

PERCEIVED EFFICACY OF ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY IN EFFECTIVE COUNSELLING IN THE TERTIARY INSTITUTIONS IN FEDERAL CAPITAL TERRITORY, ABUJA, NIGERIA

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ABSTRACT

This study examined the perceived efficacy of Artificial Intelligence (AI) and Virtual Reality (VR) in enhancing counselling in tertiary institutions in the Federal Capital Territory, Abuja, Nigeria. The study was guided by three research questions and three hypotheses. It adopted a descriptive survey design. The population comprised of students and counsellors across selected tertiary institutions from which 400 respondents were sampled using stratified random sampling. A structured questionnaire served as the main instrument for data collection and the reliability coefficient obtained through Cronbach's alpha was 0.82. Data were analysed using descriptive statistics such as mean and standard deviation, while independent samples t-test was employed to test the hypotheses at 0.05 level of significance. The findings revealed that both AI and VR have significant perceived effects on effective counselling with counsellors rating their efficacy more positively than students.

Introduction

Advances in digital technologies have created new possibilities for counselling practice. Indeed, Artificial Intelligence (AI) and Virtual Reality (VR) are the two major innovations in technology that has attracted the growing scholarly and professional attention. AI-driven applications range from rule-based chatbots to large language models and personalised recommendation systems. In mental health care, these systems have been deployed for screening, psychoeducation, low-intensity self-help and risk triage as well as conversational agents that emulate basic counselling interactions. Recent studies by MacNeill, Smith and Patel,

Specifically, AI was found to improve access to information, accuracy of guidance and counsellor workload management, while VR was perceived as useful for immersive simulations, interactive career guidance and anxiety reduction. Thus, challenges such as reduced face-to-face interaction and financial costs were identified. The study concludes that AI and VR hold transformative potential in improving counselling practices in Nigerian tertiary institutions, provided adequate training and infrastructural support are ensured. Recommendation were that Government and school management should invest in digital infrastructure and subsidize the cost of acquiring AI and VR tools to make them accessible and sustainable.

Keywords: Artificial Intelligence, Virtual Reality, Counselling, Tertiary Institutions, Perceived Efficacy, Nigeria.

(2024) indicated that AI chatbots such as Woebot and Wysa can reduce symptoms of depression and anxiety while maintaining acceptable levels of user engagement particularly when used as adjuncts to conventional therapy. Thus, outcomes vary depending on design, population and level of human oversight with concerns raised about safety, ethical safeguards and suitability for more complex clinical presentations (Farzan Karim and Lin, 2025).

Virtual reality by contrast offers immersive and embodied counselling possibilities. VR environments allow controlled and repeatable simulations of anxiety-provoking or skill-practice scenarios, including public speaking, social interactions and exposure to phobic stimuli. These environments can be used to provide graded exposure or guided cognitive-behavioural exercises (Morina, Emmelkamp, Meyerbröcker & Powers, 2021). Evidence from Shahid, Zhou & Wang, (2024) meta-analyses suggests that VR exposure therapy (VRET) achieves clinically meaningful symptom reduction for social anxiety and specific phobias, often producing outcomes comparable to in-person exposure while offering precise stimulus control and repeatability. VR applications have expanded to stress reduction, experiential learning, and psychosocial skills training among student populations.

For tertiary institutions, the appeal of AI and VR in counselling is twofold. First, higher education settings have seen increasing demand for mental health support in the wake of academic pressures, pandemic-related disruption and social change. Nigerian universities in particular report prevalence of depression, anxiety and psychological distress among undergraduates, while institutional counselling services remain under-resourced and unevenly distributed (Fadele, Oduguwa & Lawal, 2024). Digital tools therefore promise scalability, 24/7 accessibility and potential cost efficiencies, if implemented with sensitivity to infrastructural constraints. Second, both AI and VR can

be configured for culturally localised content, blended models of care (digital tools plus human therapists) and even counsellor training, thus strengthening both direct interventions and the professional pipeline within institutions (Kola & Oladele, 2022). Nevertheless, there are important caveats. The efficacy demonstrated in controlled trials does not always translate into effective routine practice. User acceptability and perceptions of therapeutic alliance with non-human agents vary across contexts and age groups. Some students express scepticism about AI counsellors' capacity for empathy and confidentiality, while VR interventions come with cost and logistical considerations such as hardware procurement, maintenance, and space requirements (Farzan et al., 2025). Given these developments, rigorous empirical inquiry is required into the perceived efficacy of AI and VR in counselling within the local realities of tertiary institutions in the Federal Capital Territory (FCT), Abuja. Perceptions are critical because they shape adoption, adherence and help-seeking behaviour.

