Navigating the Double-Edged Sword of AI Integration in Higher Education: Student perspective

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Abstract

Digitalization is rapidly transforming society and reshaping higher education. Driven by generative AI technolo-gies (GenAI), this shift challenges traditional paradigms and requires exploration of how digital literacy sup-ports *Reflective Practice-based Learning* (RPL). Drawing on a sociomaterial theoretical understanding, this case study explores challenges and solutions in the dynamic interplay between social and material elements as AI is woven into the students' study practices. The aim is to generate insights into students' perspectives on the use of GenAI in their study practices. International master's students in Swedish higher education participated in focus group interviews, reflecting on AI's role in their education. Using a problem-tree methodology, students discussed the focal problems, the underlying causes, and possible solutions. Findings show that while stu-dents value GenAI for efficiency and judgement-free support, its ubiquity creates a perceived obligation to adopt it, which fuelling ethical, emotional, and academic tensions. Students fear diminished critical thinking and creativity through over-reliance, describing AI as both enabler and threat. They call for compulsory AI-use label-ling by tool providers, explicit institutional guidelines, and more hands-on, creative assignments that foster independent reasoning and AI literacy. Without such measures, comfort, social pressure, and "speed culture" risk undermining RPL's reflective depth. The study underscores the need for balanced, transparent integration of GenAI to harness its benefits without compromising core academic skills

Keywords
Higher education, master students, problem tree analysis, sociomateriality, AI literacy, study practices

Introduction

The expansion of technological solution in education is disrupting academic practices, driving the need to ex-plore how emerging technologies are shaping higher education (HE) to navigate and adapt value strategies, and manage structural and organizational challenges (Vial, 2019). The integration of generative AI (GenAI) in academic programs and courses has initially caused a prevalent focus on the risks of plagiarism mobilizing HE to raise awareness and develop policies and guidelines for the use (Schiff, 2022; Jóhannesdóttir et al., 2025). Many national AI policies focus on digital skills recognizing that AI is transforming industries, and without proper training, there may be skill gaps that hinder innovation and economic growth (Saheb & Saheb, 2023). Thus, recent advances in GenAI are reshaping established educational paradigms, thereby necessitating an exploration of the ways in which digital literacy underpins Reflective Practice-based Learning (RPL; Jensen et al., 2023), a pedagogical approach that combines authentic, practice-centred activities with systematic reflec-tion.

Grounded in sociomaterial theory, the present study explores the co-constitution of social and material dimen-sions as GenAI tools become embedded in students' everyday learning routines. The research aims to explore international Masters students' perspectives on GenAI, focusing on the challenges it introduces, the solutions they formulate and the implications for their study practices. More specifically, the students will engage in structured, collaborative reflections designed to map AI's challenges and solutions.

Previous research

Recent research highlights that GenAI affects students' study practices in HE by increased access to knowledge, providing personalized feedback and clarification enhancing readability of academic literature (Wang, 2024) and acts as conversational partner simulating social interactions (Bozkurt et al., 2023). These AI-driven systems generate text and images,

provide immediate guidance, enabling students to make direct ad-justment to improving grammar (Mahapatra, 2024), strengthening their self-confidence and self-efficacy (Nazari et al., 2021). GenAI has therefore become increasingly appealing to students, particularly for academic writing, by supporting source summarization, translation, automated text evaluation, personalized feedback, and col-laborative writing, potentially fostering critical engagement with literature and content (Rasul et al., 2024). Providing more readable explanations in easy-to-understand language can enhance comprehensibility (Huang et al., 2024) and support students in idea generation with the use of multiple languages could be a way to re-duce cognitive load (Nazari et al., 2021). AI-generated text can be a useful tool when students devote time and cognitive effort to critically engage with the content (negotiated reading) or critique AI-generated text (opposi-tional reading) rather than simply accepting it (Anson, 2024). The cognitive offloads of GenAI are, however, considered disrupting learning in relation to understanding and evaluating of academic texts (Anson, 2024). The key identified risks of GenAI in HE involve academic integrity and plagiarism, but also ethical issues and ine-quality in education (Cerratto et al., 2024). The biases in text and pictures produced by GenAI further challenge students' academic writing practices (Daniel et al., 2023). Students are facing a higher risk of being suspected of AI-related plagiarism if their AI-assisted texts appear as overly linguistically flawless (Warschauer et al., 2023).

