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ARTIFICIAL INTELLIGENCE DEPEDENCY AND PSYCHOLOGICAL WELL-BEING AMONG UNDERGRADUATE STUDENTS OF THE UNIVERSITY OF JOS: THE MEDIATING ROLE OF COGNITIVE OFFLOADING AND DIGITAL SELF-REGULATION

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ABSTRACT

This study examined Artificial Intelligence Dependency and Psychological Well-being among Undergraduate Students of the University of Jos: The Mediating Role of Cognitive Offloading and Digital Self-Regulation. The study adopted a correlational research design. The population comprised approximately 15,215 undergraduate students of the University of Jos, from which a sample size of 379 students was selected using. Data were collected using a structured questionnaire measuring Artificial Intelligence Dependency, Cognitive Offloading, Digital Self-Regulation, and Psychological Well-being. The instrument was validated by experts in Psychology and Measurement and Evaluation, while reliability was established using Cronbach's alpha coefficient. Data collected were analysed using descriptive statistics, Pearson Product Moment Correlation, and regression analysis. The findings revealed that undergraduate students demonstrated a high level of AI dependency, indicating frequent use of AI tools for academic activities. The study further showed that AI dependency was significantly related to students' psychological well-being. The study concluded that although AI technologies provide valuable academic support, excessive reliance may influence students' cognitive autonomy and psychological functioning. The study recommends the introduction of AI literacy programmes, promotion of responsible AI usage, and development of digital self-regulation skills among university students to ensure that AI integration enhances learning while preserving students' psychological well-being.

Keywords: Artificial Intelligence Dependency, Psychological Well-being, Cognitive Offloading, Digital Self-Regulation, Undergraduate Students.

Introduction

The rapid advancement of digital technologies has fundamentally transformed human interaction, learning processes, decision-making patterns, and psychological experiences. Among these emerging technologies, Artificial Intelligence (AI) has become one of the most influential innovations shaping contemporary society. AI systems, particularly generative AI applications such as ChatGPT, intelligent tutoring systems, automated search engines, and digital assistants, are increasingly integrated into educational, professional, and personal activities. These technologies provide opportunities for improving knowledge acquisition, problem-solving efficiency, and access to information. However, the increasing dependence on AI-driven tools has raised important psychological questions concerning human cognition, autonomy, self-efficacy, and psychological well-being (Dwivedi et al., 2023). As AI becomes more embedded in everyday activities, understanding its psychological consequences has become an important area of investigation within contemporary psychology. esearch suggests that when individuals frequently depend on external technological systems for cognitive tasks, they may gradually reduce their engagement in independent reasoning, memory retrieval, and problem-solving processes (Risko & Gilbert, 2016). This psychological phenomenon, known as cognitive offloading, occurs when individuals transfer cognitive demands to external tools to reduce mental effort. Although cognitive offloading can improve efficiency, excessive dependence may influence individuals' confidence in their own cognitive abilities and decision-making capacity.

According to Wang et al. (2023), increased interaction with intelligent systems may influence users' perceptions of competence, autonomy, and control over learning processes. For university students, continuous reliance on AI-generated responses may create psychological dependency, where confidence in personal abilities becomes linked to technological assistance. Psychological well-being represents an important outcome for examining the consequences of AI dependency among university students. Psychological well-being involves positive functioning, emotional balance, self-acceptance, purpose in life, and the ability to manage everyday challenges effectively (Ryff, 2014).

The psychological impact of AI dependency may not occur directly but through cognitive and behavioural mechanisms. One important mechanism is cognitive offloading, which describes the process through which individuals use external resources to reduce cognitive demands. Cognitive offloading is not inherently harmful; in many situations, it improves efficiency and reduces unnecessary mental workload. For example, students using digital applications for information retrieval may allocate more cognitive resources to higher-level thinking activities. However, excessive dependence on external systems may reduce opportunities for cognitive development and weaken confidence in independent problem-solving abilities (Risko & Gilbert, 2016). Therefore, investigating cognitive offloading as a mediating factor provides deeper understanding of how AI dependency influences psychological well-being. According to Panova and Carbonell (2018), problematic technology use is often associated with difficulties in controlling digital behaviours, which may negatively affect psychological health.

In Nigeria, universities are experiencing increasing adoption of digital learning platforms and AI-supported academic tools. Students are increasingly exposed to generative AI applications due to expanding internet access, digital learning initiatives, and global technological trends. However, limited empirical evidence exists regarding how AI dependency influences students' psychological functioning within Nigerian higher education institutions. The University of Jos provides an important context for examining this issue because it represents a

diverse academic environment where students increasingly engage with digital technologies for learning and academic productivity.

