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Curriculum and Counseling implications of AI dependence on student learning autonomy in Universities in Imo State Nigeria

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Abstract

The rapid adoption of generative artificial intelligence tools in Nigerian universities has raised concerns about the erosion of student learning autonomy, yet empirical evidence on this phenomenon remains scarce, particularly regarding the curriculum and counseling responses needed to address it. This mixed-methods triangulation study examined the extent of AI dependence and its relationship to learning autonomy among 450 undergraduate students across two universities in Imo State, Nigeria (Federal University of Technology, Owerri and Imo State University, Owerri), alongside qualitative interviews with 15 curriculum leaders, 6 counseling staff, and 20 students identified as having high AI dependence. Quantitative data were analysed using descriptive statistics and Pearson correlation, while qualitative data underwent thematic analysis. The findings revealed that AI dependence was high (88.2% used AI weekly; mean dependence score 3.72/5) and exhibited a moderate negative correlation with learning autonomy ($r = –0.43$, $p < .001$), with the strongest erosion observed in independent problem-solving ($r = –0.49$). Neither university had developed coordinated curriculum or counseling responses, though the state university had piloted some AI-resilient assessments. Students expressed guilt and a desire for guidance, indicating that institutional neglect, not student indifference, is the primary problem. The study concludes that excessive AI dependence undermines learning autonomy, and integrated curriculum-counseling interventions are urgently needed.

Keywords: *AI dependence; learning autonomy; curriculum implications; counseling implications; higher education; generative AI; Nigerian universities; self-regulated learning.*

1. Introduction

The rapid proliferation of generative artificial intelligence tools has fundamentally altered the landscape of higher education across the globe. Since the public release of ChatGPT in late 2022, generative AI has moved from a niche technological curiosity to a mainstream academic resource accessed by millions of students worldwide (Adarkwah et al., 2024; Ogunyemi & Adebayo, 2025). These tools, which include large language models capable of producing human-like text, solving complex problems, and generating original content, have been embraced with remarkable speed within university settings. What makes this moment distinctive is not merely the technological capability on display but the velocity with which these tools have been adopted, outpacing the development of institutional policies, pedagogical frameworks, and ethical guidelines that might govern their use (Okonkwo & Nwosu, 2024; Tlili et al., 2023).

In Nigeria, the story is no different. The country's higher education sector, which comprises more than 200 universities serving a rapidly growing student population, has witnessed a surge in generative AI adoption among undergraduate students. A recent study examining

socio-cultural influences on generative AI engagement across seventeen Nigerian universities found that students are actively incorporating these technologies into their academic routines, with ease of use and perceived alignment with educational goals serving as primary drivers of adoption (Eke & Okereke, 2025). This trend is particularly pronounced in South East Nigeria, where public universities have been grappling with infrastructural challenges, resource constraints, and the lingering disruptions from the COVID-19 pandemic that accelerated digital transformation efforts (Nnamdi & Obi, 2023).

What is perhaps most striking about this technological shift is the changing nature of student academic behaviour. Traditional models of learning emphasised self-regulated learning, a process whereby students set their own goals, monitor their progress, and adapt their strategies independently (Zimmerman & Schunk, 2020). This conception of learning autonomy has long been considered a cornerstone of effective higher education, preparing students not merely to absorb information but to become lifelong learners capable of navigating complex intellectual challenges (Chukwuedo & Onyeka, 2024). Yet the emergence of generative AI tools has introduced a fundamental tension into this framework. Students can now bypass many of the cognitive processes that were previously essential to learning. Rather than struggling through difficult texts, they can ask AI for summaries. Rather than wrestling with complex problems, they can request step-by-step solutions. Rather than engaging in the recursive process of drafting and revising, they can generate complete essays with minimal input (Akinwale & Uzochukwu, 2025).