Developing AI literacy requires both technical, cognitive, critical and ethical skills, to find, understand, evaluate, and communicate AI-generated information (Ng et al., 2021). Prompting is highlighted as a central skill requiring crafting, refining, and iteratively optimizing precise prompts to generate desired outputs (Kim et al, 2025) and effectively translate between different modes (e.g., from text to image, or text to sound; Cope & Kalantzis, 2024). AI-generated texts show a high degree of spelling and grammar accuracy (Bruno et al., 2023), whereas attributing human-like qualities and assuming the output to be well-thought-out, intentional, or even ethical can lead students to overrely on AI-generated content without critically evaluating its biases, or limitations. The level of trust in AI-generated text influences students' attitudes and intentions of use of AI (Albayati, 2024).

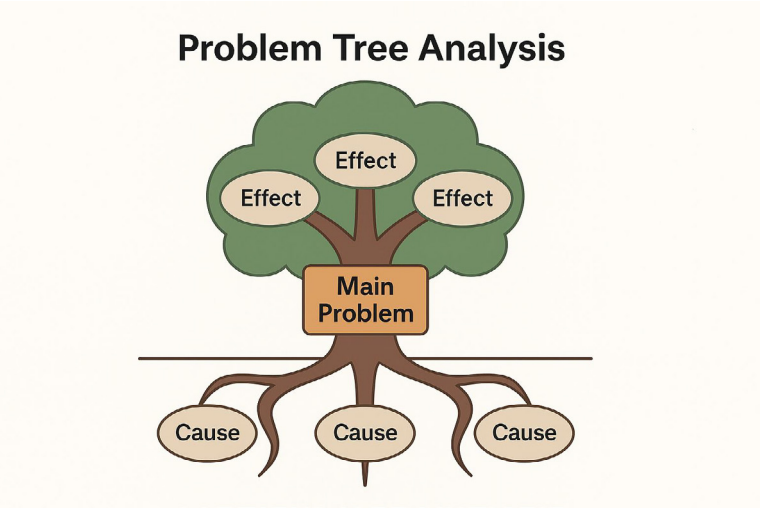
Data collection and analysis

We used participatory methods for data generation in this study employing the problem tree analysis, which is a systematic analytical tool, enabling students to articulate causes and consequences and to engage in collab-orative discussions on solutions (Vaugh & Jacquez, 2020). Problem tree analysis decomposes complex issues into smaller, more manageable components and is widely applied in fields like project management, product design, and education (McMain, 2023). Visualised as a tree (see Figure 1), the trunk represents the focal prob-lem, its roots denote underlying causes, and the branches depict resultant effects, thereby providing a struc-tured map for clarifying AI-related challenges and solutions.

Problem Tree Analysis Workshop

In this study, we gathered students (n=10) in an international, on campus master program on IT and learning to share their experiences with GenAI in student work with their peers in a workshop applying problem tree analy-sis. The students came from diverse professional backgrounds and nationalities, the majority were females. The participants were informed about the aim of the study and how the data production and analysis will be conducted, before signing a consent to participate (Swedish Research Council, 2024). We divided the students into two groups (n=5 per group) and asked them to collaboratively develop a single "problem statement" using an illustration of a tree that represents the main problem (trunk), list all the causes (roots) and consequences (branches), and reflect on a solution to the problem. The students engaged approx. 1,5 hours in group brain-storming, discussion, and categorization of *Why* does the problem exist? (causes) and *What* consequences or effects does the problem have, writing down and placing post-it notes in the problem tree. They were asked then to dig deeper with each root and branch, ask "why" or "so what" so many times to have a deep under-standing of the challenges. Finally, they discussed possible solutions: *How* could you tackle the roots to solve the problem? The generated data consists of the problem trees printed on paper with post-it notes in different colours and audio recordings of the groups' discussions.