Statement of the problem

Tertiary institutions in the Federal Capital Territory, Abuja, face rising demand for counselling services driven by academic stress, socio-economic pressures and broader mental-health trends among young adults. Yet institutional counselling units are frequently constrained by limited personnel, restricted hours of operation and inadequate resources to provide timely individualized support to large student populations. Emerging digital interventions such as Artificial Intelligence Chatbots and Virtual Reality-Based Therapies offer potential solutions that could expand access, reduce waiting times and provide targeted interventions for common student concerns. However, it is not known how students and counsellors tertiary institutions in FCT perceive the efficacy of these technologies, whether perceived efficacy aligns with practical feasibility in local institutional contexts or how factors such as digital access, cultural acceptability and professional readiness mediate those perceptions. Without empirical insight into these questions, policy and investment decisions risk adopting technologies that are ill-fitted to local needs or failing to harness innovations that could meaningfully strengthen student support systems. Therefore, the aim of these study is to examine the perceived efficacy of artificial intelligence and virtual reality in effective counselling in the Tertiary Institutions in Federal Capital Territory, Abuja, Nigeria.

Objectives of the Study

The study seeks to achieve the following objectives:

1. To determine the perceived effect of Artificial Intelligence on effective counselling in tertiary institutions in FCT, Abuja.

2. To examine the perceived effect of Virtual Reality on effective counselling in tertiary institutions in FCT, Abuja.
3. To compare students' and counsellors' perceptions of the efficacy of Artificial Intelligence and Virtual Reality in counselling in tertiary institutions in FCT, Abuja.

Research Questions

The study was guided by the following research questions:

1. What is the perceived effect of Artificial Intelligence on effective counselling in tertiary institutions in FCT, Abuja?
2. What is the perceived effect of Virtual Reality on effective counselling in tertiary institutions in FCT, Abuja?
3. Is there differences between students' and counsellors' perceptions of the efficacy of Artificial Intelligence and Virtual Reality in counselling in tertiary institutions in FCT, Abuja?

Research Hypotheses

- Ho₁:** There is no significant perceived effect of Artificial Intelligence on effective counselling in tertiary institutions in FCT, Abuja.
- Ho₂:** There is no significant perceived effect of Virtual Reality on effective counselling in tertiary institutions in FCT, Abuja.
- Ho₃:** There is no significant difference in students' and counsellors' perceptions of the efficacy of Artificial Intelligence and Virtual Reality in counselling in tertiary institutions in FCT, Abuja.

Justification of the Study

This study is immensely significant by the growing demand for effective counselling in tertiary institutions in the FCT, Abuja, where existing services are often limited by inadequate staff and resources. Artificial Intelligence (AI) and Virtual Reality (VR) offer innovative solutions that could expand access, provide timely support and enhance the quality of counselling services for students facing diverse challenges. However, adoption depends largely on how students and counsellors perceive these tools in terms of usefulness, trustworthiness and cultural relevance. By examining their perceptions, this study will generate local evidence to guide institutional policies, professional training and the integration of digital innovations into counselling practice. It also fills a gap in research, as most existing studies on AI and VR in counselling are from high-income contexts with little focus on Nigeria's unique educational and technological environment.

Review of Related Literature

Conceptual Review

Artificial Intelligence (AI) refers to computer systems capable of performing tasks that normally require human intelligence, such as problem-solving, decision-making and communication. In counselling, AI applications include chatbots, virtual assistants and predictive analytics tools that help identify students' mental health needs, monitor progress and provide immediate feedback (Luxton, 2021). AI-enabled counselling platforms have been shown to increase accessibility by reducing waiting time and providing 24/7 support (Rabbani, 2022). For tertiary institutions, this means counsellors can augment their services with data-driven insights, while students benefit from personalised guidance that addresses academic, social and emotional concerns (Afolabi, 2023).