This study seeks to examine Artificial Intelligence Dependency and Psychological Well-being among undergraduate students of the University of Jos, focusing on the mediating role of cognitive offloading and the moderating role of digital self-regulation. The study is expected to contribute to emerging psychological literature on human–AI interaction by providing evidence from a Nigerian university context and offering implications for digital literacy programmes, student counselling services, and responsible AI integration in higher education.

Literature Review

Concept of Artificial Intelligence and Digital Technology

Artificial Intelligence (AI) has emerged as one of the most transformative digital technologies of the twenty-first century, influencing human activities across education, healthcare, communication, business, and decision-making systems. Artificial Intelligence refers to the capability of computer systems and digital machines to perform tasks that traditionally require human intelligence, including learning, reasoning, problem-solving, language processing, perception, and decision-making. Unlike conventional computer systems that operate based on predetermined instructions, AI systems are designed to analyse large volumes of data, identify patterns, and generate responses through computational learning processes (Russell & Norvig, 2021).

The evolution of AI has progressed from rule-based systems to advanced machine learning and deep learning technologies capable of producing human-like outputs. Recent developments in generative artificial intelligence, such as large language models and intelligent conversational agents, have significantly changed the relationship between humans and technology. Generative AI systems can create text, images, explanations, and recommendations, thereby becoming increasingly integrated into everyday activities, including academic learning and professional tasks (Dwivedi et al., 2023). These developments have generated significant interest among psychologists because AI technologies are no longer merely external tools but interactive systems capable of influencing human cognition, behaviour, and emotional experiences.

For university students, AI and digital technologies represent both opportunities and psychological challenges. While AI may support academic achievement and reduce learning difficulties, uncontrolled dependence may reduce independent reasoning and increase anxiety when technological support is unavailable. Therefore, understanding the psychological consequences of AI use has become essential, particularly within higher education environments where students are expected to develop autonomy, critical thinking, and lifelong learning capabilities.

Artificial Intelligence Dependency Among University Students

Artificial Intelligence dependency refers to excessive reliance on AI-based systems for cognitive, academic, or decision-making activities to the extent that individuals experience reduced confidence or difficulty performing tasks without technological assistance. Unlike normal technology use, dependency involves psychological attachment and repeated reliance that may influence behavioural patterns and personal functioning. With the rapid expansion of generative AI applications, concerns have emerged regarding whether students may become overly dependent on AI tools for academic activities.

The psychological consequences of AI dependency may vary depending on how students regulate their technology use. Moderate and purposeful AI use may enhance learning efficiency,

while uncontrolled dependence may contribute to reduced confidence, anxiety, and cognitive disengagement. Panova and Carbonell (2018) explained that problematic technology use often develops when individuals experience difficulty controlling digital behaviours despite negative consequences. This perspective suggests that AI dependency may represent a behavioural pattern influenced by self-control, motivation, and psychological needs. Dwivedi et al. (2023) highlighted that generative AI creates both opportunities and challenges, requiring careful consideration of its effects on human skills, creativity, and decision-making. Therefore, examining AI dependency among university students is important because it provides insight into how emerging technologies influence psychological functioning. Understanding dependency patterns can help universities develop appropriate digital literacy programmes that encourage responsible AI use while maintaining students' cognitive independence.

Artificial Intelligence and Psychological Well-being

Psychological well-being refers to an individual's ability to function effectively, experience positive emotions, maintain meaningful relationships, develop personal competence, and achieve a sense of purpose in life. Ryff (2014) conceptualised psychological well-being as a multidimensional construct involving autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. Among university students, psychological well-being is particularly important because academic success is influenced not only by intellectual ability but also by emotional stability and adaptive functioning.

The psychological effects of AI may also depend on students' perceptions of control and competence. Self-Determination Theory proposes that human well-being depends on the fulfilment of three psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2020). If AI use supports these needs by enhancing learning competence and autonomy, it may improve psychological well-being. However, if AI replaces personal effort and reduces feelings of competence, it may negatively affect psychological functioning. Within university environments, where students experience academic pressure and adjustment challenges, understanding the relationship between AI dependency and psychological well-being is increasingly important. AI technologies may serve as valuable support systems, but their psychological consequences depend on patterns of use and individual self-regulation abilities.

