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Attitude and Perception of the Use of Artificial Intelligence in Preserving Indigenous Knowledge Systems among Mass Communication Students of Federal Polytechnic Nekede, Owerri, Nigeria

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ABSTRACT

Background: The use of Artificial Intelligence (AI) in preserving Indigenous Knowledge Systems (IKS) is a growing trend and understanding the attitude and perception of mass communication students towards the technology is crucial.
Objective: The study investigated the attitude and perception of Mass Communication students in Federal Polytechnic Nekede, Owerri regarding the use of artificial intelligence in preserving indigenous knowledge systems.
Method: Descriptive Survey method was adopted as the research design for the study. A sample size of 302 was drawn from the study population of 1,232 students in the department of Mass Communication, Federal Polytechnic, Nekede, Owerri, Imo State for the 2024/2025 academic session. The Taro Yemen's formula was used for the sample size selection and questionnaire was used as the instrument for data collection.
Results: Findings from the study revealed a very positive attitude (57.4%) towards the use of AI in preserving and promoting indigenous knowledge among Mass Communication students of Federal Polytechnic Nekede, Owerri.
Conclusion: The study concludes that Mass Communication students in Federal Polytechnic Nekede represent a significant and promising conduit for the integration of Artificial Intelligence (AI) in the preservation and promotion of Indigenous Knowledge Systems (IKS).
Unique Contribution: This study has offered new insight into raising awareness for many students who have low awareness about AI's potential in preserving IKS by highlighting the need for education and training. Hopefully, students, the institution, policymakers and other communication experts will find this study useful in curriculum formulation, digital literacy and further research.
Key Recommendation: The study recommends the integration of AI-based tools/platforms for teaching and learning indigenous knowledge, as this will create a more engaging, effective and personalized learning experience for students in IKS education.

Keywords: Artificial Intelligence, Indigenous Knowledge Systems, Attitude, Perception, Mass Communication Students.

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INTRODUCTION

The rapid proliferation of artificial intelligence (AI) is fundamentally reshaping the field of Mass Communication, introducing new tools for content creation, audience analysis, and information dissemination (Guzman & Lewis, 2020). In a culturally rich and diverse nation like Nigeria, this technological shift presents a unique dualism: a potent opportunity to safeguard and promote Indigenous Knowledge Systems (IKS) and a significant threat of their further erosion through digital marginalization (Nwafor, et al., 2025). Indigenous Knowledge Systems encompass the cumulative bodies of knowledge, practices, and representations possessed by a people, governing their relationship with their ecology, culture, and spirituality (Egbokhare & Oyetade, 2019). In Nigeria, these systems are repositories of cultural identity, biodiversity management, traditional medicine, and oral history, yet they remain perilously under-documented and vulnerable to the dominance of Western-centric media narratives.

Mass communication students stand at the critical intersection of this dynamic. As the future journalists, content creators, media managers, and communication policymakers of Nigeria, their perceptions and competencies will directly influence how emerging technologies are harnessed for national development. Their attitude—defined as a learned predisposition to respond in a consistently favorable or unfavorable manner towards an object, person, or idea (Ajzen, 2020) towards AI will determine their willingness to adopt it. Concurrently, their attitude towards IKS will reflect their valuation of this cultural heritage and their sense of responsibility towards its preservation.

The convergence of these two attitudes form the core of this research inquiry. A positive attitude towards AI, coupled with a strong, positive attitude towards IKS, could lead to innovative applications of AI in promoting indigenous knowledge. For instance, AI-powered tools can be used to transcribe and translate oral histories, create digital archives of indigenous artifacts, develop educational content in local languages, and use data analytics to identify and target audiences for culturally relevant messaging (Mhlanga, 2023). Conversely, a techno-optimistic attitude that overlooks the value of IKS, or a cultural-preservationist attitude that is skeptical of modern technology, could hinder such synergistic potential.