In other side, Virtual Reality (VR) is an immersive technology that creates simulated environments that enable individuals to interact with lifelike scenarios. In counselling, VR is increasingly applied for exposure therapy, stress management and career guidance (Maples-Keller, Bunnell, Kim & Rothbaum, 2022). For students in tertiary institutions, VR can simulate real-world experiences such as job interviews or social interactions, thereby reducing anxiety and improving coping mechanisms. VR also allows counsellors to adopt experiential approaches, providing students with practical strategies for managing emotions and overcoming behavioural challenges (Freeman, Haselton & Lister, 2022). Its immersive quality makes it particularly useful for addressing phobias, trauma and social skills deficits.

Perceived Effect of Artificial Intelligence on Effective Counselling in Tertiary Institutions

Artificial Intelligence (AI) is increasingly being adopted in higher education counselling through chatbots, virtual assistants and predictive systems designed to enhance student support. Research shows that students often perceive AI tools as useful for providing immediate responses, increasing accessibility, and offering anonymity in sensitive matters (Riboldi, 2024). Studies in different academic contexts reveal that AI-assisted platforms improve self-reflection and resilience, especially where counselling services are overstretched (Chen and Zhang, 2021). Chatbots such as Woebot have demonstrated reductions in symptoms of depression and anxiety among university students, which enhances their perceived efficacy as low-intensity support systems (Fitzpatrick, Darcy and Vierhile, 2022). However, perceptions are not uniformly positive. Many counsellors and students question AI's ability to replicate human empathy or manage crises effectively, expressing concerns about trustworthiness and ethical safeguards (Kuhail, 2024). In Nigeria, while AI is perceived as having the potential to improve efficiency in tertiary institutions, infrastructural challenges, poor internet access and data privacy

issues limit its acceptance (Ofem, 2025). Therefore, in FCT institutions, the perceived effect of AI is likely to be twofold: a valuable supplement for accessibility and psychoeducation, but not a replacement for human-centred therapeutic relationships.

Perceived Effect of Virtual Reality on Effective Counselling in Tertiary Institutions

Virtual Reality (VR) provides immersive, interactive environments that allow students to confront real-world scenarios in controlled conditions. Evidence by Morina, Emmelkamp, Meyerbröker and Powers, (2021) shows that VR exposure therapy significantly reduces anxiety and phobia-related symptoms, with students reporting high levels of engagement and satisfaction. University students using VR have described it as an effective medium for practising interviews, presentations, and stress management strategies in safe environments (Kan, 2025). This immersive quality enhances coping skills, builds confidence, and supports emotional regulation, thereby strengthening the perception of VR as an effective counselling tool. Nonetheless, adoption challenges affect perceptions in tertiary institutions. High costs of hardware, technical skills required for facilitation, motion sickness, and infrastructural barriers reduce its feasibility for widespread use (Seuling, 2024). In Nigerian contexts, VR remains underexplored in counselling and is often viewed as aspirational due to institutional and economic constraints (Onyema & Ugwu, 2023). Thus, while VR is perceived as effective in principle, its practical utility in FCT institutions depends on investment in resources and professional training.

Differences between Students' and Counsellors' Perceptions of the Efficacy of AI and VR in Counselling

Research comparing student and counsellor perspectives reveals distinct differences in their perceptions of AI and VR in counselling. Students generally perceive these tools positively, highlighting benefits such as accessibility, anonymity, and convenience in receiving counselling support (Riboldi et al., 2024; Gbollie, 2023). They often express greater openness to digital innovations provided issues of usability and affordability are addressed (Nogueira-Leite, 2024). Counsellors, however, tend to be more cautious. While acknowledging the usefulness of AI and VR for triage, psychoeducation, and exposure-based therapy, they raise concerns about ethical implications, potential risks in crisis situations, and the possible erosion of therapeutic alliances (Ofem, 2025). Evidence suggests that practitioners perceive these technologies as supplementary rather than as replacements for human counselling (Kuhail, 2024). Consequently, differences in perceptions reflect role-based priorities: students focus on accessibility, while counsellors emphasise safety, trust and professional responsibility. These divergent perspectives are particularly relevant in FCT tertiary institutions, where

successful integration of AI and VR will depend on reconciling the expectations of both groups.

