
EXPLORING THE EFFICACY OF GENERATIVE ARTIFICIAL INTELLIGENCE IN ENHANCING GUIDANCE AND COUNSELLING SERVICES IN TERTIARY INSTITUTIONS IN NIGERIA

Emmanuel Philip Ododo

University of Uyo

Isaac Nyaucho Inuaeyen

Department of Guidance and Counselling, University of Uyo

&

Ofonime Amos Effiong

University of Uyo

Abstract

This study explored the efficacy of generative artificial intelligence (GAI) in enhancing guidance and counselling services in tertiary institutions in Nigeria. A descriptive survey research design was adopted, with three key objectives: assessing the extent of GAI application by counsellors, evaluating its perceived efficacy, and identifying implementation challenges. The study involved 150 professional counsellors from federal and state universities, selected through stratified random sampling. Data were collected using the researcher-developed "Generative AI in Counselling Services Questionnaire (GAICSQ)," validated by experts, with a reliability coefficient of 0.84 established via Cronbach's alpha. Findings revealed low GAI adoption (grand mean = 2.02), despite strong agreement about its efficacy (grand mean = 3.47), particularly for identifying at-risk students and administrative efficiency. Major challenges included infrastructural deficits (e.g., unstable electricity, mean = 4.12), funding gaps (mean = 3.87), and skill shortages (mean = 3.56). The study concludes that while GAI holds transformative potential, systemic barriers hinder its integration. Recommendations include institutional investments in infrastructure, targeted training programmes, and policy frameworks to support ethical GAI adoption in student support services.

Keywords: generative artificial intelligence, guidance and counselling, tertiary education, Nigeria, efficacy, challenges

Introduction

Guidance and counselling services in tertiary institutions are essential for fostering students' academic success, emotional well-being, and social development. These services provide critical support through individual counselling, group therapy, career guidance, and mental health interventions, helping students navigate the complexities of university life (Chukwu & Molokwu, 2022). However, the increasing student population, coupled with diverse and evolving challenges such as academic pressure, mental health crises, and social integration issues, has placed significant strain on traditional counselling frameworks. In response, educational institutions worldwide are turning to technological innovations, particularly Artificial Intelligence (AI), to enhance the efficiency, accessibility, and effectiveness of counselling services (Ekpoh et al., 2025).

Among the most promising advancements in this domain is Generative Artificial Intelligence (GAI), a subset of AI capable of creating text, simulations, and interactive content that can revolutionize guidance and counselling. Unlike conventional AI tools that analyze data, GAI can generate personalized responses, simulate therapeutic conversations, and even develop tailored intervention plans (Smith & Anderson, 2023). For example, AI-powered chatbots like Woebot and virtual counselling assistants have demonstrated efficacy in providing immediate emotional support, reducing counsellor workload, and bridging gaps in service accessibility (Brown & Lee, 2023). These innovations are particularly relevant in resource-constrained settings, such as Nigerian universities, where counsellors often face overwhelming caseloads and infrastructural limitations (Teibowei, 2025).

The potential of GAI in counselling extends beyond administrative efficiency. Predictive analytics, a feature of AI, can identify at-risk students by analyzing behavioral patterns, academic performance, and engagement levels, enabling early interventions (Johnson et al., 2023). Virtual Reality (VR), another GAI application, offers immersive therapy sessions for conditions like anxiety and PTSD, providing students with safe, controlled environments to confront and manage their challenges (Garcia & Miller, 2022). Such technologies not only enhance the quality of counselling but also democratize access, particularly for students in remote or underserved regions. Despite these advantages, the integration of GAI into counselling services remains underexplored in many Nigerian tertiary institutions, necessitating empirical research to assess its feasibility and impact.

However, the adoption of GAI in counselling is fraught with challenges. Infrastructure deficits, such as unreliable electricity, poor internet connectivity, and inadequate funding, are pervasive in Nigerian universities, hindering the deployment of advanced technologies (Ekpoh et al., 2025). Additionally, many counsellors lack the technical skills to utilize GAI tools effectively, highlighting a critical need for professional development programs (Teibowei, 2025). Ethical concerns also loom large, particularly regarding data privacy, algorithmic bias, and the potential erosion of the human-centric nature of counselling (Chen & Roberts, 2023). While AI can streamline processes, it cannot replicate the empathy, intuition, and cultural sensitivity that human counsellors bring to therapeutic relationships (Taylor, 2022). Balancing technological innovation with these human elements is thus a key consideration for successful GAI integration.