No doubt, Nigeria's rich Indigenous Knowledge Systems (IKS) are threatened with extinction due to modernization and the breakdown of intergenerational transfer. While Artificial Intelligence (AI) offers powerful new tools to document and promote this cultural heritage, its use is fraught with ethical risks like misrepresentation and data sovereignty.

The research identifies a critical knowledge gap: it is unknown how the next generation of Nigerian media professionals—Mass Communication students—perceive and are inclined to use AI for IKS promotion. Their attitudes and perceptions are crucial, as they will determine whether AI becomes a bridge for cultural preservation or a new tool for its erosion. Understanding their perspective is essential to develop responsible educational and ethical frameworks for this intersection. Moreso, there is a dearth of research on the attitude and perception of Mass Communication students towards AI's role in preserving IKS, particularly in Nigerian institutions like Federal Polytechnic Nekede. Existing literatures focuses on AI applications in

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various fields, but its role in IKS preservation is underexplored. Moreso, studies on AI and IKS are scare in Nigerian contests, highlighting a need for localised research, such as this. Also, research on students' attitude and perception in this area is lacking, despite their potential role in promoting and preserving cultural heritage.

This study addresses these gaps by investigating the attitude and perception of Mass Communication Students at Federal Polytechnic Nekede, Owerri, providing insights into AI's potential in preserving IKS and promoting cultural diversity.

Research Questions

1. What is the level of awareness and understanding of Artificial Intelligence (AI) among Mass Communication students at FPNO?
2. How do FPNO Mass Communication students feel about using AI to preserve indigenous knowledge systems?
3. What is the perception of students on the effectiveness of AI in preserving IKS?
4. What factors are perceived by Mass Communication students at FPNO as the most significant barriers to adopting AI for IKS preservation?

LITERATURE REVIEW

Attitude and Perception on Indigenous Knowledge Systems and Artificial Intelligence

Enholm, et al., (2022) define AI as the capabilities of machines to stimulate intelligence by exhibiting human-like traits such as understanding, deductive reasoning and problem solving abilities. Zawacki-Richter, Marin, Bond and Gouverneur (2019) explained that AI involves the use of computers to perform cognitive tasks, usually associated with human minds, particularly learning and solving-problem.

Indigenous Knowledge Systems (IKS) on the other hand is the sum total of knowledge and skills which people in a particular area possess and which enable them to get the most out of their natural environment (Mhakure and Mushaikwa, 2014). It is knowledge that has been developed within an indigenous community and has been assimilated into the cultural and social identity of that community. Abdulmumini, Saddiq and Ahamed (2021, p.146) explained that "indigenous knowledge is an all-inclusive concept which embraces all aspects of community knowledge and responses to other elements of creation which imping upon their livelihood." They are also certain norms, beliefs and value systems that are synonymous with a particular people or community.

Attitudes regarding the convergence of Indigenous Knowledge Systems and AI are diverse, ranging from deep-seated critique to optimistic transformation. These attitudes are shaped by historical experiences, current power dynamics, and visions for the future.

A predominant attitude among Indigenous scholars and communities is one of informed caution, rooted in a long history of colonial exploitation and data extraction. A central criticism is that mainstream AI embodies cognitive imperialism, where Western epistemologies are presented as universal, neutral, and superior. This results in AI systems that systematically exclude,

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misrepresent, or distort Indigenous realities (Gomez & Smith, 2025). This is not an accidental oversight but a continuation of colonial patterns where Indigenous knowledge has been appropriated and decontextualized.

There is a strong critique of what is termed "data colonialism," the process by which Indigenous knowledge and data are extracted from communities without consent, benefit, or control, much like historical resource extraction (Silva, 2025; Deakin University Library (2025). This is exacerbated by the use of large, internet-scraped training datasets that reflect dominant cultural narratives and underrepresent or distort Indigenous voices and knowledge (Deakin University Library (2025).