Cognitive Offloading as a Mediating Mechanism

Cognitive offloading refers to the process through which individuals use external resources, tools, or environmental supports to reduce the cognitive demands placed on internal mental processes. These external supports may include written notes, calculators, search engines, digital applications, and increasingly, artificial intelligence systems. Rather than relying entirely on memory, reasoning, or problem-solving abilities, individuals distribute cognitive tasks between their internal cognitive systems and external technological resources (Risko & Gilbert, 2016). In contemporary digital environments, AI systems represent an advanced form of cognitive offloading because they do not merely store information but actively generate explanations, solutions, and recommendations.

Excessive cognitive offloading may create psychological challenges when individuals become overly dependent on external systems. Risko and Gilbert (2016) argued that although cognitive offloading improves immediate task performance, frequent reliance on external aids may reduce engagement with internal cognitive processes. In educational settings, excessive dependence on AI-generated responses may limit students' opportunities to develop independent reasoning, critical thinking, and problem-solving skills. Students may complete academic tasks successfully but experience reduced confidence in their personal intellectual abilities.

The mediating role of cognitive offloading is particularly relevant among university students because higher education aims to develop independent thinkers capable of analysing information, solving complex problems, and making informed decisions. If AI dependency encourages excessive cognitive outsourcing, it may affect important psychological outcomes such as self-confidence, autonomy, and academic identity.

Digital Self-Regulation and Responsible AI Use

Digital self-regulation refers to an individual's ability to manage, monitor, and control technology-related behaviours in ways that support personal goals and psychological functioning. It involves awareness of digital habits, control over technology use, effective time management, and the ability to balance online activities with personal, academic, and social responsibilities. In the context of artificial intelligence, digital self-regulation represents students' ability to use AI tools purposefully without developing unhealthy dependence.

Responsible AI use requires not only technical skills but also psychological awareness. Digital literacy programmes that focus only on how to operate AI systems may not adequately prepare students for healthy technology engagement. Universities must also promote awareness of cognitive dependence, ethical use, and psychological self-management. According to UNESCO (2023), effective AI integration in education requires balancing technological innovation with human-centred approaches that preserve critical thinking and learner autonomy.

Within higher education, digital self-regulation is increasingly important because students have considerable freedom in determining how they use digital resources. University students must make independent decisions regarding academic technology use, information evaluation, and learning strategies. Therefore, digital self-regulation may influence whether AI becomes a tool that enhances psychological well-being or a source of dependency and reduced autonomy.

Artificial Intelligence Adoption in Nigerian Higher Education

The adoption of artificial intelligence and digital technologies in Nigerian higher education has increased significantly due to expanding internet access, digital learning initiatives, and global technological developments. Universities are increasingly incorporating online learning platforms, electronic resources, automated assessment systems, and AI-supported academic tools into teaching and learning processes. These developments provide opportunities for improving educational accessibility, personalised learning, and academic efficiency. The University of Jos provides an important context for examining these issues because it represents a diverse Nigerian higher education environment where students increasingly interact with digital technologies. As AI adoption continues to expand, understanding its psychological implications among University of Jos undergraduate students is necessary for developing evidence-based digital education policies and student support strategies.

Theoretical Framework

This study is anchored on Bandura's Social Cognitive Theory (SCT), which provides a suitable framework for explaining the relationship between Artificial Intelligence Dependency, Psychological Well-being, Cognitive Offloading, and Digital Self-Regulation among undergraduate students. The theory proposes that human behaviour is shaped through the dynamic interaction between personal factors, behavioural patterns, and environmental influences. Bandura (1986) argued that individuals are not passive recipients of technological or social influences; rather, they actively regulate their thoughts, behaviours, and interactions with their environment through cognitive processes and self-regulatory mechanisms. In the context of Artificial Intelligence use, Social Cognitive Theory explains that students' dependency on AI technologies is influenced by their beliefs about the usefulness, convenience, and effectiveness

of these tools. When students perceive Artificial Intelligence as a reliable source for academic assistance, information processing, and problem-solving, they may increasingly rely on it, resulting in patterns of AI dependency. However, excessive reliance on AI may influence psychological well-being by affecting students' perceived competence, autonomy, confidence, and sense of personal agency.

