

The Over-Reliance Dilemma: Evaluating the Impact Of 100% Generative AI Utilization on Higher Education Student Assignment Quality and Critical Thinking

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ABSTRACT

The rapid integration of Large Language Models (LLMs) and Generative Artificial Intelligence (GenAI) in higher education has fundamentally altered student learning behaviors and academic workflow dynamics. While AI tools offer unprecedented advantages in information synthesis and writing efficiency, a growing subset of tertiary students exhibits near-total dependence—approaching 100% utilization—on AI tools to generate coursework submissions. This mixed-methods study investigates the motivations, output quality, and cognitive ramifications associated with near-total AI dependency in academic assignments among undergraduate students (N = 180). Data were gathered through structured questionnaires, qualitative student focus groups, and an expert-evaluated comparative analysis of fully AI-generated coursework versus human-guided assignments. The findings reveal that while total AI reliance yields structural fluency and high linguistic correctness, it significantly dampens higher-order critical thinking, original argumentative depth, and long-term skill acquisition. Furthermore, driving factors include severe time poverty, assessment anxiety, and unclear institutional guidelines regarding ethical AI integration. This paper offers practical recommendations for educators to redesign assessment models, foster authentic cognitive engagement, and establish balanced digital literacy frameworks.

Keywords: Generative Artificial Intelligence, Over-Reliance in Higher Education, Student Assessments, Academic Integrity, Critical Thinking Skills

INTRODUCTION

The democratization of Artificial Intelligence (AI) tools—such as ChatGPT, Claude, and Gemini—has reshaped contemporary educational paradigms. In tertiary institutions, Generative AI has transitioned from a novel assistance technology to an ubiquitous study companion. While early academic discourse emphasized AI's capacity to serve as an asynchronous tutor, research support tool, or grammar editor, recent classroom trends point toward a more alarming behavioral shift: near 100% student reliance on AI tools to author, synthesize, and complete written coursework from scratch.

This phenomenon of total AI delegation presents a complex dilemma for modern educators. On one hand, GenAI enables students to overcome language barriers, structure complex ideas, and meet stringent submission deadlines efficiently. On the other hand, delegating the entire cognitive load of reading, analyzing, drafting, and revising to an automated model raises fundamental concerns regarding academic integrity, authentic learning, and intellectual development. When a student delegates 100% of an assignment to an AI algorithm, the traditional educational feedback loop breaks down. Educators evaluate the output of

an algorithm rather than the student's evolving cognitive competence, masking critical skill deficiencies in literature synthesis, original argumentation, and problem-solving.

In tertiary language and communication education, written assignments serve as the primary mechanism for cultivating critical thinking, logical structuring, and persuasive discourse. When these tasks are completely automated, the learning process is bypassed entirely. Consequently, students achieve superficial compliance with assignment guidelines without undergoing the necessary cognitive struggle that fosters intellectual growth. Understanding the drivers and consequences of this trend is therefore critical for preserving the academic rigor of higher education.

To address this challenge, researchers must move beyond surface-level discussions of plagiarism to systematically examine why students adopt a total AI strategy, how complete automation impacts assignment quality, and what long-term consequences this behavior exerts on student learning outcomes. This study directly addresses this empirical gap within the context of language, communication, and higher education.

Research Questions

To investigate the causes, characteristics, and cognitive impacts of total AI dependency in coursework completion, this study addresses the following research questions:

RQ1: What are the primary underlying drivers and motivations that lead tertiary students to rely almost 100% on Generative AI tools to complete their written assignments?

RQ2: How does the academic quality of assignments completed with 100% AI generation compare to human-driven assignments across key criteria (e.g., structural coherence, critical analysis, originality, and citation accuracy)?

RQ3: How does total AI reliance impact students' perception of their own critical thinking development, subject mastery, and long-term academic confidence?

LITERATURE REVIEW

The Shift from AI Assistance to Full Automation

Recent studies in educational technology distinguish between AI-assisted learning and AI-automated completion. AI-assisted learning involves using technology as a cognitive scaffold—for instance, brainstorming ideas, checking syntax, or clarifying difficult concepts. Conversely, AI-automated completion occurs when students submit prompt outputs verbatim or near-verbatim as their own original work. Scholars emphasize that while scaffolded use enhances self-regulated learning, full automation fosters cognitive offloading—a state where mental effort is transferred entirely to external digital agents, causing cognitive passivity and skill atrophy.