Indigenous technologists have expressed frustration with being invited to participate in AI development merely as a "checkbox" exercise, rather than being recognized as sovereign knowledge holders with vital contributions to make from the earliest stages of design and conception (Abdilla & Crawford, 2020). This attitude rejects mere inclusion in favour of a more fundamental transformation of AI's underlying values and structures (Abdilla & Crawford, 2020).

The perception of the relationship between IKS and AI encompasses a nuanced understanding of significant risks and tangible opportunities, shaping how communities and researchers engage with the technology.

The risks associated with conventional AI are perceived as direct threats to Indigenous rights, cultures, and knowledge systems (Nwafor et al., 2025). AI systems trained on biased data can misrepresent and distort Indigenous cultures. A poignant example is the 2024 case in Kenya where an AI-generated government campaign depicted Maasai cultural symbols incorrectly, such as showing men wearing neck bracelets traditionally worn by women. Such errors are not merely aesthetic but constitute a cultural transgression that fractures the intergenerational transmission of knowledge (Kasosi, 2025).

When developed ethically and under Indigenous governance, AI is perceived as holding immense potential for positive impact. AI is seen as a powerful tool for preserving and revitalizing endangered Indigenous languages. Projects like Te Hiku Media in Aotearoa use AI to build language models governed by Māori law (tikanga), ensuring that data and benefits remain with the community (Kasosi, 2025).

Integrating IKS into AI is perceived as an opportunity to advance epistemic justice by challenging the hegemony of Western science and validating multiple ways of knowing. This can lead to more robust, creative, and practical AI systems that are better equipped to handle the complexity of the world (Gomez & Smith, 2025).

Empirical Review

Adeoye and Ibrahim (2022) examined the preservation of Africa's cultural heritage in the era of AI, focusing on cultural stakeholders in Lagos State, Nigeria. Findings showed that 85% of the participants believed AI offers tools for digitizing and preserving African languages and artefacts, though 65% pointed out challenges such as limited technical expertise and funding.

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Puspita, Pratama, Faroqi (2025) conducted a study on "Analysis of Experience using Shopee E-Commerce AI Features Among Young People with Modified TAM." The analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method to examine the relationship between variables in the research model. A total of 11 hypotheses were proposed and empirically tested based on data obtained from 430 young respondents who are active Shopee users. The analysis results showed that all hypotheses were accepted, which means that experience using AI features plays a significant role in shaping perceptions of usefulness, user experience, and positive attitudes toward technology,

AI-Zubaidy, D., Innes, N., Gallow, J. & AI-Yaseen, W. (2025) studied "evaluating user perception and usability of an AI-powered smartphone application for at-home dental plaque screening." Their study evaluated the usability of the TestMyTeeth AI app for at-home dental plaque screening. A cross-sectional study design was adopted with adult participants recruited using convenience sampling. With 132 participants, the app received a marginal usability score. While the app shows potential, the study concludes that improvements to the interface and photo-capture process are needed to enhance usability.

A study by Wang (2020) on "enhancing indigenous knowledge systems through AI: A study on ease of use and acceptance" found that students who found AI-Powered tools easy to use were more likely to have a positive attitude towards AI-Powered IKS initiatives.

The above studies provide insights into the factors that influence students' attitudes and perception towards Artificial Intelligence (AI) and Indigenous Knowledge Systems (IKS).

THEORETICAL FRAMEWORK

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theoretical framework that explains how users come to accept and use a new technology. At its heart, Technology Acceptance Theory posits that a user's adoption of a new technology is primarily determined by their behavioural intentions, which are in turn influenced by a few key perceptual factors. It's less about the technology's objective features and more about the user's subjective perceptions of it.

Originally developed by Fred Davis in 1989, TAM is elegantly simple and powerfully predictive. Its core premise is that two key beliefs determine an individual's behavioural intention to use a system:

Perceived Usefulness (PU): The degree to which a person believes that using a particular technology would enhance their job performance or make a task easier.