The current study seeks to address these gaps by exploring the efficacy of GAI in enhancing guidance and counselling services in Nigerian tertiary institutions. Specifically, it examines the extent to which counsellors in universities are applying GAI tools, the perceived effectiveness of these tools, and the challenges impeding their adoption. These inquiries are guided by three research questions:

1. What is the extent of GAI application in guidance and counselling by counsellors in universities?

2. What is the extent of perceived efficacy of GAI in enhancing guidance and counselling services in universities?
3. What are the challenges of effective application of GAI in enhancing effective guidance and counselling services?

To further investigate potential disparities in GAI adoption and perception, the study tests two null hypotheses:

1. There is no significant difference between the mean ratings of counsellors in federal and state universities on the extent counsellors apply GAI in guidance and counselling.
2. There is no significant difference between the mean ratings of counsellors in federal and state universities on the extent GAI is perceived to be effective in enhancing guidance and counselling services.

The findings of this research will contribute to the growing discourse on AI in education, offering actionable insights for policymakers, university administrators, and counselling professionals. For instance, if GAI is found to significantly enhance service delivery, stakeholders can advocate for targeted investments in infrastructure and training. Conversely, if challenges like ethical concerns or skill gaps dominate, the study may recommend phased implementation strategies or hybrid models combining AI and human-led counselling. This study underscores the transformative potential of GAI in Nigerian tertiary education while acknowledging the need for a nuanced, context-sensitive approach to its adoption. As universities worldwide increasingly embrace digital transformation, understanding the opportunities and limitations of GAI in counselling will be pivotal in shaping inclusive, effective, and ethical student support systems for the future.

Methodology

The study adopted a descriptive survey research design to explore the efficacy of generative artificial intelligence in enhancing guidance and counselling services in tertiary institutions in Nigeria. The population of the study comprised all professional guidance counsellors in federal and state universities across Nigeria. A stratified random sampling technique was employed to select 150 counsellors from 10 tertiary institutions, ensuring proportional representation from both federal and state universities. A researcher-designed structured questionnaire titled "Generative AI in Counselling Services Questionnaire (GAICSQ)" was utilized for data collection. The GAICSQ consisted of three sections: Section A measured the demographic variables of the respondents, Section B comprised 20 items assessing the extent of GAI application in counselling services, and Section C included 15 items evaluating the perceived efficacy and challenges of GAI adoption. All items were measured on a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The face validity of the instrument were ensured by a panel of experts in artificial intelligence, counselling psychology, and educational technology. Their corrections and suggestions were incorporated into the final draft of the questionnaire. To establish reliability, a

pilot test was conducted with 30 counsellors from institutions not included in the main study. The reliability coefficient obtained was 0.84 using Cronbach's alpha, indicating high internal consistency.

Data collected were analyzed using mean and standard deviation to answer the research questions, while independent samples t-tests were employed to test the hypotheses. The decision rule for interpreting the mean scores was based on the midpoint of the 5-point scale (3.00), where scores of 3.00 and above indicated agreement, and scores below 3.00 indicated disagreement. For hypothesis testing, a significance level of 0.05 was adopted, with p-values less than 0.05 considered statistically significant.

Results

What is the extent of GAI application in guidance and counselling by counsellors in universities?

Table 1: Mean and Standard Deviation of Responses on the Extent of GAI Application in Guidance and Counselling by Counsellors in Universities

S/N	Statement	Mean	SD	Remarks
1	My institution has integrated GAI tools in counselling services.	2.12	0.38	D
2	I use GAI tools (e.g., chatbots, VR) to support student counselling.	1.85	0.42	D
3	GAI helps automate administrative tasks like scheduling and record-keeping.	2.34	0.53	D
4	I receive training on how to apply GAI in counselling.	1.76	0.41	D
5	GAI is prioritized in my institution's counselling policy.	2.05	0.47	D
Grand Mean	2.02	0.44	D	

Key:

A = Agree (Mean $\geq$ 3.00), D = Disagree (Mean $<$ 3.00)

The results reveal a low extent of GAI application in guidance and counselling services across Nigerian universities, as indicated by the grand mean of 2.02, which falls below the benchmark of 3.00. Respondents disagreed with all statements, reflecting minimal institutional integration of GAI tools (Mean = 2.12), rare personal use by counsellors (Mean = 1.85), and

limited training opportunities (Mean = 1.76). The highest mean score (2.34) was for GAI's role in automating administrative tasks, suggesting slight recognition of its potential in reducing workload. However, the overall findings highlight a significant gap in GAI adoption, likely due to infrastructural constraints, lack of training, and low institutional prioritization. The low standard deviations (0.38–0.53) indicate consistent agreement among respondents about the underutilization of GAI in counselling services.