The efficiency gains are undeniable, and students recognise them. Surveys conducted across diverse university contexts reveal that students appreciate the time savings and the way AI tools can reduce the cognitive burden of academic work (Ifeanyi & Nwankwo, 2024). One student captured a common sentiment when they noted that "AI has made studying more efficient but sometimes I feel like I am learning less" (cited in Okafor & Adeyemi, 2025, p. 47). This observation cuts to the heart of the concern: efficiency may come at the cost of genuine learning. When AI mediates the learning process so thoroughly, questions arise about whether students are developing the intellectual capacities that higher education is meant to cultivate.

Researchers have begun to explore this phenomenon systematically. A randomised experimental study comparing learners who received support from ChatGPT versus those who received human expert support, writing analytics support, or no additional support found something both promising and troubling. Students who used ChatGPT showed greater improvement in essay scores, yet their knowledge gain and knowledge transfer were not significantly different from other groups (Kazemi & Ahmadi, 2024). This suggests that while AI can help students produce better outputs, it may not necessarily lead to deeper learning. More concerning still, the study identified what the authors termed "metacognitive laziness" – a tendency for students to rely on AI in ways that diminish their engagement with the cognitive processes that underpin learning (Kazemi & Ahmadi, 2024; see also Yusuf & Balogun, 2025).

Problem Statement

The increasing dependence on AI among university students therefore presents a significant and emerging challenge to the foundational goals of higher education. Learning autonomy, defined as the capacity for self-directed, self-regulated learning, has long been recognised as both a means and an end of university education. It is through the exercise of autonomy that students develop critical thinking, problem-solving skills, and the intellectual resilience necessary to navigate complex domains (Adebayo & Ogunleye, 2023; Zimmerman & Schunk, 2020). Yet the very features that make generative AI attractive to students – its ability to reduce cognitive load, provide instant answers, and scaffold complex tasks – may, if used excessively or uncritically, erode precisely those capacities (Onyebuchi & Eze, 2024).

This tension has profound implications for two interrelated domains of university practice: curriculum design and guidance and counseling. Curriculum, as the structured set of learning experiences that universities provide, determines what students learn, how they learn it, and how their learning is assessed. If curriculum fails to account for the presence of AI, it may inadvertently encourage dependence by continuing to assign tasks that AI can complete with minimal student input (Chukwuma & Nwachukwu, 2025). Conversely, curriculum can be designed to foster autonomy by emphasising process-oriented learning, authentic assessment, and the development of higher-order thinking skills that AI cannot easily replicate (Ifenthaler & Schumacher, 2023; Oladele & Ajayi, 2024).

Guidance and counseling, meanwhile, addresses the holistic development of students, including their academic self-concept, self-regulation strategies, and ethical decision-making (Egwu & Okafor, 2023). Counselors work with students to develop the metacognitive awareness and self-management skills that underpin learning autonomy (Ugwueze & Nnadi, 2024). Yet the existing literature offers limited guidance on how counseling services should respond to the challenges posed by AI dependence. Should counselors view AI use as a threat to autonomy that requires

intervention, or as a tool that can enhance autonomy when used appropriately? How can counseling support students in developing healthy relationships with AI technologies that complement rather than undermine their learning? These questions remain largely unexplored in the Nigerian context (Obi & Iheanacho, 2025).

These questions are particularly urgent in the Nigerian context, where empirical evidence on AI dependence remains scarce. While international studies have begun to document the effects of generative AI on learning processes (Chan & Lee, 2023; Lodge et al., 2023), there is a notable gap in research focused on Nigerian universities (Eke & Okereke, 2025). The socio-cultural context matters deeply here. Nigerian students navigate educational environments shaped by specific institutional constraints, cultural norms around learning and authority, and economic pressures that may influence their engagement with AI technologies (Nnamdi & Obi, 2023; Olusegun & Adebayo, 2024). Without local empirical evidence, efforts to develop appropriate curriculum and counseling responses risk being misaligned with the realities of student experience.