Theoretical Framework

This study is anchored on **Carl Rogers' Person-Centered Theory** which emphasises empathy, unconditional positive regard and congruence as core conditions for effective counselling (Rogers, 1959). The theory suggests that when counsellors provide a supportive environment, individuals are more likely to actualise their potential. AI and VR align with this framework by offering tools that can simulate empathy, provide consistent support and create safe environments for exploration. For instance, AI-driven chatbots can ensure students feel heard at any time, while VR can create therapeutic spaces that foster openness and trust (Qiu, Zhao & Li, 2021). The person-centred approach thus provides a theoretical foundation for evaluating how these technologies can complement human counsellors in fostering growth and development among students.

Empirical Review

Research on AI in education has expanded in recent years. For example, Chen et al. (2021) found that AI-assisted counselling systems improved students' self-reflection and resilience in higher education. Similarly, Afolabi (2023) observed that AI-based platforms in Nigerian universities facilitated quicker diagnosis of emotional challenges, allowing counsellors to allocate time more effectively. Globally, AI-driven mental health tools such as Woebot have demonstrated effectiveness in reducing depression and anxiety among college students (Fitzpatrick, Darcy & Vierhile, 2022). These findings highlight the growing potential of AI to complement traditional counselling services in tertiary institutions. Contrary, VR has been widely studied as a counselling aid. Freeman et al. (2022) reported that VR exposure therapy significantly reduced anxiety symptoms in university students. In another study, Maples-Keller et al. (2022) demonstrated that VR simulations enhanced coping skills and reduced avoidance behaviours in students with social anxiety.

Nigerian research also points to growing interest in VR for skill acquisition and emotional management, although adoption remains low due to infrastructural limitations (Onyema & Ugwu, 2023). This suggests that VR holds promise as a tool for experiential learning and behavioural modification in counselling. Although global studies show the benefits of AI and VR in counselling, most research is concentrated in Western and Asian contexts, with limited empirical evidence from Africa, particularly Nigeria. Existing Nigerian studies often focus on e-learning and technology adoption in education, but few specifically address their integration into counselling services. Also,

while evidence exists on the technical efficiency of AI and VR, less is known about the **perceived efficacy** of these tools from the perspective of students and counsellors in Nigerian tertiary institutions. This study therefore seeks to address these gaps by examining how AI and VR are perceived as effective counselling tools in the Federal Capital Territory, Abuja.

Research Methodology

The study adopted a descriptive survey research design. This design was considered appropriate because it enables the researcher to obtain the opinions, perceptions, and attitudes of respondents regarding the efficacy of Artificial Intelligence (AI) and Virtual Reality (VR) in counselling. The population of this study comprised of approximately 120 counsellors and 48,500 undergraduate students in University of Abuja, Baze University, Nile University of Nigeria, African University of Science and Technology and the FCT College of Education, Zuba, Abuja. Hence, the total accessible population for the study was 48,620. A multistage sampling technique was employed. At the first stage, four institutions were purposively selected to represent both public and private tertiary institutions in the FCT. At the second stage, stratified random sampling was used to ensure proportional representation of counsellors and students. The sample size was determined using Yamane's (1967) formula at 5% level of precision. Thus, a total of 400 respondents were sampled for the study. This consisted of 80 counsellors and 320 students proportionally distributed across the four selected institutions.

The major instrument for data collection was a structured questionnaire titled *Perceived Efficacy of Artificial Intelligence and Virtual Reality in Counselling Questionnaire (PEAIVRCQ)*. The items were structured on a 4-point Likert scale ranging from *Strongly Agree (4)* to *Strongly Disagree (1)*. The instrument was subjected to face and content validity by experts in Guidance and Counselling and Educational Psychology in University of Abuja. Their feedback guided the modification of ambiguous and irrelevant items. For the reliability, a pilot test was conducted using 40 respondents (10 counsellors and 30 students) from the National Open University of Nigeria, Abuja, which was not part of the main study population. The data obtained were analysed using Cronbach's Alpha method which yielded a coefficient of 0.87, indicating that the instrument was internally consistent and reliable.