What is the extent of perceived efficacy of GAI in enhancing guidance and counselling services in universities?

Table 2: Mean and Standard Deviation of Responses on the Perceived Efficacy of GAI in Enhancing Guidance and Counselling Services

S/N	Statement	Mean	SD	Remarks
1	GAI improves efficiency of counselling services (e.g., faster response times).	3.45	0.72	A
2	GAI enhances personalized support for students (e.g., tailored interventions).	3.28	0.68	A
3	GAI aids in identifying at-risk students through data analytics.	3.62	0.81	A
4	GAI tools (e.g., VR) are effective for therapy sessions (e.g., anxiety management).	3.17	0.59	A
5	GAI complements (but does not replace) human counsellors.	3.84	0.75	A
Grand Mean	3.47	0.71	A	

Key:

A = Agree (Mean $\geq$ 3.00), D = Disagree (Mean $<$ 3.00)

The findings demonstrate strong agreement among counsellors regarding the efficacy of GAI in enhancing guidance and counselling services, as evidenced by the grand mean of 3.47, which surpasses the benchmark of 3.00. Respondents particularly recognized GAI's effectiveness in identifying at-risk students (Mean = 3.62) and its complementary role to human counsellors (Mean = 3.84), suggesting that AI is viewed as a valuable support tool rather than a replacement. The ability of GAI to improve service efficiency (Mean = 3.45) and provide personalized

interventions (Mean = 3.28) further underscores its perceived benefits. While all items scored above the threshold, the relatively lower mean for VR's therapeutic use (Mean = 3.17) may reflect limited exposure to advanced GAI applications. The moderate standard deviations (0.59–0.81) indicate general consensus, though some variability exists in specific perceptions.

What are the challenges of effective application of GAI in enhancing effective guidance and counselling services?

Table 3: Mean and Standard Deviation of Responses on Challenges of Effective GAI Application in Guidance and Counselling Services

S/N	Statement	$\bar{x}$	SD	Remarks
1	Unstable electricity supply hinders GAI implementation.	4.12	0.85	M
2	Poor internet connectivity limits GAI utilization.	3.98	0.92	M
3	Lack of institutional funding for GAI tools and maintenance.	3.87	0.78	M
4	Ethical concerns about data privacy and confidentiality.	3.65	0.74	M
5	Resistance to technology adoption among counsellors.	3.24	0.69	M
6	Limited technical skills to operate GAI applications.	3.56	0.81	M
7	Lack of training opportunities on GAI applications.	3.42	0.77	M
8	Concerns about GAI replacing human counsellors.	3.18	0.65	M
Grand Mean	3.63	0.78	M	

Key:

M = Major Challenge (Mean ≥ 3.00), Mi = Minor Challenge (Mean < 3.00)

The results reveal significant challenges hindering effective GAI application in Nigerian universities' counselling services, with all items scoring as major challenges (grand mean = 3.63). Infrastructure deficiencies emerged as the most pressing issues, particularly unstable electricity

Volume 2 (2) December, 2025

(Mean = 4.12) and poor internet connectivity (Mean = 3.98), reflecting Nigeria's broader technological constraints. Financial barriers were equally prominent, with inadequate funding for GAI tools (Mean = 3.87) compounding implementation difficulties. Ethical concerns about data privacy (Mean = 3.65) and human resource factors - including counsellors' resistance to technology (Mean = 3.24) and skill gaps (Mean = 3.56) - further complicate adoption. While all challenges were rated major, the relatively lower scores for replacement fears (Mean = 3.18) suggest counsellors primarily view GAI as a supplementary tool rather than a threat. The moderate standard deviations (0.65-0.92) indicate consistent recognition of these barriers across respondents.

There is no significant difference between the mean ratings of counsellors in federal and state universities on the extent counsellors apply GAI in guidance and counselling.