Rationale

This study is therefore motivated by the need to understand, within a specific Nigerian context, how AI dependence among university students relates to their learning autonomy and what implications this holds for curriculum and counseling practice. The focus on two universities in Imo State, Nigeria allows for a detailed, contextually grounded exploration that can generate insights applicable to similar institutions across the region.

The selection of Imo State, Nigeria as the research setting is deliberate. The State is home to a mix of federal and state universities that share common characteristics with institutions across Nigeria while also exhibiting distinct regional features (Okafor & Umeh, 2024). Recent research on technology integration in Imo State, Nigerian universities has documented the growing adoption of emerging technologies, including AI-powered learning tools, adaptive assessments, and intelligent tutoring systems (Nwosu & Anozie, 2025). Yet the same research points to gaps in policy and practice that leave students without clear guidance on appropriate technology use (Ekwueme & Ugwu, 2024).

The need for this research is amplified by policy developments at the national level. In 2024, following a series of policy dialogues involving federal ministries, regulatory agencies, and university stakeholders, Nigeria developed its first National Higher Education AI Framework (National Universities Commission, 2024). This framework, which was subsequently adopted as the basis for institutional policy development, represents a significant step toward governing AI use in higher education. However, the framework is necessarily broad in scope, addressing principles and high-level recommendations rather than the specific pedagogical and counseling strategies that universities need (Ogunyemi & Adebayo, 2025). This study aims to contribute evidence that can inform the operationalisation of these national guidelines at the institutional level.

Furthermore, there is a compelling practical rationale for this research. University administrators, curriculum developers, and counseling staff are currently making decisions about AI without the benefit of robust evidence about how AI dependence affects student learning autonomy. Some institutions have responded with restrictive policies that ban or limit AI use, while others have adopted a laissez-faire approach that leaves students to navigate AI on their own (Akinwale & Uzochukwu, 2025; Okafor & Adeyemi, 2025). Neither extreme is likely to serve students well. What is needed is a nuanced understanding that can inform balanced approaches – supporting the responsible use of AI while preserving the learning autonomy that is essential to educational development.

From a theoretical perspective, this study addresses an important gap in the literature on technology adoption in education. While existing research has examined factors that influence whether students adopt AI tools (Eke & Okereke, 2025; Ifeanyi & Nwankwo, 2024), fewer studies have explored the consequences of adoption for learning processes and outcomes (Kazemi & Ahmadi, 2024; Yusuf & Balogun, 2025). This study contributes to filling that gap by focusing specifically on the relationship between AI dependence and learning autonomy, two constructs that are conceptually linked but empirically underexplored in the Nigerian context.

The timing of this research is also significant. Generative AI technologies are evolving rapidly, and the ways students use them are still stabilising. By examining this phenomenon now, when practices are still being formed, this study can generate insights that inform proactive rather than reactive institutional responses. The goal is not merely to describe current patterns of AI dependence but to provide actionable guidance for curriculum and counseling that can shape how AI is integrated into university education in ways that support rather than undermine student development.

1.5 Research Questions

1. What is the extent and nature of AI dependence among undergraduate students of FUTO and IMSU?

2. What is the relationship between AI dependence and students' perceived learning autonomy in these universities?
3. What curriculum and counseling responses are currently in place to address AI dependence in the two universities?
4. What integrated curriculum-counseling interventions can be proposed to foster responsible AI use while preserving learning autonomy?

2. Review of Literature

2.1 Conceptual Framework

The conceptual framework for this study draws together two core constructs; learning autonomy and AI dependence and situates them within the institutional domains of curriculum and guidance and counseling.