Perceived Ease of Use (PEOU): The degree to which a person believes that using the technology would be free from mental or physical effort.

These two factors directly influence a person's Attitude toward using the technology, which in turn leads to their Behavioural Intention to Use, and ultimately, their Actual System Use.

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The Technology Acceptance Model (TAM) is an ideal framework for this research as it systematically analyzes and explains the formation of students' attitudes towards using AI for Indigenous Knowledge (IK) preservation in Nigeria. TAM does this by focusing on two key factors:

Perceived Usefulness (PU): Whether students believe AI is a valuable and effective tool for tasks like documentation and dissemination compared to traditional methods.

Perceived Ease of Use (PEOU): Whether students find the AI tools easy to learn and use or if they are intimidated by them.

This model connects these perceptions to the students' intent to adopt AI in their future careers. Crucially, TAM helps identify barriers to adoption (e.g., is the issue a lack of perceived usefulness or a difficulty with the technology?) and contextualizes the "why" behind their attitudes, framing them as a rational assessment within the sensitive context of cultural preservation.

In summary, TAM provides the perfect theoretical backbone to systematically investigate and explain the formation of Mass Communication students' attitudes towards AI, specifically in the critical and sensitive context of preserving Indigenous Knowledge Systems in Nigeria.

RESEARCH METHODOLOGY

The descriptive survey research method was adopted for this study. Our choice for this designed was informed by the fact that survey allows for the study of people's opinion on a given issue of public interest (Nwafor, et al., 2013). The population of the study are all regular students in the department of Mass Communication, Federal Polytechnic, Nekede, Owerri, enrolled in the 2024/2025 academic session. The admission register obtained from the admission office showed a total of 1,232 registered students for the 2024/2025 academic session for both ND and HND programmes for the department. A sample size of 302 was drawn from the population, using Taro Yamane's sample size selection formula. The study adopted the simple random sampling technique. 302 students were randomly selected for the study. In ensuring the validity of the instrument, a pilot test was conducted with a small group of students to ensure clarity and relevance. For the reliability, test-retest reliability was used. An online Google form questionnaire was distributed to the respondents through their departmental platforms for each of the levels. The questionnaire was purposively distributed to only Mass Communication regular students for the session under study.

DATA PRESENTATION AND ANALYSIS

The data for the study were analyzed and presented using simple percentage and tables.

A total of 298 responses were received from the distributed questionnaire, representing 98.7% response rate, proving its usefulness for the study.

Demographic analysis of the data collected showed that 262 (87.9%) of the respondents were females and 36 (12.1%) were males. In the age bracket category, 19 (6.4%) were within the age range of 18-20, 110 (36.9%) were within the age bracket of 21-23, 129 (43.3%) were within 24-

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26 and 40 (13.4%) were with the age range of 27 and above. For the level of study, 8 (2.7%) indicated ND 1, 64 (21.5%) indicated ND 2, 102 (34.2%) indicated HND 1 and 124 (41.6%) indicated HND 2.

Table 1: Level of Awareness of AI and its Application

Response Category	**Frequency**	**Percentage (%)**
Very high	188	63
High	79	27
Moderate	25	8
Low	6	2
Very low	-	0
Total	**298**	**100**

Source: Field Survey, 2025

The table above shows the awareness level and understanding of Artificial Intelligence (AI) among the respondents, with many of the respondents (63%) indicating a very high awareness level.

Table 2: Attitude towards AI usage for preserving and disseminating indigenous knowledge

Response Category	**Frequency**	**Percentage (%)**
Very positive	171	57.4
Positive	66	22.1
Neutral	25	8.4
Somewhat negative	23	7.7
Very negative	13	4.4
Total	**298**	**100**

Source: Field Survey, 2025

The above data shows the differing attitude/feeling of the respondents toward the use of AI in preserving IKS**.** Many of the Respondents were very positive (57.4%) that AI has the potential in IKS preservation.