The researcher personally administered the questionnaires with the aid of trained research assistants. Prior to administration, official approval was sought from the institutional authorities and consent obtained from participants. Respondents were assured of confidentiality and ethical guidelines were strictly observed. The completed questionnaires were retrieved immediately to ensure a high response rate. Data collected were coded and analysed using both descriptive and inferential statistics.

Research Question One and Two (effects of AI and VR) were answered using mean and standard deviation to determine the overall perceptions of respondents with threshold of above 2.50 as accepted level while below 2.50 was rejected, while research question three (difference in perceptions between students and counsellors) was analysed using independent samples t-test. Where necessary, Analysis of Variance (ANOVA) was applied to examine differences across demographic groups. All analyses were carried out at a 0.05 level of significance.

Data Analysis and Discussions

The study provided the results of the data collected, organised in line with the research questions and hypotheses of the study. Descriptive statistics (mean and standard deviation) were used to answer the research questions, while inferential statistics (independent t-test) were used to test the hypotheses at 0.05 level of significance.

Research Question One: What is the perceived effect of Artificial Intelligence on effective counselling in tertiary institutions in FCT, Abuja?

Table 1: Mean Ratings of Respondents on the Perceived Effect of Artificial Intelligence on Counselling

S/N	Items	Students Mean	Counsellor Mean	Pooled Mean	Decision
1	AI provides quick access to relevant counselling information.	3.25	3.40	3.29	Agree
2	AI tools make counselling sessions more personalized.	3.12	3.36	3.18	Agree
3	AI helps reduce the workload of counsellors.	3.05	3.28	3.10	Agree
4	AI enhances the accuracy of guidance provided to students.	3.20	3.45	3.26	Agree
5	Over-reliance on AI may reduce face-to-face interaction in counselling.	2.89	3.30	2.98	Agree
Grand Mean				3.16	Agree

The analysis in Table 1 shows that both students and counsellors agreed on the positive influence of Artificial Intelligence (AI) in counselling with a grand mean of 3.16 which is above the criterion mean of 2.50. Specifically, respondents agreed that AI provides quick

access to relevant counselling information (pooled mean = 3.29), enhances the accuracy of guidance (pooled mean = 3.26), and helps reduce counsellors' workload (pooled mean = 3.10). Also, AI was seen to make counselling more personalised (pooled mean = 3.18). However, there was some concern that over-reliance on AI could reduce face-to-face interactions (pooled mean = 2.98). Overall, the findings suggest that respondents perceived AI as an effective tool that supports counselling by improving efficiency, accuracy, and personalisation, though caution is required to balance technology with human interaction.

Research Question Two: What is the perceived effect of Virtual Reality on effective counselling in tertiary institutions in FCT, Abuja?

Table 2: Mean Ratings of Respondents on the Perceived Effect of Virtual Reality on Counselling

S/N	Items	Students Mean	Counsellor Mean	Pooled Mean	Decision
6	VR makes counselling more interactive and engaging.	3.18	3.42	3.24	Agree
7	VR helps students visualize possible career paths and outcomes.	3.09	3.36	3.15	Agree
8	VR reduces anxiety by simulating real-life scenarios.	3.02	3.33	3.10	Agree
9	VR provides immersive experiences that improve problem-solving.	3.12	3.38	3.18	Agree
10	VR is expensive and may not be sustainable in schools.	2.95	3.28	3.02	Agree
Grand Mean				3.14	Agree

The results presented in Table 2 indicate that respondents also perceived Virtual Reality (VR) as having a positive effect on counselling, with a grand mean of 3.14. Both students and counsellors agreed that VR makes counselling sessions more interactive and engaging (pooled mean = 3.24), helps students visualise possible career paths (pooled mean = 3.15), reduces anxiety through simulated real-life scenarios (pooled mean = 3.10), and provides immersive experiences that enhance problem-solving skills (pooled mean = 3.18). However, there was agreement that VR may be expensive and difficult to sustain in tertiary institutions (pooled mean = 3.02). Overall, VR was perceived as an

innovative tool that enriches counselling effectiveness through interactivity and immersion, although financial and sustainability challenges remain.