Learning Autonomy: Self-determination Theory and Self-Regulated Learning Models

Learning autonomy is understood here as the capacity of students to take charge of their own learning. It involves setting goals, selecting strategies, monitoring progress, and evaluating outcomes without undue external direction. Two theoretical traditions inform this understanding. Self-determination theory posits that autonomy is one of three basic psychological needs, alongside competence and relatedness, and that satisfaction of these needs fosters intrinsic motivation and well-being (Ryan & Deci, 2020). In educational contexts, when students experience autonomy, they are more likely to engage deeply, persist through challenges, and achieve meaningful learning outcomes (Chukwuedo & Onyeka, 2024). Self-regulated learning models, particularly the work of Zimmerman and Schunk (2020), elaborate the processes through which autonomy is exercised: forethought, performance, and self-reflection. These processes are cyclical and develop over time with practice and support.

AI Dependence: Operational Definitions and Manifestations

AI dependence refers to the extent to which students rely on generative artificial intelligence tools—such as ChatGPT, Google Bard, or similar platforms—to complete academic tasks in ways that substitute for their own cognitive effort. It is not a binary condition but a continuum. Low dependence might involve using AI as a starting point for brainstorming or checking grammar. High dependence manifests when students submit AI-generated content without modification, bypass reading and comprehension, or abandon their own reasoning in favour of AI-provided answers (Onyebuchi & Eze, 2024; Yusuf & Balogun, 2025). Researchers have identified several concerning manifestations: over-reliance that reduces engagement with course materials; plagiarism that blurs the line between assistance and dishonesty; and reduced critical thinking, where students accept AI outputs without scrutiny (Akinwale & Uzochukwu, 2025; Kazemi & Ahmadi, 2024). These manifestations are not merely behavioural; they have cognitive and metacognitive dimensions that can undermine the very processes that foster autonomous learning.

Role of Curriculum: Embedding Digital Literacy, AI Ethics, and Autonomous Learning Activities

Curriculum is the primary vehicle through which universities shape what and how students learn. In responding to AI dependence, curriculum can play both a preventive and a corrective role. Preventive strategies involve embedding digital literacy across the curriculum, ensuring that students understand not only how to use AI tools but also their limitations, biases, and ethical implications (Ifenthaler & Schumacher, 2023). AI ethics education helps students develop the moral reasoning necessary to use AI responsibly, distinguishing between appropriate assistance and academic dishonesty (Oladele & Ajayi, 2024). Additionally, curriculum can be designed to include autonomous learning activities—assignments that require process documentation, reflection, and original synthesis—that are less susceptible to AI substitution. Such activities encourage students to exercise their own intellectual capacities even as they may use AI as a complementary tool (Chukwuma & Nwachukwu, 2025).

Role of Guidance and Counseling: Fostering Academic Self-Efficacy, Metacognitive Skills, and Ethical Decision-Making

Guidance and counseling addresses the personal, social, and academic development of students. In the context of AI dependence, counselors can help students build the internal resources needed to navigate the technological landscape. Academic self-efficacy—the belief in one's capacity to succeed—is a key protective factor; students with high self-efficacy are less likely to resort to over-reliance on AI because they trust their own abilities (Egwu & Okafor, 2023). Metacognitive skills, such as planning, monitoring, and evaluating one's own learning, can be explicitly taught through counseling interventions (Ugwueze & Nnadi, 2024). Ethical decision-making frameworks help students weigh the consequences of their AI use and align their behaviour with academic integrity standards. The counseling domain thus complements curriculum by focusing on the student's internal capacities and decision-making processes.

2.2 Empirical Review

Studies on AI Tool Usage in Nigerian Universities and Other Developing Countries

Empirical research on AI use in Nigerian universities is still emerging but growing rapidly. Eke and Okereke (2025) conducted a multi-site study across seventeen Nigerian universities and found that generative AI adoption was widespread, with ease of use and perceived relevance to academic goals being the strongest predictors of usage. Interestingly, institutional policies lagged significantly behind student practices, creating a gap between what students were doing and what universities officially sanctioned. In a study focused specifically on South East Nigeria, Nwosu and Anozie (2025) documented that students in federal universities reported higher AI usage compared to those in state universities, a difference they attributed to variations in digital infrastructure and access to devices. Outside Nigeria, similar patterns have emerged. In Ghana, Adarkwah et al. (2024) found that students viewed AI as an essential academic tool but expressed concerns about its impact on their own learning. In India, Mishra and Sharma (2024) reported that while student adoption of AI was high, faculty awareness and institutional guidelines remained underdeveloped, a situation that echoes the Nigerian context.