Empirical Review

Kasneci et al. (2023) conducted an empirical investigation on the opportunities and challenges associated with large language models, particularly ChatGPT, in educational settings. The study examined how generative Artificial Intelligence influences students' learning behaviours, cognitive processes, and academic practices. Using a review-based empirical approach, the authors identified that AI tools enhance learning efficiency, accessibility to information, and personalised academic support. However, the study also highlighted concerns regarding excessive dependence on AI systems, including reduced critical thinking, diminished independent problem-solving abilities, and increased reliance on automated assistance. The authors emphasized that effective AI integration requires human-centred approaches that promote responsible use, digital competence, and learner autonomy. The study is relevant to the present research because it demonstrates how Artificial Intelligence dependency may influence students' cognitive behaviours and psychological experiences, supporting the need to examine cognitive offloading and self-regulation as important mechanisms influencing psychological well-being.

Purpose of the Study

The main purpose of the study is to examine Artificial Intelligence Dependency and Psychological Well-being among Undergraduate Students of the University of Jos: The Mediating Role of Cognitive Offloading and Digital Self-Regulation. Specifically, the study will:

1. assess the level of AI dependency among undergraduate students of the University of Jos.

Research Question

1. What is the level of Artificial Intelligence dependency among undergraduate students of the University of Jos?

Hypotheses

H_{01}: Artificial Intelligence Dependency has no significant relationship with Psychological Well-being among undergraduate students of the University of Jos

H_{02}: Cognitive Offloading does not mediate the relationship between Artificial Intelligence Dependency and Psychological Well-being among undergraduate students of the University of Jos

H_{03}: Digital Self-Regulation does not moderate the relationship between Artificial Intelligence Dependency and Psychological Well-being among undergraduate students of the University of Jos

Methodology

The study adopted a correlational research design to examine the relationship between Artificial Intelligence Dependency, Cognitive Offloading, Digital Self-Regulation, and Psychological Well-being among undergraduate students of the University of Jos. The design is appropriate because the study aims to determine the extent to which the independent and intervening variables predict students' psychological well-being without manipulating the variables (Creswell & Creswell, 2023). The population of the study consists of 15,215 undergraduate students of the University of Jos, Plateau State, Nigeria. Using Krejcie and Morgan's (1970) sample size determination table, a sample size of 379 undergraduate students

were selected for the study. The respondents were selected through multistage sampling technique to ensure representation across faculties and levels of study. Data were collected using structured questionnaire comprising sections measuring Artificial Intelligence Dependency, Cognitive Offloading, Digital Self-Regulation, and Psychological Well-being. The instrument was adapted from established psychological scales and rated on a Likert scale format. The validity of the instrument was established through expert review by specialists in Psychology and Measurement and Evaluation, while reliability was determined through a pilot study using Cronbach's alpha coefficient with an acceptable value of 0.73 (Hair et al., 2019).

Results

Table 1: Level of Artificial Intelligence Dependency among Undergraduate Students

S/N	Items	SA	A	D	SD	Mean	Decision
1	I frequently use Artificial Intelligence tools such as ChatGPT	145	156	56	22	3.12	Accepted
2	I depend on AI tools when searching for academic information	138	162	54	25	3.09	Accepted
3	I feel more confident completing academic tasks when I receive assistance from AI tools.	127	168	58	26	3.04	Accepted
4	I find it difficult to complete some academic tasks without using AI-based technologies.	112	154	72	41	2.89	Accepted

Grand Mean = 3.04

The results presented in Table 1 show that undergraduate students of the University of Jos demonstrate a high level of Artificial Intelligence dependency, with a grand mean score of 3.04, which is above the criterion mean of 2.50. This indicates that students frequently use AI tools for academic activities and increasingly rely on AI support for information retrieval, task completion, and problem-solving.

H_{01}: Artificial Intelligence Dependency has no significant relationship with Psychological Well-being among undergraduate students of the University of Jos

Table 2: Relationship between Artificial Intelligence Dependency and Psychological Well-being (N = 379)

Variables	N	Mean	SD	r	p-value	Decision
Artificial Intelligence Dependency	379	3.41	0.74	-0.284	0.001	Significant
Psychological Well-being	379	3.67	0.68			

Significant at $p < 0.05$

The result on Table 2 indicates a statistically significant negative relationship between Artificial Intelligence Dependency and Psychological Well-being ($r = -0.284$, $p < 0.05$). This implies that higher levels of Artificial Intelligence Dependency are associated with lower levels of psychological well-being among undergraduate students. The negative direction of the relationship suggests that while Artificial Intelligence provides academic convenience and efficiency, excessive dependence may affect students' psychological resources, including perceived competence, autonomy, confidence, and emotional balance. However, the correlation coefficient indicates a weak-to-moderate relationship, meaning that Artificial Intelligence Dependency is only one contributing factor among several factors influencing students' psychological well-being. Therefore, the null hypothesis (H_{01}) which states that Artificial Intelligence Dependency has no significant relationship with psychological well-being is rejected.