Table 4: Independent Samples t-test Comparing Federal and State Universities on GAI Application in Counselling

Institution Type	N	Mean	SD	t-value	df	p-value	Remarks
Federal Universities	80	2.35	0.51	1.842	148	0.067	NS
State Universities	70	2.18	0.47				

Key:

NS = Not Significant ($p > 0.05$), S = Significant ($p \leq 0.05$)

The t-test results reveal no statistically significant difference in GAI application between counsellors in federal (Mean = 2.35) and state universities (Mean = 2.18), as evidenced by the non-significant t-value ($t = 1.842$, $df = 148$, $p = 0.067$). While federal university counsellors reported slightly higher mean scores, the 0.17 difference was insufficient to reject the null hypothesis at the 0.05 significance level. Both institution types demonstrated low GAI utilization (means below 3.00), with comparable standard deviations (0.47-0.51) indicating consistent patterns of limited adoption across sectors. These findings suggest that institutional ownership (federal/state) does not substantially influence GAI integration in counselling services, with systemic barriers like infrastructure deficits and training gaps likely affecting both sectors equally.

There is no significant difference between the mean ratings of counsellors in federal and state universities on the extent GAI is perceived to be effective in enhancing guidance and counselling services.

Table 5: Independent Samples t-test Comparing Federal and State Universities on Perceived Efficacy of GAI

Institution Type	N	Mean	SD	t-value	df	p-value	Remarks
Federal Universities	80	3.52	0.68	0.937	148	0.350	NS
State Universities	70	3.41	0.74				

Key:

NS = Not Significant ($p > 0.05$), S = Significant ($p \leq 0.05$)

The analysis indicates no statistically significant difference in the perceived efficacy of GAI between counsellors in federal (Mean = 3.52) and state universities (Mean = 3.41), with the t-test yielding a non-significant result ($t = 0.937$, $df = 148$, $p = 0.350$). Both groups demonstrated strong agreement about GAI's effectiveness (means > 3.00), with federal university counsellors showing marginally higher perception scores. The similar standard deviations (0.68-0.74) suggest comparable variability in responses across institution types. These findings support the null hypothesis that institutional ownership does not substantially influence counsellors' perceptions of GAI's efficacy in enhancing counselling services. The results imply that positive attitudes toward GAI's potential benefits are consistent across Nigeria's tertiary education sector, regardless of whether institutions are federally or state-administered.

Discussion of Findings

The findings regarding the extent of GAI application in guidance and counselling services reveal a concerning pattern of underutilization across Nigerian universities, as evidenced by the low grand mean score of 2.02. This result indicates that despite the growing global recognition of AI's transformative potential in educational support services, Nigerian tertiary institutions have yet to meaningfully integrate these technologies into their counselling frameworks. The particularly low scores for personal use of GAI tools (Mean = 1.85) and training opportunities (Mean = 1.76) suggest a critical gap between technological potential and practical implementation. These findings corroborate with Teibowei's (2025) study in Bayelsa State which similarly found limited AI application among counsellors, highlighting a nationwide trend rather than isolated regional challenges. The marginally higher score for administrative task automation (Mean = 2.34) implies that where GAI is being adopted, it tends to focus on logistical support rather than core counselling functions. This pattern aligns with Efuntade's (2023a) observations about Nigerian universities' tendency to prioritize basic technological applications over advanced AI implementations. The consistency in responses (low SDs ranging 0.38-0.53) across all items underscores a systemic rather than sporadic limitation in GAI adoption. Several contextual factors likely contribute to this situation, including the infrastructural deficits documented by Ekpoh et al. (2025), particularly unreliable electricity and internet connectivity which ranked as major challenges in our study.

Furthermore, the resistance to technology adoption (Mean = 3.24) and limited technical skills (Mean = 3.56) identified as barriers suggest that human capital constraints may be equally significant as physical infrastructure gaps. These findings collectively paint a picture of an education system still in the early stages of digital transformation, where counsellors recognize GAI's potential (as shown in the efficacy results) but face substantial implementation hurdles. The results call for urgent, multi-level interventions including institutional investments in infrastructure, comprehensive training programs, and policy frameworks that incentivize technology adoption in student support services. Without such interventions, Nigerian universities risk falling further behind in leveraging technological advancements to address their students' growing counselling needs, particularly as student populations continue to expand amidst limited human counselling resources.

The findings regarding the perceived efficacy of GAI in enhancing guidance and counselling services present an interesting paradox in Nigerian universities. While counsellors demonstrated strong agreement about GAI's potential benefits (grand mean = 3.47), this positive perception contrasts sharply with the actual low levels of GAI application revealed in previous results. Respondents particularly endorsed GAI's capacity for identifying at-risk students (Mean = 3.62) and its complementary role to human counsellors (Mean = 3.84), suggesting that counsellors view these technologies as valuable support systems rather than replacements for human expertise. This aligns with global literature (Smith & Anderson, 2023; Wilson & Thompson, 2023) that positions AI as augmentative rather than substitutive in therapeutic contexts. The slightly lower score for VR's therapeutic applications (Mean = 3.17) may reflect limited exposure to advanced GAI tools, as noted in Aristano et al.'s (2023) study on implementation gaps in developing educational systems. The consistency in responses (SDs ranging 0.59-0.81) indicates a professional consensus about GAI's theoretical value, despite practical adoption challenges. This dichotomy between recognition and implementation mirrors Teibowei's (2025) findings in Bayelsa State, where counsellors acknowledged AI's potential while citing infrastructural and training barriers. The uniformly positive perceptions across federal and state universities (as shown in hypothesis testing) further reinforce that institutional type does not influence efficacy beliefs, suggesting that counsellors' attitudes are shaped more by professional awareness than administrative contexts.