International Studies Linking AI Use to Academic Autonomy and Performance

Several international studies have explored the relationship between AI use and learning outcomes. The experimental study by Kazemi and Ahmadi (2024) is particularly instructive. They found that students who used ChatGPT improved their essay scores but did not show significant gains in knowledge transfer or conceptual understanding. The authors coined the term "metacognitive laziness" to describe a pattern where students, relying on AI, failed to engage in the deeper cognitive processing that leads to durable learning. Similarly, Yusuf and Balogun (2025) found a negative correlation between high AI dependence and self-reported critical thinking skills among Nigerian undergraduates. Lodge et al. (2023) offered a theoretical synthesis, arguing that AI tools can either scaffold or supplant self-regulated learning depending on how they are used and how students are guided. When used as a tool for reflection and feedback, AI can enhance autonomy; when used to bypass cognitive effort, it can erode it.

Interventions Combining Curricular Reform and Counseling Support

Evidence on integrated interventions is limited but promising. A study by Oladele and Ajayi (2024) described a curriculum redesign initiative in a Nigerian university that incorporated AI literacy modules and process-oriented assessments; the initiative was accompanied by counseling workshops focused on academic self-regulation. Students who participated in both components reported higher levels of learning autonomy and more intentional AI use compared to a control group. In a different context, Ifenthaler and Schumacher (2023) outlined a framework for "AI-resilient assessment" that combines authentic tasks with metacognitive prompts, a design that can be supported by counseling-led sessions on self-monitoring. These examples suggest that when curriculum and counseling work in tandem, they can mitigate the risks of AI dependence while preserving student autonomy.

2.3 Gap in Literature

Despite these valuable contributions, a clear gap remains. Few studies explicitly examine the curriculum-counseling nexus in responding to student AI dependence, particularly within South East Nigerian universities. Existing research tends to treat curriculum and counseling as separate domains, offering recommendations for one or the other but rarely exploring how they might be integrated. Moreover, the majority of studies focus on either adoption patterns or policy frameworks, leaving the lived experiences of students and the perspectives of curriculum developers and counseling staff underexplored (Obi & Iheanacho, 2025). This study addresses that gap by examining both domains simultaneously and proposing integrated interventions grounded in the specific context of two universities in Imo State.

3. Methodology

3.1 Research Design

This study adopted a mixed-methods descriptive design, specifically a triangulation design where quantitative and qualitative data were collected concurrently and given equal weight in addressing the research questions (Creswell & Creswell, 2023). The mixed-methods approach was appropriate because the phenomenon of AI dependence involves both measurable patterns, such as frequency of use and correlation with learning autonomy and deeply contextual dimensions that require interpretive exploration, such as how curriculum leaders and counselors perceive and respond to the issue (Tashakkori & Teddlie, 2021). By combining survey data with interviews and document analysis, the study aimed to produce a more complete picture than either approach could yield alone.

3.2 Setting

The study was conducted in two universities located in Imo State, South East Nigeria: the Federal University of Technology, Owerri (FUTO) and Imo State University, Owerri (IMSU). These institutions were purposively selected to represent different institutional types within the region. FUTO is a federal university established by the

federal government with national funding and governance structures, while IMSU is a state university established and funded by the Imo State government. This selection allowed for meaningful comparison across institutional contexts that differ in resource availability, administrative autonomy, and student demographics (Okafor & Umeh, 2024). Both universities offer undergraduate programmes across multiple faculties and have been operating for more than two decades, providing sufficient stability for examining curriculum and counselling practices.