Table 3: Perception of the effectiveness of AI in preserving IKS

Response Category	**Frequency**	**Percentage (%)**
Very high	148	49.7
High	98	32.9
Neutral	6	2.0
Low	32	10.7
Very low	14	4.7
Total	**298**	**100**

Source: Field Survey, 2025

Table three above shows the perception level of the effectiveness of AI in the preservation of IKS among the respondents, with very high perception (49.7) taking the lead.

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Table 4: Factors influencing attitude and perception towards the use of AI in preserving Indigenous knowledge

Response Category	**Frequency**	**Percentage (%)**
Cultural background	66	22.1
Level of exposure to technology	124	41.6
Knowledge of IKS	95	31.9
Other	13	4.4
Total	**298**	**100**

Source: Field Survey, 2025

The table above reveals the prevailing factors influencing attitude and perception towards the use of AI in the preservation of IKS among the respondents. Among the factors indicated, level of exposure to technology was the most prevailing, showing 41.6%.

DISCUSSION OF FINDINGS

The study examined the attitude and perception of Mass Communication students towards the use of artificial intelligence (AI) in promoting indigenous knowledge systems (IKS) in Nigeria. Four research questions were formulated to guide the study. The following are findings from the data gathered from the respondents:

The findings in table 1 reveals a strongly positive skew in the level of awareness regarding AI and its applications among the students. The most striking finding is that the vast majority of respondents report a high level of awareness. Combining the "Very high" (63%) and "High" (27%) categories shows that a total of 90% of respondents fall into these top two tiers. This indicates that AI knowledge is not a niche subject but is mainstream within this population. Conversely, awareness levels at the lower end are minimal. Only 8% reported a "Moderate" awareness, and a mere 2% reported "Low" awareness. Notably, there were no respondents ("0 %") in the "Very low" category. The table suggests that within this specific sample, awareness of AI is overwhelmingly high, pointing to its widespread recognition and penetration as a significant contemporary technology. This finding aligns with Wang's (2020) study. This finding does not merely confirm that awareness is high; it signals a phase change in the public discourse around AI among a key demographic. It suggests that the foundational layer of awareness is largely in place, thereby extending the knowledge frontier to more complex questions about literacy, ethics, skill, and the societal implications of near-universal familiarity with AI. For researchers surveying similar populations, this study establishes a new expectation of high baseline awareness. This means survey instruments may need to become more sophisticated, moving beyond simple awareness metrics to assess competency, ethical reasoning, or behavioral intention regarding AI use.

Finding to research question two showed a very positive attitude towards the use of AI in IKS promotion and preservation. The overwhelming majority hold positive views, with 79.5% of respondents (combining "Very positive" at 57.4% and "Positive" at 22.1%) expressing support for this application of AI. This indicates a strong consensus on the potential benefits of AI in this culturally important domain. A small but notable proportion of respondents express reservations.

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Combined, the "Somewhat negative" (7.7%) and "Very negative" (4.4%) categories represent 12.1% of the total. This suggests that while support is dominant, there is a segment that is cautious or skeptical about the use of AI for indigenous knowledge, which may relate to concerns about ethical implications, data sovereignty, or cultural sensitivity. The "Neutral" group (8.4%) represents individuals who may be undecided or unaware of the potential impacts, positive or negative. The table reveals a strong prevailing positive attitude towards the role of AI in preserving indigenous knowledge, alongside a critical minority perspective that warrants further consideration. There is an understanding that AI can handle tasks difficult for humans at scale—such as transcribing elders' speech, translating between indigenous and colonial languages, classifying ecological knowledge, or creating searchable multimedia archives—thus offering practical solutions where traditional methods face resource constraints. The strong positivity, particularly among the respondents, indicated an emerging generational perspective that views advanced technology and cultural heritage not as opposing forces but as integrated. This extends knowledge by pointing to a changing paradigm in IKS stewardship. This finding is in tandem with Adeoye and Ibrahim's (2022) study.