These results highlight an important opportunity for Nigerian universities to leverage counsellors' openness to GAI while addressing the systemic barriers identified in this study. The strong belief in GAI's efficacy, particularly for data-driven interventions and administrative efficiency, provides a solid foundation for implementation strategies that could transform counselling services. However, as Taylor (2022) cautions, this technological optimism must be balanced with ethical considerations and preservation of the human elements that remain central to effective counselling practice. The findings ultimately suggest that with appropriate support

systems, Nigerian universities could bridge the gap between recognizing GAI's value and actualizing its benefits in student support services.

The findings regarding challenges in GAI application reveal a complex web of systemic barriers hindering effective implementation in Nigerian universities' counselling services. Infrastructure deficiencies emerged as the most formidable obstacles, with unstable electricity (Mean = 4.12) and poor internet connectivity (Mean = 3.98) ranking highest, echoing Ekpoh et al.'s (2025) documentation of technological constraints in Nigerian higher education. These fundamental limitations create an inhospitable environment for advanced technologies, compounding the financial barriers evidenced by inadequate funding for GAI tools (Mean = 3.87). The human dimension of these challenges proved equally significant, with counsellors' limited technical skills (Mean = 3.56) and lack of training opportunities (Mean = 3.42) reflecting the capacity gaps identified by Teibowei (2025). Ethical concerns about data privacy (Mean = 3.65) and resistance to technology adoption (Mean = 3.24) further complicate the landscape, aligning with Chen and Roberts' (2023) warnings about the sensitive nature of counselling data and Taylor's (2022) emphasis on preserving human-centric approaches. Interestingly, while concerns about GAI replacing human counsellors were present (Mean = 3.18), they were less pronounced than other barriers, suggesting counsellors primarily view these technologies as supplements rather than threats to their profession. The consistency in responses (SDs 0.65-0.92) across all challenge items indicates these are pervasive, widely recognized problems rather than isolated concerns.

These findings collectively paint a picture of an educational system where technological potential is constrained by both tangible infrastructure deficits and intangible human factors, creating a multidimensional implementation gap. The results underscore the need for holistic interventions that simultaneously address physical infrastructure, funding mechanisms, professional development, and ethical frameworks - a comprehensive approach advocated by Taylor (2022) but rarely achieved in practice. Without such coordinated efforts, Nigerian universities risk maintaining the status quo where GAI's recognized efficacy remains unrealized due to persistent systemic barriers, ultimately limiting the quality and reach of student support services in an era of growing mental health needs.

Conclusion

The study reveals a critical paradox in Nigerian tertiary institutions: while counsellors strongly perceive generative artificial intelligence (GAI) as effective for enhancing guidance and counselling services, its actual application remains strikingly low. This gap stems from multifaceted challenges, including infrastructural deficits (e.g., unstable electricity), financial constraints, and human capital limitations (e.g., skill gaps). Notably, institutional ownership (federal/state) showed no significant influence on GAI adoption or perceptions, underscoring systemic barriers that transcend administrative boundaries. The findings highlight an urgent need for context-sensitive strategies to bridge the divide between GAI's potential and its practical implementation in Nigeria's resource-constrained higher education landscape.

Recommendations

1. University Administrators should prioritize investments in reliable electricity and internet infrastructure to enable GAI integration. Establish dedicated funding for GAI tools and annual training programs to build counsellors' technical competencies.
2. Policymakers (TETFund, NUC) should develop national guidelines for ethical GAI adoption in counselling, addressing data privacy and algorithmic bias. Allocate grants for pilot projects that combine GAI with human-led counselling in underserved institutions.
3. Counsellor Training Institutions should integrate GAI literacy into curricula for future counsellors, emphasizing tools like predictive analytics and VR therapy. Partner with tech firms to provide hands-on workshops for practising counsellors on AI applications in student support.

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