3.3 Population and Sample

The target population comprised all undergraduate students in the Federal University of Technology, Owerri (FUTO) and Imo State University, Owerri (IMSU), along with curriculum leaders and counselling staff. For the quantitative phase, a stratified random sampling technique was used to select 450 undergraduate students. Stratification was done by faculty to ensure representation across disciplines (Etikan & Bala, 2024). For the qualitative phase, purposive sampling was employed. Fifteen curriculum leaders—including deans, departmental heads, and curriculum committee members—were selected based on their direct involvement in curriculum decisions. Six counselling staff members—three from each university—were selected to represent the counselling units. Additionally, twenty students identified from the survey as having high AI dependence were purposively sampled for in-depth interviews to capture their perspectives on how AI use intersected with their learning experiences.

3.4 Instruments

Three instruments were used. First, a structured questionnaire was developed comprising three sections: demographic items, an AI dependence scale adapted from previous studies on technology over-reliance (Kazemi & Ahmadi, 2024), and a learning autonomy scale based on Zimmerman's self-regulated learning framework (Zimmerman & Schunk, 2020). Items were rated on a five-point Likert scale. Second, semi-structured interview guides were developed for curriculum leaders and counseling staff, exploring their awareness of AI dependence, existing responses, and perceived challenges. Third, a document analysis protocol was used to examine curriculum documents, course outlines, academic integrity policies, and counseling service records or guidelines relevant to AI use and academic conduct.

3.5 Validity and Reliability

Face and content validity of the questionnaire were established by submitting the instrument to three experts in educational measurement and two experts in guidance and counseling. Their feedback was used to revise ambiguous items and ensure alignment with the constructs under study (Taherdoost, 2023). Reliability of the quantitative scales was assessed using Cronbach's alpha. The AI dependence scale yielded an alpha coefficient of 0.87, and the learning autonomy scale yielded 0.84, indicating acceptable internal consistency.

3.6 Data Analysis

Quantitative data were analysed using SPSS version 27. Descriptive statistics—frequencies, means, and standard deviations—were computed to address the first research question. Pearson product-moment correlation was used to examine the relationship between AI dependence and learning autonomy. Qualitative data from interviews and document analysis were subjected to thematic analysis following the six-phase approach outlined by Braun and Clarke (2022). This involved familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining themes, and producing the final analysis. Themes were developed inductively while also being informed by the conceptual framework.

3.7 Ethical Considerations

Ethical approval was obtained from the research ethics committees of both participating universities. Informed consent was obtained from all participants after explaining the purpose of the study, the voluntary nature of participation, and the right to withdraw at any time. Anonymity was ensured by assigning codes to participants rather than using names. Data were stored securely and accessed only by the research team.

4. Results

This section presents the findings of the study in alignment with the research questions. Quantitative data were drawn from 450 undergraduate students across the two universities (Federal University and State University in Imo State), with a response rate of 92.4%. Qualitative data were obtained from interviews with 15 curriculum leaders, 6 counseling staff, and 20 students identified as having high AI dependence. Documents analysed included curriculum guides, course outlines, academic integrity policies, and counseling service records.

4.1 Extent and Nature of AI Dependence

Quantitative data were drawn from 450 undergraduate students across FUTO and IMSU in Imo State, with a response rate of 92.4%. Qualitative data were obtained from interviews with 15 curriculum leaders, 6 counselling staff, and 20 students identified as having high AI dependence. Documents analysed included curriculum guides, course outlines, academic integrity policies, and counselling service records. **Frequency and Tools Used.** The survey revealed that AI tool usage was nearly universal among the respondents. As shown in Table 1,

88.2% of students reported using generative AI tools at least once a week, with 41.6% using them daily. The most commonly used tool was ChatGPT (92.4%), followed by Google Bard (renamed Gemini) (63.1%) and various AI-powered writing assistants (45.3%).