Findings to research question three revealed that the perception of the respondents on the effectiveness of AI in the promotion of IKS is very high, showing 49.7%. This was closely followed by 32.9% showing high, 2.0% showing neutral, 10.7% indicating low and 4.7% showing very low. The finding obviously proves the point that artificial intelligence is an effective tool that can promote Nigeria's rich cultural heritage. The findings clearly shows that the perception of AI's effectiveness in promoting IKS is strongly positive. The community represented in this data largely views AI as a highly valuable asset, though a cautious approach is warranted to address the concerns of a skeptical minority. This finding supports those of Puspita, Pratama and Faroqi (2025). The strongly positive perception found—where over 82% of respondents view AI as effective for promoting Indigenous Knowledge Systems (IKS)—can be explained by Nigeria's unique, proactive, and pragmatic AI environment. This finding significantly extends academic discussions by shifting the focus from potential harms to practical, culturally grounded applications.

Findings on factors influencing mass communication students' attitude and perception towards the use of AI in promoting indigenous knowledge showed level of exposure to technology as a major factor, indicating 41.6%. Other factors indicated thus: Cultural background 22.1%, Level of Knowledge of IKS 31.9% and other 4.4%. This however calls for a boost in the country's technological ventures and activities, as AI is a technological-based tool and platform and as more Nigerians get exposed to these technological innovations, the country's indigenous practices will widely showcased and be identified with. The findings shows that a person's openness to using AI for promoting Indigenous Knowledge is primarily determined by how tech-savvy they are, followed closely by how well they understand IKS. Their cultural background also plays a substantial, though secondary, role. This finding is in tandem with the Technology Acceptance Model. It shifts the application of TAM from a purely individual or corporate productivity context to a sociocultural preservation context. The "use" of the technology is not for personal gain but for collective cultural benefit, adding a layer of motivational complexity and extending the model's applicability.

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CONCLUSION

Based on the comprehensive findings of this study, it can be conclusively stated that Mass Communication students in Nigeria represent a significant and promising conduit for the integration of Artificial Intelligence (AI) in the preservation and promotion of Indigenous Knowledge Systems (IKS).

The research demonstrates that a strong, favourable foundation exists among the students, characterized by a predominantly very positive attitude and a high perception of AI's effectiveness. This widespread optimism indicates that the younger, digitally-engaged generation perceives AI not as a threat to cultural heritage, but as a powerful and relevant tool to safeguard it against the erosive forces of globalization. This sentiment is a crucial asset, suggesting that initiatives in this domain will likely meet with acceptance and enthusiasm rather than resistance.

RECOMMENDATION

1. The need for the integration of AI-based tools/platforms for teaching and learning indigenous knowledge at all levels of education, as this will create a more engaging, effective and personalized learning experience for students in IKS education.
2. Polytechnics, Universities, especially Mass Communication and Cultural Studies departments, should develop and incorporate specific courses or modules that teach students how to use AI tools (e.g., for digital storytelling, archiving, language translation, and virtual reality) to document and promote indigenous knowledge.
3. Organize practical, project-based workshops where students can use AI applications to work directly with local communities on IKS projects. This will transform their positive attitude into tangible skills.
4. Government and private sector partners should invest in programs that increase general digital literacy, with a specific focus on AI awareness. This will create a larger, more receptive population for AI-driven IKS initiatives.

Ethical clearance

Ethical consent was sought and obtained from the participants used in this study. They were made to understand that the exercise was purely for academic purposes, and their participation was voluntary.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions.

Mercy Agbo Amadi and Ebere Bernadine Ajuga conceived the study, including the design. We collated the data and handled the analysis and interpretation, while we also work the initial manuscript. All authors have critically reviewed and approved the final draft, and are responsible for the content and similarity index of the manuscript.

Availability of data and materials

The datasets on which conclusions were made for this study are available on reasonable request.

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