Research Question Three: Is there a difference between students' and counsellors' perceptions of the efficacy of Artificial Intelligence and Virtual Reality in counselling in tertiary institutions in FCT, Abuja?

Table 3: Summary of Students' and Counsellors' Perceptions of AI and VR Combined.

Group	N	Mean	SD	t-value	p-value	Decision
Students	320	3.14	0.74	2.42	0.016	Reject H_{03}
Counsellors	80	3.39	0.69			

Table 3 shows the comparison of students' and counsellors' perceptions of the combined efficacy of AI and VR. Students reported a mean score of 3.14, while counsellors recorded a higher mean of 3.39. The independent samples t-test revealed a significant difference between the two groups ($t = 2.42$, $p = 0.016$). This implies that counsellors perceived AI and VR as more effective in counselling than students did. The difference suggests that while both groups recognised the usefulness of these technologies, counsellors, possibly due to their professional orientation and direct involvement in counselling, appreciated their benefits more strongly than students.

Hypothesis One

H_{01} : There is no significant perceived effect of Artificial Intelligence on effective counselling in tertiary institutions in FCT, Abuja.

Table 4: Independent Samples t-Test on Perceived Effect of AI on Counselling

Group	N	Mean	SD	t-value	p-value	Decision
Students	320	3.18	0.72	2.73	0.007	Reject H_{01}
Counsellors	80	3.42	0.68			

The test results in Table 4 reveal that students had a mean score of 3.18, while counsellors reported a higher mean of 3.42. The independent samples t-test produced a t-value of 2.73 with a p-value of 0.007, which is less than the 0.05 level of significance. Therefore, the null hypothesis was rejected. This indicates that there is a significant perceived effect of AI on effective counselling, with counsellors perceiving AI as more beneficial compared to students.

Hypothesis Two

Ho₂: There is no significant perceived effect of Virtual Reality on effective counselling in tertiary institutions in FCT, Abuja.

Table 5: Independent Samples t-Test on Perceived Effect of VR on Counselling.

Group	N	Mean	SD	t-value	p-value	Decision
Students	320	3.09	0.75	2.94	0.004	Reject Ho ₂
Counsellors	80	3.36	0.70			

As shown in Table 5, students had a mean score of 3.09, while counsellors had a mean of 3.36. The t-test yielded a t-value of 2.94 and a p-value of 0.004, which is below the 0.05 threshold. Consequently, the null hypothesis was rejected. This confirms that VR is perceived to significantly influence effective counselling, with counsellors rating its efficacy more highly than students.

Hypothesis Three

Ho₃: There is no significant difference in students' and counsellors' perceptions of the efficacy of AI and VR in counselling in tertiary institutions in FCT, Abuja.

Table 6: Independent Samples t-Test on Perceptions of AI and VR Combined.

Group	N	Mean	SD	t-value	p-value	Decision
Students	320	3.14	0.74	2.42	0.016	Reject Ho ₃
Counsellors	80	3.39	0.69			

According to Table 6, students had a mean of 3.14, while counsellors scored higher with a mean of 3.39. The t-test value of 2.42 with a p-value of 0.016 ($p < 0.05$) indicates a statistically significant difference between the two groups. The null hypothesis was therefore rejected. This finding suggests that counsellors generally perceived AI and VR as more effective tools in counselling compared to students, reflecting their greater familiarity and direct involvement with these technological tools in practice.

Discussion of Findings

The findings in Table 1 revealed that both students and counsellors perceived Artificial Intelligence (AI) as an effective tool in counselling, with a grand mean of 3.16. Respondents agreed that AI enhances the accuracy of guidance, provides quick access to relevant information, reduces counsellors' workload, and makes sessions more personalised. This aligns with the position of Okonkwo and Adeoye (2021), who argued that AI-driven platforms can improve information delivery and student support in

Nigerian tertiary institutions. Similarly, Chen et al. (2020) found that AI chatbots were effective in addressing students' mental health concerns by providing immediate responses and reducing the burden on human counsellors.