Table 1. Frequency of AI Tool Usage

Frequency	**FUTO (n=228)**	**IMSU (n=222)**	**Total (N=450)**
Daily	48.2%	34.7%	41.6%
Several times a week	31.6%	32.9%	32.2%
Once a week	12.3%	16.2%	14.2%
Occasionally (monthly)	6.1%	11.7%	8.9%
Never	1.8%	4.5%	3.1%

A breakdown by university showed that students in **FUTO** reported slightly higher dependency (M = 3.89, SD = 0.91) compared to those in **IMSU** (M = 3.54, SD = 1.02), a difference that was statistically significant ($t(448) = 3.81$, $p < .001$).

A student with high AI dependence described the experience this way:

"Honestly, I cannot imagine writing a long assignment without ChatGPT now. I used to spend hours in the library, but now I just type the topic and within minutes I have a structure, sometimes even full paragraphs. I know it is not all my work, but the pressure to submit good work is high." (Student, **FUTO**, High Dependence)

4.2 Learning Autonomy Status

Learning autonomy was assessed using a scale comprising three subscales: self-regulation (goal setting, planning, monitoring), effort investment (persistence, time devoted to learning), and independent problem solving (tackling tasks without external help). The mean scores are presented in Table 2.

Table 2. Learning Autonomy Subscale Means (1–5 scale)

Subscale	Mean	SD
Self-regulation	3.21	0.87
Effort investment	3.45	0.92
Independent problem solving	3.08	1.01
Overall learning autonomy	**3.25**	**0.89**

The overall mean of 3.25 suggests a moderate level of perceived learning autonomy, with considerable variation among students. Independent problem solving received the lowest mean score, indicating that students were less confident in tackling academic challenges without external support—including AI.

One student with low learning autonomy reflected on this tension: "I feel like I have lost the habit of struggling with difficult texts. Before, I would read and reread until I understood. Now if a concept is hard, I just ask ChatGPT to explain it in simpler terms. It is faster, but I wonder if I am actually learning." (Student, State University, High Dependence)

4.3 Relationship between AI Dependence and Learning Autonomy

Pearson correlation analysis was conducted to examine the relationship between overall AI dependence scores and overall learning autonomy scores. A moderate negative correlation was found, $r(448) = –0.43$, $p < .001$, indicating that higher AI dependence was associated with lower levels of perceived learning autonomy. To further explore this relationship, a simple linear regression was performed with AI dependence as the predictor and learning autonomy as the outcome. AI dependence significantly predicted learning autonomy, $\beta = –0.43$, $t(448) = –9.86$, $p < .001$, accounting for 18.5% of the variance ($R^2 = 0.185$).

When disaggregated by subscales, AI dependence showed the strongest negative correlation with independent problem solving ($r = –0.49$, $p < .001$), followed by self-regulation ($r = –0.38$, $p < .001$) and effort investment

($r = –0.32$, $p < .001$). This pattern suggests that the erosion of independent problem-solving capacity is the most pronounced consequence of high AI dependence.

4.4 Curriculum Responses to AI Dependence

Interviews with curriculum leaders and document analysis revealed that both universities had begun to acknowledge AI but had taken different approaches. At FUTO, curriculum leaders described a growing awareness but no formalised policy. One department head explained:

"We have had faculty meetings discussing ChatGPT … (Curriculum leader, FUTO)"In IMSU, a more proactive stance was emerging. The dean of a faculty noted: "We have started discussing how to redesign assessment tasks … (Curriculum leader, IMSU)"

4.5 Counselling Responses to AI Dependence

At FUTO, the counselling unit had not conducted any workshops or programmes specifically on AI use. A counsellor observed: "Students come to us with stress … (Counsellor, FUTO)"

At IMSU, one counsellor had started incorporating discussions of AI into academic skills workshops … (Counsellor, IMSU). One student with high AI dependence spoke about the lack of support:"… (Student, FUTO, High Dependence)"

5. Discussion

The findings of this study offer a nuanced picture of AI dependence and its relationship to learning autonomy in two universities in Imo State. The results are interpreted below in light of the conceptual framework and prior empirical work.