Figure 1: The problem tree



Theoretical framing and analysis

The sociomaterial perspective (Orlikowski, 2007) adopted in this study entails an exploration of the ways in which technology becomes a 'technology-in-practice' when it is integrated in students' everyday study practic-es. As Orlikowski (2007, p. 1437) argues, materiality is "integral to organising," with the social and the material constitutively entangled in daily life. Hence, we approach students' learning practices as shaped by the inter-twined discursive and material dimensions of digital platforms and AI tools. By centring on this entanglement, we seek to illuminate the challenges and solutions of AI from the students' perspectives.

Findings

In this section we show the excerpts from the final representation of the respective groups' problem tree (see Table 1) and then we present the identified challenges (causes and consequences) and solutions highlighting their reflections about the uses, practices and views of students.

Table 1: Students' Problem Trees – Group 1 & Group 2

Problem: Students in higher education too reliant on AI		Problem: Pressure to use AI or be left behind	
Causes: • High academic pressure • Ease and accessibility of GenAI • Normalization of AI use • Emotional safety with AI • Efficiency and time man-agement • Procrastination and de-pendency	**Consequences:** • Loss of critical skills • Overreliance on biased AI information • Ethical concerns • Identity and ownership issues • Privacy and awareness gaps • Homogenized thinking and fatigue	**Causes:** • Unaware of embedded AI • High expectations on use • Lack of time • Information overload • AI competence for success • Need to understand • Competition • Media and pop-culture	**Consequences:** • Overreliance on AI • Shallow understanding • Standardized knowledge • Critical thinking suffers • Digital divide in the use • Increased minimum ex-pectations in productivity
Solutions: • Enhance education with creativity, critical thinking, and hands-on activities • Implement clear policies and targeted AI education • Develop foundational skills early		**Solutions:** • Mandatory signifiers of AI in systems • AI and digital literacy: ethical training, decision making	

Students in higher education too reliant on AI

In the first student-led discussion on the use of GenAI in academic work, one participant took the lead in un-packing what the group identified as a growing problem: students in higher education becoming overly reliant on AI tools like ChatGPT. The conversation revealed a wide range of perspectives and experiences, shaped by academic pressure, digital habits, and evolving student-teacher dynamics.

From the outset, there were differing views. One student raised concerns about unequal access to GenAI tools, only for the group leader to dismiss the issue, noting that many tools are now freely available. Another student used ChatGPT during the session to translate instructions

for the task, underscoring both accessibility and dependency. The group explored why students are turning to GenAI. Common causes included procrastination, the convenience of AI, and the lack of feedback or support in traditional academic settings. A recurring theme was how AI feels emotionally safe—unlike teachers, it does not judge or evaluate, making it easier to engage with. Some students described GenAI as a "neutral partner," and compared it to teachers who are often per-ceived as more critical. Interestingly, while they assumed teachers use GenAI too, they had rarely seen concrete examples, except for some who used it to generate images.

As more causes were shared, students began to connect the dots—recognizing that procrastination, for exam-ple, could be both a cause and a consequence of GenAI use. They moved fluidly between identifying causes, discussing consequences, and even suggesting solutions, showing that these categories often overlap. Con-cerns about academic integrity surfaced throughout. The students mentioned plagiarism, a blurred sense of authorship, and a general fear that reliance on AI leads to laziness. Yet, they often referred to others—not themselves—as those who were becoming too dependent. Still, the group leader highlighted how one partici-pant was actively using GenAI to complete tasks, illustrating the reality of the issue.

The conversation also touched on "AI fatigue"—a sense of boredom or mental exhaustion from constantly en-gaging with AI-generated content, which students described as flat or uncreative. At the same time, the human-like interface of GenAI tools seemed to foster an emotional connection, further deepening dependency. Disa-greements emerged, especially around the use of AI detection tools and whether tools like Google Translate were comparable to ChatGPT. These moments of debate highlighted the lack of clarity students often face when navigating AI in academic contexts.