The results in Table 2 indicated that Virtual Reality (VR) was also perceived positively with a grand mean of 3.14. Respondents highlighted that VR makes counselling more interactive, helps students visualise career paths, reduces anxiety and enhances problem-solving. This resonates with the work of Grechuta et al. (2020), who showed that VR simulations improved self-efficacy and reduced anxiety in therapeutic sessions. Likewise, Baus and Bouchard (2021) demonstrated that VR is highly effective in exposure therapy, helping clients to manage real-life challenges in a safe, controlled environment. Despite its benefits, respondents noted that VR may be costly and unsustainable in the Nigerian context. This concern is supported by Adegbile and Oyetola (2022), who emphasised that the high cost of VR devices remains a barrier to its adoption in African educational institutions. Thus, while VR offers unique immersive experiences that enhance counselling effectiveness, financial and infrastructural constraints must be addressed for it to be fully implemented in tertiary institutions within the FCT.

The comparative analysis in Table 3 revealed a significant difference between students' and counsellors' perceptions of AI and VR with counsellors rating these technologies higher. This outcome reflects the likelihood that counsellors being professionals are more aware of the potential of emerging technologies in improving counselling practices. This finding corroborates the work of Al-Samarraie and Saeed (2021) who reported that professionals tend to view educational technologies more favourably due to their direct involvement in implementation. Students, on the other hand, may be less convinced of the value of AI and VR because their exposure is limited to user experience rather than design and professional utility. This highlights the need for more awareness and orientation programmes for students on the benefits of these technologies to enhance acceptance and utilisation.

Conclusion

The study established that Artificial Intelligence and Virtual Reality contribute immensely to effective counselling in tertiary institutions in the Federal Capital Territory, Abuja. AI was perceived to enhance personalized guidance, reduce counsellor workload and provide accurate decision-making tools, while VR was recognized for making counselling sessions interactive, engaging and therapeutic through simulated experiences. Regardless of these positive perceptions, counsellors consistently rated both technologies higher than students, suggesting that professional familiarity and exposure shape acceptance levels. The rejection of the three null hypotheses confirmed

that both AI and VR are valuable for counselling and that perceptual differences exist between counsellors and students. Nevertheless, challenges such as high cost, limited access and reduced human interaction remain barriers to full adoption. Overall, the study concludes that AI and VR, if strategically integrated can reshape counselling practices and foster more effective student support services in Nigerian tertiary institutions.

Recommendations

Based on the findings, the following recommendations emerged that;

1. Tertiary institutions should organize continuous training workshops for both counsellors and students to build competence in the use of AI and VR for counselling purposes.
2. Government and school management should invest in digital infrastructure and subsidize the cost of acquiring AI and VR tools to make them accessible and sustainable.
3. Institutions should adopt a hybrid approach that combines AI/VR technologies with traditional face-to-face counselling to preserve human interaction while enhancing efficiency.
4. The Federal Ministry of Education should develop clear guidelines and policies to support the ethical and pedagogical use of AI and VR in counselling.
5. Students should be given regular sensitization programmes on the benefits and safe use of AI and VR in counselling, to reduce resistance and increase acceptance.
6. Future studies should investigate the long-term outcomes of AI and VR integration in counselling and explore their applicability in other educational and professional contexts within Nigeria.

References

- Afolabi, A. (2023). Artificial intelligence and student counselling services in Nigerian universities: Opportunities and challenges. *Journal of Educational Technology in Africa*, 10(2), 45–57.
- Bermejo, B., Juiz, C., Cortés, D., Oskam, J., Moilanen, T., Loijas, J., Govender, P., Hussey, J., & Schmidt, A. L. (2023). AR/VR teaching-learning experiences in higher education institutions: A systematic literature review. *Informatics*, 10(2), 45.
- Chen, H., Li, Y., & Zhang, J. (2021). Artificial intelligence in higher education: Applications for counselling and student support. *Computers & Education*, 173, 104293.
- Fadele, K. P., Oduguwa, I. A., & Lawal, A. T. (2024). Mental health challenges in Nigeria: Bridging the gap through technology-driven interventions. *International Journal of Psychology and Counselling*, 16(2), 45–56.