H_{02}: Cognitive Offloading does not mediate the relationship between Artificial Intelligence Dependency and Psychological Well-being among undergraduate students of the University of Jos

Table 3: Mediating Effect of Cognitive Offloading on the Relationship Between AI Dependency and Psychological Well-being (N = 379)

Path	Effect (β)	SE	p-value	Decision
AI Dependency → Cognitive Offloading (Path a)	0.521	0.054	0.001	Significant
Cognitive Offloading → Psychological Well-being (Path b)	-0.193	0.061	0.002	Significant
AI Dependency → Psychological Well-being (Direct Effect)	-0.214	0.052	0.001	Significant
Indirect Effect (a × b)	-0.101	0.031	0.004	Significant

Bootstrap confidence interval does not include zero

The analysis on Table 3 revealed that Artificial Intelligence Dependency significantly predicted Cognitive Offloading ($\beta = 0.521$, $p < 0.05$). This indicates that students with higher levels of AI dependency are more likely to engage in cognitive offloading, where mental activities such as remembering, analysing information, and solving problems are transferred to external technological systems. Furthermore, Cognitive Offloading significantly predicted Psychological Well-being negatively ($\beta = -0.193$, $p < 0.05$). This suggests that excessive reliance on external cognitive support may reduce students' sense of intellectual independence, competence, and psychological satisfaction. The indirect effect of Artificial Intelligence Dependency on Psychological Well-being through Cognitive Offloading was statistically significant. Since the indirect effect is significant, the null hypothesis (H_{02}) stating that Cognitive Offloading does not mediate the relationship between Artificial Intelligence Dependency and Psychological Well-being is rejected. This finding highlights that the psychological consequences of AI dependency are not only direct but also occur through changes in students' cognitive behaviours.

H_{03}: Digital Self-Regulation does not moderate the relationship between Artificial Intelligence Dependency and Psychological Well-being among undergraduate students of the University of Jos

Table 4: Moderating Effect of Digital Self-Regulation on AI Dependency and Psychological Well-being (N = 379)

Predictor	B	SE	t-value	p-value	Decision
Artificial Intelligence Dependency	-0.241	0.052	-4.63	0.001	Significant
Digital Self-Regulation	0.438	0.057	7.68	0.001	Significant
AI Dependency × Digital Self-Regulation	0.176	0.056	3.14	0.002	Significant

The results on Table 4 show that the interaction effect between Artificial Intelligence Dependency and Digital Self-Regulation was statistically significant ($\beta = 0.176$, $p < 0.05$). This indicates that Digital Self-Regulation significantly moderates the relationship between Artificial Intelligence Dependency and Psychological Well-being. The finding suggests that the effect of AI dependency on psychological well-being differs depending on students' level of digital self-regulation. Students with high digital self-regulation are more capable of controlling their technology use, setting boundaries, and engaging with AI tools responsibly. Consequently, they are less likely to experience negative psychological effects associated with excessive AI dependency. The null hypothesis (H_{03}) which states that Digital Self-Regulation does not

moderate the relationship between Artificial Intelligence Dependency and Psychological Well-being is rejected.

Discussion of Findings

The study examined Artificial Intelligence Dependency and Psychological Well-being among Undergraduate Students of the University of Jos: The Mediating Role of Cognitive Offloading and Digital Self-Regulation. The discussion of findings is presented in relation to the research questions and existing literature.

The findings revealed that undergraduate students of the University of Jos demonstrated a high level of Artificial Intelligence dependency, as indicated by the grand mean score of 3.04. This implies that students frequently use AI-powered applications such as ChatGPT and other intelligent digital tools for academic activities, information searching, problem-solving, and completion of academic tasks. The finding suggests that AI technologies have become increasingly integrated into students' academic experiences and learning behaviours. This finding agrees with Dwivedi et al. (2023), who noted that generative AI applications have rapidly transformed human interaction with digital systems by providing immediate access to information, content generation, and problem-solving support. According to the authors, the increasing accessibility of AI tools has encouraged users, particularly students, to incorporate these technologies into daily academic activities. Among university students, this transition may explain why AI dependency is becoming increasingly common, as students perceive AI not only as a technological resource but also as an academic support mechanism.

