturers' acceptance of AI technology for educational testing in Tertiary institutions in Akwa Ibom State.

To determine if area of specialization was a moderating factor in lecturers' acceptance of AI technology, a one-way analysis of variance was computed at a 0.05 level of significance. The results are presented in Table 3.

Table 3: ANOVA for lecturers' acceptance of AI technology based on area of specialization

	Sum ofSquares	df	MeanSquare	F	Sig.
Between Groups	.594	2	.297	1.519	.220
Within Groups	60.827	311	.196		
Total	61.421	313			

The means and standard deviations are presented in Table 3. The analysis of variance indicates that there are no significant differences among the three areas of specialization, F (2,311) = 1.519, p = 0.220. Therefore, the null hypothesis is retained. That is, area of specialization is not a moderating factor in acceptance of AI technology among lecturers in tertiary institutions in Akwa Ibom State.

Discussion of the Findings

Lecturers' acceptance and adoption of AI for educational testing

Finding on Lecturers acceptance of AI technology for educational testing revealed that lecturers in tertiary institutions in Akwa Ibom State accept AI technology for educational testing. This may be because Artificial Intelligence (AI) has the potential to revolutionize educational testing in several ways, making it more efficient, accurate, and accessible. However, the successful acceptance and adoption of AI technology in tertiary institutions will be based on lecturers' acceptance of this technology. This finding is in support of Omiola (2011), which emphasized that, lecturers as trainers in tertiary institution have significant roles to play in all areas, it is necessary for all lecturers to be conversant with accept and adopt AI technology for instructional delivery.

Area of specialization and Lecturers acceptance and adoption of AI technology for educational testing

The result that arose from the analysis of this area indicated that all lecturers, irrespective of their areas of specialization accepted to adopt AI technology for educational testing. Area of specialization was not a moderating factor in acceptance of AI technology among lecturers in tertiary institutions. This finding supported the work of Oludipe (2014) butat variance with the studies Agboola (2013) and Daramola (2011) who found out that area of specialty determines teacher usage of technology. This indicates that more studies need to be conducted in this area in view of variations.

Conclusion

The conclusion derived from the study is that lecturers of tertiary institutions accept AI technology for educational testing in tertiary institutions in Akwa Ibom state. The decision to accept, adopt and continue to use AI technology is not dependent on lecturers‟ area of specialization.

Recommendations

Based on the findings of this study, discussions and conclusion drawn from it, the following recommendations were made:

1. Lecturers should be motivated and encouraged to incorporate AI technology for educational testing in tertiary institutions by organizing of workshop through agencies such as TETFUND
2. Also, lecturers irrespective of their area of specialisation should be given equal opportunity and exposed to all possible avenues of AI technology in tertiary institutions. This would ensure that all the lecturers benefit equally from such.

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