The psychological mechanics of cognitive offloading suggest that when learners repeatedly delegate demanding analytical tasks, neural pathways responsible for critical evaluation, memory encoding, and synthesis remain unengaged. Over an extended academic program, this creates a compounding deficit where students struggle to articulate complex thoughts without digital intervention. As tertiary education increasingly moves toward digital submission platforms, the boundary between legitimate technological support and cognitive substitution has become dangerously blurred.

Furthermore, cognitive offloading alters how students perceive academic effort. When high-quality written text can be produced in seconds through automated prompts, the traditional iterative process of drafting, revising, and self-editing is viewed as inefficient. This mindset shifts the student's identity from an active

content creator to a passive content curator, fundamentally altering the educational relationship between student and assignment.

Impacts on Higher-Order Thinking and Originality

According to Bloom's Revised Taxonomy, higher-order cognitive skills—such as evaluating, analyzing, and creating—require active mental synthesis and critical judgment. Generative AI tools are probabilistic language engines designed to predict statistical word patterns rather than formulate genuine conceptual understanding. When students rely entirely on these platforms, assignments often display superficial fluency while lacking context-specific depth, nuanced argumentation, and localized relevance.

Furthermore, recent studies highlight systemic issues with hallucinated references and repetitive stylistic tropes inherent in unedited LLM outputs. When students submit these outputs unread or unverified, they fail to develop the informational literacy required to distinguish between peer-reviewed academic evidence and plausible-sounding automated text. This lack of critical evaluation perpetuates misinformation and undermines the standards of academic discourse.

Originality in student writing is not merely about novelty; it reflects personal engagement with course materials, critical reflection on real-world applications, and the ability to synthesize divergent perspectives. Fully AI-generated assignments, while grammatically flawless, exhibit a homogeneity in tone, structure, and argument. This loss of individual student voice diminishes diversity of thought in academic discussions and weakens overall intellectual discourse.

Socio-Academic Stressors and Technological Reliance

Under Self-Determination Theory (SDT), student motivation is governed by perceived autonomy, competence, and relatedness. In modern higher education environments characterized by assessment overload, high stakes, and competing financial or family obligations, student agency is frequently compromised. In such scenarios, 100% AI generation is adopted not out of malice, but as an adaptive coping strategy to mitigate academic burnout and maintain grade point averages under severe time constraints.

In addition, the pervasive presence of AI in broader society creates a normalization effect. Students observe AI being utilized across professional contexts for copy generation, communication, and report writing, leading them to view 100% AI submission as a pragmatic preview of modern workplace efficiency. However, this perspective overlooks the essential educational phase where foundational critical thinking skills must be built before professional delegation can be effectively executed.

METHODOLOGY

This study adopted a convergent parallel mixed-methods design, integrating quantitative survey data with qualitative focus group discussions and a comparative rubric-based evaluation of assignment artifacts. A total of 180 undergraduate students across various disciplines at a public university participated in the quantitative survey via purposive sampling. To qualify for the 'high AI reliance' cohort, participants met the criterion of self-reporting that 80% to 100% of their written assignment text was generated directly by AI tools. From this sample, 24 students participated in follow-up semi-structured focus group sessions (divided into 4 groups of 6 participants).

The primary data collection instruments included a structured student questionnaire measuring usage frequency, motives, and self-assessed cognitive engagement on a 5-point Likert scale. Reliability for the survey scale was established via Cronbach's alpha ($\alpha = 0.88$), indicating high internal consistency. Additionally, an Assignment Evaluation Matrix was used to analyze $n=40$ anonymized coursework samples across four core parameters: Structural Coherence, Language Fluency, Critical Analysis & Argumentation, and Reference Integrity. Half ($n=20$) were verified 100% AI-generated submissions, and half ($n=20$) were

human-driven/scaffolded papers. Two independent senior academic evaluators scored each artifact using a standardized 25-point rubric per parameter.

Quantitative survey responses and assignment scores were analyzed using descriptive statistics and independent sample t-tests to evaluate performance disparities between human-driven and AI-generated submissions. Qualitative focus group transcripts were transcribed verbatim and subjected to thematic analysis following Braun and Clarke's six-phase framework to identify primary motivators, cognitive trade-offs, and behavioral patterns.