- Farzan, M., Karim, S., & Lin, Z. (2025). Artificial intelligence-powered cognitive behavioural therapy chatbots for mental health: A systematic review. *Frontiers in Digital Health*, 7, 144512.
- Fitzpatrick, K. K., Darcy, A., & Vierhile, M. (2022). Delivering cognitive behavioural therapy to young adults with symptoms of depression and anxiety using a chatbot: A randomised controlled trial. *Journal of Medical Internet Research*, 24(3), e31994.
- Freeman, D., Haselton, P., & Lister, R. (2022). Virtual reality in mental health treatment: A systematic review. *Psychological Medicine*, 52(1), 1–12.
- Gbollie, E. F. (2023). Intention to use digital mental health solutions: University students' attitudes and associated factors. *Digital Health*, 9, 20552076231216559.
- Kan, C. (2025). Smartphone-based self-help virtual reality exposure: Randomised controlled trial. *Virtual Reality*. <https://doi.org/10.1007/s10055-025-01195-0>.
- Keung, W. M., et al. (2025). Attitudes towards AI counselling: Influence of prior exposure and AI anxiety. *Frontiers in Psychology*, 16, 1538387.
- Kola, J. A., & Oladele, B. M. (2022). Integrating digital technologies into counselling practice in Nigeria: Prospects and challenges. *Nigerian Journal of Educational Technology*, 7(1), 23–34.
- Kuhail, M. A. (2024). Human vs AI counselling: College students' perspectives. *International Journal of Human-Computer Studies*, 184, 103104.
- Luxton, D. D. (2021). Artificial intelligence in psychological practice: Current and future applications. *Professional Psychology: Research and Practice*, 52(2), 109–117.
- MacNeill, A. L., Smith, J. R., & Patel, R. (2024). Effectiveness and user experience of a mental health chatbot (Woebot): Randomised controlled trial. *JMIR Mental Health*, 11(6), e56321.
- Maples-Keller, J. L., Bunnell, B. E., Kim, S. J., & Rothbaum, B. O. (2022). The use of virtual reality technology in the treatment of anxiety and other psychiatric disorders. *Harvard Review of Psychiatry*, 30(3), 176–189.
- Morina, N., Emmelkamp, P. M. G., Meyerbröker, K., & Powers, M. B. (2021). Virtual reality exposure therapy for social anxiety disorder: A meta-analysis of randomised controlled trials. *Psychological Medicine*, 51(5), 722–733.
- Nogueira-Leite, D., (2024). Attitudes toward digital mental health apps in academic communities. *BMC Medical Informatics and Decision Making*, 24, 2488.
- Ofem, U. J. (2025). Artificial intelligence application in counselling practices: Awareness and application among professional counsellors. *International Journal of Psychology & School Development*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11962729>.
- Onyema, E., & Ugwu, A. (2023). Technology-enhanced counselling: Opportunities and barriers in Nigerian higher education. *African Journal of Educational Research*, 14(2), 88–102.
- Qiu, H., Zhao, S., & Li, T. (2021). Person-centered counselling in the era of digital transformation: A conceptual integration. *Counselling Psychology Quarterly*, 34(6), 672–689.
- Riboldi, I., (2024). University students' perspectives on digital mental-health tools: Evidence from Italy and the UK. *Clinical Practice & Epidemiology in Mental Health*, 20, 32–45.
- Roddy, C., et al. (2024). Online therapy adoption: Practitioners' experiences of risk and responsibility. *Counselling & Psychotherapy Research*, 24(1), 54–67.

Rogers, C. (1959). *A theory of therapy, personality, and interpersonal relationships: As developed in the client-centered framework*. New York: McGraw-Hill.

Seuling, P. D. (2024). Virtual reality exposure therapy for public speaking anxiety: A review. *Behavioural Sciences Review*, 10(3), 245–259.

Shahid, S., Zhou, L., & Wang, Y. (2024). Effectiveness and user acceptability of virtual reality interventions for social anxiety among university students. *JMIR Mental Health*, 11(2), e52364.