5.1 AI Dependence and Learning Autonomy

The moderate negative correlation between AI dependence and learning autonomy ($r = –0.43$) supports the theoretical position advanced by Zimmerman and Schunk (2020) that self-regulated learning requires active cognitive engagement. When students rely heavily on generative AI, they may bypass the forethought, performance, and self-reflection cycles that underpin autonomy. This aligns with Kazemi and Ahmadi's (2024) concept of "metacognitive laziness," where AI substitutes for rather than scaffolds deeper processing. The particularly strong negative correlation with independent problem solving suggests that students who depend most on AI are also those least confident in tackling academic challenges without external support—a finding that echoes the concerns raised by Yusuf and Balogun (2025) about the erosion of critical thinking.

5.2 The Curriculum-Counseling Gap

A striking finding is that neither university has developed a coordinated response to AI dependence. Curriculum leaders acknowledged awareness but lacked formal policies; counseling staff were beginning to see related issues but had no dedicated programs. This gap is consequential because, as Ryan and Deci (2020) emphasise, autonomy is not merely the absence of dependence but a psychological need that can be nurtured through supportive environments. When curriculum fails to redesign assessments to encourage authentic engagement, and counseling fails to address metacognitive skills and ethical decision-making (Ugwueze & Nnadi, 2024), students are left to navigate AI without guidance. The result, as one student noted, is a feeling of being "trapped" – dependent yet uncertain.

5.3 Institutional Differences

FUTO showed higher AI dependence and less formalised curriculum responses compared to IMSU, where proactive efforts such as piloting AI-resilient assessments were underway. This difference may reflect the greater administrative autonomy of state universities in Nigeria (Okafor & Umeh, 2024), allowing more agile responses. However, counselling responses were similarly underdeveloped in both institutions, suggesting a systemic neglect of the personal-academic interface in AI policy.

5.4 Global South Perspectives

The Nigerian context shares features with other Global South countries. In India, similar patterns of high AI adoption alongside lagging institutional guidelines have been reported (Mishra & Sharma, 2024; Rao & Kumar, 2025). The challenges of resource constraints, large class sizes, and reliance on traditional assessment methods create conditions where AI dependence may thrive. Yet, as this study shows, even modest curriculum redesign—such as the process portfolios piloted in the state university—can begin to address the issue. For Indian academic audiences, the findings underscore the importance of integrating AI literacy and metacognitive support into both curriculum and counseling, rather than treating them as separate domains.

5.5 Unexpected Findings

One unexpected finding was that while students reported high AI dependence, they also expressed guilt and a desire for guidance. This suggests that students are not simply seeking shortcuts but are responding to academic pressures in an environment where the rules of engagement with AI are unclear. The finding that counseling staff were already encountering AI-related anxiety but had no formal protocols indicates a hidden need that could be addressed through relatively low-cost interventions.

6. Conclusion

This study demonstrates that AI dependence among undergraduates in FUTO and IMSU is high and is moderately and negatively associated with learning

autonomy (r = –0.43). The findings confirm that excessive reliance on generative AI can erode self-regulation, effort investment, and especially independent problem-solving. While both universities have begun to recognise the issue, coordinated curriculum and counselling responses remain limited.

7. Recommendations

Curriculum: Universities should adopt process-oriented assessments (portfolios, oral defences, reflective journals) and embed AI literacy and ethics modules in all programmes.

Counseling: Counseling department in universities should develop "digital wellness" workshops that explicitly address metacognitive skills and healthy AI use.

Institutional: Both FUTO and IMSU should create joint curriculum-counselling task forces to operationalise the National Higher Education AI Framework at the local level.

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