FINDINGS AND DISCUSSION

Drivers of Total AI Reliance (RQ1)

Analysis of survey data and focus group transcripts identified three primary motivators driving 100% AI submission strategies: time scarcity and workload compression, assessment anxiety, and ambiguous institutional guidelines. An overwhelming 78.3% of survey respondents cited competing assignment deadlines, part-time jobs, and extracurricular commitments as the primary cause for delegating full assignments to AI. Additionally, 64.5% of students noted that AI provides a level of academic tone and grammatical polish they felt unable to produce independently under tight time constraints.

Qualitative feedback from focus group participants strongly corroborated these findings. Students highlighted that concurrent project deadlines across multiple modules created insurmountable time pressures. In these circumstances, using AI to generate full drafts served as a survival mechanism. Furthermore, many non-native English speakers expressed that AI tools eliminated linguistic insecurity, allowing them to submit fluent and sophisticated prose that earned higher marks for language quality than their own manual drafts.

Comparative Quality of 100% AI Submissions vs. Human-Driven Papers (RQ2)

The comparative rubric analysis revealed a striking divergence between structural/linguistic form and analytical depth.

Table 1 Description of Assessment Performance Scores Between 100% AI Submissions and Human-Driven Papers

Assessment Dimension	100% AI Generated (Mean / 25)	Human-Driven / Scaffolded (Mean / 25)	t-value (p-value)
Structural Coherence	22.4	19.1	t = 3.42 (p < 0.01)
Language Fluency	23.8	18.6	t = 5.11 (p < 0.001)
Critical Analysis & Argumentation	12.1	21.5	t = -7.89 (p < 0.001)
Reference Integrity & Local Context	10.3	22.1	t = -9.12 (p < 0.001)

As demonstrated in Table 1, 100% AI-generated papers scored significantly higher in Language Fluency (M = 23.8) and Structural Coherence (M = 22.4). However, they scored dramatically lower in Critical Analysis (M = 12.1) and Reference Integrity (M = 10.3). AI outputs consistently exhibited generic assertions, circular reasoning, and fabricated or non-retrievable citations.

Detailed rubric evaluation revealed that while fully AI-generated papers presented polished paragraph transitions and sophisticated vocabulary, they suffered from systemic analytical shallowing. The arguments were often repetitive, presenting high-level summaries rather than rigorous critical debates. Furthermore, the citations provided in AI submissions frequently hallucinated publication years, author names, or article titles, rendering the scholarly basis of the work fundamentally unreliable.

Cognitive Impacts and Skill Atrophy (RQ3)

Survey and focus group data reveal a clear cognitive trade-off associated with total AI reliance. While 88.2% of students acknowledged that 100% AI generation saved time, 71.6% admitted they remembered significantly less course content compared to writing assignments manually. Participants expressed a growing reliance on AI to articulate even basic thoughts, leading to diminished confidence in closed-book exam settings or unassisted writing tasks. Students who delegated literature searches to AI lost the ability to critically compare conflicting scholarly arguments, resulting in surface-level subject comprehension.

Focus group discussions highlighted an underlying anxiety regarding future professional competence. Many participants confessed that while 100% AI reliance delivered high immediate grades, they felt unprepared for real-world workplace demands where independent analytical reasoning and spontaneous problem-solving are required without prompt engineering assistance.

PEDAGOGICAL RECOMMENDATIONS

To address the challenges of total AI dependency without resorting to ineffective blanket bans or overly punitive measures, higher education institutions should implement targeted pedagogical reforms:

1. **Assessment Redesign (Process-Oriented Evaluation):** Shift evaluation focus from final text outputs to iterative learning processes. Incorporate multi-stage draft submissions, mandatory reflective writing logs, and live oral defenses where students explain their research rationale and source selection.
2. **Ethical AI Integration Frameworks:** Develop transparent institutional guidelines that establish clear boundaries for AI usage. Frameworks should clearly categorize acceptable AI assistance (e.g., brainstorming, grammar refinement) versus unacceptable total generation, providing students with explicit ethical boundaries.
3. **Fostering Critical Digital Literacy:** Integrate AI literacy directly into university curricula. Teach students how to critically audit AI outputs, identify hallucinated citations, evaluate algorithmic bias, and use GenAI as an interactive sparring partner rather than an automated surrogate for human thought.

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