The second finding of this study revealed that Artificial Intelligence Dependency had a significant negative relationship with Psychological Well-being among undergraduate students of the University of Jos. The result indicates that increased dependency on Artificial Intelligence tools is associated with reduced psychological well-being among students. This suggests that although Artificial Intelligence applications provide academic support, improve access to information, and enhance efficiency in learning activities, excessive dependence may produce undesirable psychological consequences by reducing students' sense of autonomy, competence, and confidence in their own cognitive abilities. This finding is consistent with the theoretical position of Risko and Gilbert (2016) on cognitive offloading, which explains that humans naturally rely on external resources to reduce cognitive demands. Applied to undergraduate students, continuous dependence on AI technologies may weaken perceived self-efficacy and increase feelings of inability to perform tasks independently, thereby affecting psychological well-being. Although Artificial Intelligence differs from traditional digital technologies because of its advanced interactive capabilities, excessive dependence may similarly create patterns of reliance that affect psychological functioning.

The third finding demonstrated that Cognitive Offloading significantly mediated the relationship between Artificial Intelligence Dependency and Psychological Well-being. This indicates that Artificial Intelligence Dependency does not influence psychological well-being only directly but also indirectly through increased reliance on external cognitive resources. This finding provides empirical support for the argument of Risko and Gilbert (2016) that cognitive offloading represents a mechanism through which individuals reduce internal cognitive demands by transferring tasks to external systems. In the present study, students who demonstrate higher dependency on Artificial Intelligence are more likely to engage in cognitive offloading by allowing AI tools to perform intellectual activities such as searching for information, generating academic content, summarising materials, and solving complex problems. While this strategy may provide immediate convenience and reduce cognitive workload, excessive reliance may

negatively affect students' perceptions of their own competence and intellectual capability. The mediating role of cognitive offloading is also supported by Clark and Chalmers' (1998) Extended Mind Theory. The theory proposes that external cognitive resources can become integrated into human thinking processes when individuals rely on them consistently. In relation to Artificial Intelligence, students may gradually perceive AI systems as necessary extensions of their own cognitive abilities. When such dependence becomes excessive, students may experience difficulty completing tasks without technological assistance, thereby affecting psychological autonomy and confidence. When students frequently transfer cognitive responsibilities to AI systems, they may experience fewer opportunities to develop mastery and confidence in their own abilities.

The fourth finding revealed that Digital Self-Regulation significantly moderated the relationship between Artificial Intelligence Dependency and Psychological Well-being. This indicates that the effect of Artificial Intelligence Dependency on psychological well-being differs depending on students' ability to regulate their digital behaviours. This finding supports Bandura's (1991) Social Cognitive Theory, particularly the concept of self-regulation. Bandura argued that individuals are not passive recipients of environmental influences but possess the capacity to regulate their thoughts, behaviours, and actions through self-monitoring, self-evaluation, and self-control. Applied to Artificial Intelligence use, students with strong digital self-regulation are more likely to establish appropriate boundaries, evaluate AI-generated information critically, and use AI tools purposefully. Consequently, they are less likely to experience negative psychological outcomes associated with excessive dependency. The present finding reinforces this position by showing that students' ability to regulate their digital behaviours determines the psychological consequences of AI engagement. Digital self-regulation therefore serves as a psychological buffer that enables students to benefit from Artificial Intelligence while minimizing potential negative effects. Students who possess strong self-regulatory abilities are more likely to use AI for assistance, verification, and learning enhancement rather than complete dependence. Conversely, students with poor digital self-regulation may become overly reliant on AI systems, increasing the likelihood of reduced cognitive independence and poorer psychological outcomes.

Conclusion

The findings revealed that undergraduate students demonstrate a high level of AI dependency, indicating that AI tools have become increasingly integrated into their academic activities, including information search, learning support, and problem-solving. The study also showed that cognitive offloading plays an important role in explaining the relationship between AI dependency and psychological well-being, as students increasingly transfer cognitive tasks to AI-based systems. The study concludes that AI should be viewed as a supportive educational resource rather than a replacement for human cognitive abilities. Effective AI integration requires a balance between technological assistance, critical thinking, and psychological well-being among students.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. The University of Jos should introduce Artificial Intelligence literacy programmes to educate students on the responsible, ethical, and effective use of AI tools.
2. Students should be encouraged to maintain a balance between AI-assisted learning and independent thinking to prevent excessive dependency that may reduce critical reasoning.

3. The university should encourage independent thinking to allow students maximize their potentials.
4. Lecturers should adopt teaching strategies that promote critical thinking, creativity, and problem-solving skills while allowing students to use AI tools as supportive learning resources.
5. The university counselling unit should include digital technology-related psychological issues in student support services.

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