



Open Research Online

Citation

Tessarolo, Felipe; Edwards, Chris; Bektik, Duygu and Whitelock, Denise (2024). Comparing practical use and perceptions of GenAI in higher education with current published insights. In: EDEN 2024 Research Workshop & PhD Schools' Masterclass, 16-18 Oct 2024, Timisoara, Romania.

URL

<https://oro.open.ac.uk/100463/>

DOI

License

(CC-BY-NC-ND 4.0) Creative Commons: Attribution-Noncommercial-No Derivative Works 4.0

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Policy

This document has been downloaded from Open Research Online, The Open University's repository of research publications. This version is being made available in accordance with Open Research Online policies available from [Open Research Online \(ORO\) Policies](#)

Versions

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding

Comparing practical use and perceptions of GenAI in higher education with current published insights

Felipe Tessarolo¹, Chris Edwards¹, Duygu Bektik¹, Denise Whitelock¹

¹The Institute of Educational Technology, The Open University, United Kingdom;

Correspondence: Felipe Tessarolo: felipe.tessarolo@open.ac.uk

Abstract:

The use of Generative AI (GenAI) has been heralded (Suonpää et al., 2024) as instigating significant change to the higher education (HE) sector through a large paradigm shift that cannot be ignored. This study set out to explore the early attitudes and levels of adoption and acceptance of such tools at the Open University and to understand how these findings compared with the wider higher education sector. By adopting a mixed methods study and involved a range of stakeholders including students, this study's findings underscore the enormous significance of this technology and its wide range of impact. Also, due to this and the ongoing developments in GenAI, there is currently considerable uncertainty as to where AI will lead the HE sector. Responses range from concerns that it will undermine education and learning to a perception that it will greatly facilitate learning and allow higher education to escape its current traditional model which is proving too costly for students. We conclude that there is an appetite from both staff and students in HE institutions to fully engage with AI, but more targeted research is required to ensure the best possible outcome for all.

Keywords: Generative AI; Higher Education; Thematic Analysis; Academic Integrity; Mixed Methods Study; AI-Related Risks

Introduction

Higher education (HE) is experiencing a paradigm shift following the release of ChatGPT by OpenAI in November 2022, as expressed by Suonpää et al (2024). This was the first Large Language Model (LLM) to be made publicly available, and the technology is expected to lead to significant, perhaps fundamental, changes within the sector. It is, therefore, important for universities to engage with these technologies exploring their potential and associated implications, finding ways to use them to benefit students, staff, and institutions. The research question (RQ) is 'What are the attitudes and awareness held by a range of stakeholders involved with teaching and learning, including students, at the Open University and are there any examples of early adoption and acceptance of the technology'. The data collection activity for this study took place in June and July 2024 and is part of the ADMIT Erasmus+ project considering these questions in the wider European context. This paper describes the initial findings from analysis of survey data of 77 participants and the thematic analysis from 13 interviews. This is distinct from the separate analysis of a sample of data from each of the eleven universities within the wider project that will consider the broader European situation. Generative Ai and Large Language Models In Higher Education (ADMIT) is a three-year project allowing for progress to be monitored and reviewed. We already know from Hullapa et al (2023) that students can quickly start to use GenAI tools while others refuse to use them. This is an opportunity to learn whether this is reflected in our own institution and how prepared different groups are within the university to accommodate the technology.

Method

Data Collection Process

A mixed method approach (Cresswell, 1999) was used, involving survey and interview to gather insights into the awareness, current landscape, challenges and opportunities associated with the use of GenAI tools, such as ChatGPT, in HE. The survey was designed by the ADMIT project to assess and compare familiarity and training with LLMs, usage, perceived benefits and challenges, and the presence of guidance and policies across partner institutions, with each running their own data collection project. After taking this through the university's normal processes, we therefore, invited various stakeholders including students within the Open University.

The survey and interviews covered a variety of topics, including participants' familiarity with LLMs and GenAI tools, whether they had received any formal training or support in using these technologies, and whether they were aware of, and followed specific institutional or national policies. Participants were also asked about the use of GenAI tools in teaching, learning, and research, and their adherence to any relevant standards or guidance. Additionally, the survey explored the presence of institutional and national practices regarding the use of GenAI tools in education. For a detailed overview of the questions posed to the participants, please refer to Table 2, which provides a comprehensive summary of the survey questions and response categories.

The survey was distributed via the approved university platform to students and via email to staff. It was conducted using Microsoft Forms, with qualitative data gathered through open-ended survey comments and interviews, which were analysed using NVivo. The interviews were conducted and transcribed using Microsoft Teams and then the transcripts were tidied by the interviewer. Participants were invited to take part in the survey, with the option to indicate their interest in participating in a follow-up interview of approximately 30 minutes to discuss these topics in more detail.

Target Groups and Sample Size

The following four groups were included. Table 1 presents both the targets and responses for each group.

Students: students from all study levels and faculties were included to understand their experiences, perceptions, and challenges related to the use of LLMs and GenAI tools in their studies. Invitations were sent to two successive samples of 500 students each from the academic year 2023/24.

Tutors: tutors from all faculties were included to provide perspectives on the integration of LLMs and GenAI in teaching, curriculum development, and their impact on educational. A random sample of 400 tutors was invited to participate in the survey.

IT/Teaching and Learning Support Services (ITTLSS): including directors, managers, and their deputies of support departments, IT support departments, and departments dedicated to LLM and GenAI. Three individuals received the survey invitation.