Toward the end, the group discussed potential solutions, such as integrating AI literacy into education, clearer institutional guidelines, and more creative, hands-on assignments. Some even suggested early digital educa-tion outside university settings. One student pointed out how improved prompting skills can blur the line be-tween AI-generated content and original work—raising questions about what can truly be called one's own. Overall, the discussion revealed that while GenAI is viewed as

useful, it also poses risks to learning, integrity, and creativity—especially when it becomes a default tool rather than a thoughtfully used resource.

Pressure to use AI or be left behind

Students in the second group reflected upon the problem from the perspective of being expected to use AI technology, feeling compelled to use AI tools avoiding a disadvantage compared to peers. Students recog-nized that AI is increasingly embedded in everyday digital tools, creating an illusion of choice and reducing creativity by adding cognitive load and trapping them between convenience and autonomy. They linked the pressure to use AI to the fast-paced, competitive nature of education and the job market, where speed often outweighs critical thinking. AI was seen as a necessary tool to manage information overload and tedious tasks, especially under time pressure, justifying its use without guilt. Another cause they identify relates to AI as a competence for success and their experiences of other students "bragging" about not doing things manually, such as: "*I didn't read all that*" or "*I just used AI*". Thus, creating a norm and a kind of "default competence" in the offloading with AI regarding it as effective and smart. They found policies about AI vague or decentralized, often left to individual departments or instructors.

When it comes to effects and consequences, the students share a pragmatic, open-minded attitude toward using new technologies like AI, saying essentially: "*If there's a useful tool, why not use it?*" At the same time, they raised concerns about overreliance, fearing it could narrow understanding and limit diversity in thinking. They discussed how algorithmic recommendations create repetitive experiences, the so-called "algorithm trap," which can restrict discovery, critical thinking, and creativity. They reflected on the consequences from the per-spective of a new kind of digital divide occurring now in the confident use of AI rather than just access, experi-encing also enhanced expectations of productivity from employers (a quantity aspect rather than quality).

Solving the problem, the students are proposing mandatory AI-use labels and enhanced AI literacy. They acknowledge, though, that true global regulation and ethical use may be impossible due to differing interna-tional standards, ultimately stressing the importance of education, awareness, and preparing ourselves to use AI wisely, since it is here to stay.

Discussion of preliminary findings

This small-scale case study limited to single-institution setting, reveals that students engaged with GenAI in their discussions while also embedding broader aspects of AI and digital technologies. They recognized that although AI can enhance efficiency and academic outcomes, widespread access is normalizing its use, leading to shifting expectations and standards. Students acknowledged that GenAI offers convenience and non-judgmental assistance but also expressed concerns that this could foster dependency. Their reflections sug-gest that the core challenge lies not in access to or use of AI itself, but in *the illusion of choice* surrounding its adoption. Students reported feeling pressured to use AI tools to keep up, generating ethical, emotional, and academic tensions. Both groups expressed concerns about a potential decline in critical thinking and creativi-ty due to overreliance on AI. They criticized the current vague and hesitant regulation of AI, advocating for mandatory AI-use labelling by tool producers, clearer institutional guidelines, and more creative, hands-on as-signments designed to cultivate independent thinking and enhance AI literacy. Thus, the use of AI in HE emerg-es as a double-edged sword: while it can enrich learning, it also risks encouraging superficial, dependent-driven academic practices.

Across the cases, students underscored the *complexity* of integrating AI into student work in HE. They demon-strated *strong reflective capacity*, critically examining issues of variations in access, academic integrity, and dependency. Ultimately, they called for improvements in AI literacy, more explicit guidance, and educational approaches that prioritizes creativity and independent engagement.

The findings also suggest that emotional comfort, social pressure, and a prevailing "speed culture" may hinder students' deeper engagement with reflective, practice-based learning (RPL) unless these tensions are actively addressed. Students' descriptions of feeling emotionally "safe" with AI as a neutral partner illustrate a material-discursive entanglement, where AI is used more for emotional reassurance than purely for efficiency; illustrating how students prefer AI over teachers as partners in their student work.

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