Administration: including rectors, vice-rectors, directors, deans: the person who is eligible to answer questions about national, institutional, and individual policies and practices in the institution. An email invitation to participate in the survey was sent to one administrative person.

Table 1: Groups targets and responses.

Group	Survey Target	Survey Responses	Interview Target	Interview Responses
Student	20	51	4	4
Tutor	10	22	4	6
ITTLSS	2	3	2	2
Administration	1	1	1	1

All data collection activities were carried out during the months of June and July 2024 following approval from the Human Research Ethics Committee and other relevant boards. The small numbers targeted within the last two groups where deliberate: these groups are many times smaller than the other two.

Results

Survey Results

The following results provide insights into the familiarity, training, and use of LLMs and GenAI among the four groups within the institution. To offer a clear and focused analysis, the data is presented in two tables. Table 2 summarises the levels of familiarity and training across the groups. Table 3 presents responses related to usage, adherence to policies, and perceptions of institutional and national practices regarding these technologies.

Table 2: Survey responses by group, with the strongest response for each group in bold.

Question / Sample	Yes				No			
	Students	Tutors	IT/TLSS	Amin	Students	Tutors	IT/TLSS	Admin
Are you familiar with LLMs and GenAI?	42%	95%	100%	100%	58%	5%	0%	0%
Have you received any training or support related to the use of LLMs or GenAI tools?	2%	32%	0%	0%	98%	68%	100%	100%

Table 3: Survey responses by group, with the strongest response for each group in bold. Note that (S) Student; (T) Tutor; (I) IT/Teaching and Learning Support Services and (A) Administration

Question / Group / Response		Yes	No	I have no idea	Other
Do you or any other staff, teachers or students within your institution use LLMs or GenAI tools in teaching, learning, and research?	S	8%	10%	78%	4%
	T	50%	18%	18%	14%
	I	100%	0%	0%	0%
	A	100%	0%	0%	0%
Do you or any other staff, teachers or students within your institution follow specific standards, rules or policies while using LLMs or GenAI tools in teaching, learning, and research?	S	20%	6%	68%	6%
	T	27%	9%	41%	23%
	I	33%	0%	0%	67%
	A	0%	0%	0%	100%
Are there any institutional practices regarding the use of LLMs or GenAI tools in your institution?	S	10%	6%	82%	2%
	T	18%	18%	50%	17%
	I	33.3%	0%	33.3%	33.3%
	A	100%	0%	0%	0%
Are there any institutional policies in your institution related to the use of LLMs or GenAI tools?	S	14%	8%	76%	2%
	T	65%	5%	15%	15%
	I	33%	0%	0%	67%
	A	100%	0%	0%	0%

Are there any nationwide practices regarding the use of LLMs or GenAI tools in your country (UK)?	S	4%	4%	88%	4%
	T	9%	9%	68%	14%
	I	0%	33%	67%	0%
	A	0%	0%	0%	100%
Are there any national policies in your country (UK) related to the use of LLMs or GenAI tools in education?	S	2%	4%	88%	6%
	T	4%	23%	64%	9%
	I	0%	33%	67%	0%
	A	0%	100%	0%	0%

To provide a clearer understanding of the responses across different groups within the institution, descriptive statistics are used to highlight the variation in familiarity, training, and use of GenAI tools. This approach illustrates how students, tutors, IT/Teaching and Learning Support Services (ITTLS), and administrative staff engage with these technologies, ranging from active use to limited awareness.

Students

The survey data reveal that students responding have been at the university for an average of 3.5 years, with most having studied for 5 years. Respondents represented a wide range of academic fields, including Arts and Humanities, Psychology, Mathematics, Environmental Science, Law, STEM, and Business Management. The largest proportion of students were from Arts and Humanities and STEM-related disciplines, such as Mathematics and Computer Science. The largest proportion of students were from Arts and Humanities and STEM-related disciplines, such as Mathematics and Computer Science. Specifically, 12 respondents were from Arts and Humanities, covering fields such as History, Creative Writing, and English Literature. STEM-related disciplines accounted for 10 respondents, with students in areas such as Mathematics, Computer Science, and Statistics. Other notable fields included Psychology (8 respondents) and Law (4 respondents).

The majority are pursuing bachelor's degrees, with a few enrolled in master's programmes. Of these, 8% use GenAI tools, 78% are unaware of such tools, and 10% say they do not use them. Furthermore, 20% of respondents follow specific policies on GenAI tools, while 68% are unaware of any, and 6% do not follow any policies. The survey also indicates that institutional and national practices and policies related to LLMs and GenAI are largely unknown among this group of students, with 82% unaware of any institutional practices, and 88% unaware of national policies.

Upon analysing the open-ended comments, we found that some students recognised the benefits of AI tools, particularly in terms of saving time on tasks such as summarising articles, restructuring sentences, and proofreading. Others noted that these tools could assist students with learning difficulties or disabilities. One student remarked that AI can 'help with researching and summarising key points', highlighting its usefulness in academic tasks. Additionally, AI was viewed as a means to streamline research processes, explore solutions, and efficiently correct drafts.

However, significant ethical concerns emerged, particularly around the risk of cheating, with some students perceiving that others are using these tools inappropriately to complete assignments. One respondent commented, 'AI tools may encourage students to pass tests without truly learning' reflecting a common concern. There were also worries about the accuracy of AI-generated content, with fears that reliance on AI could undermine the quality and authenticity of academic work. Some students expressed concerns that AI is replacing human creativity, particularly in fields requiring personal engagement. Issues related to data security and transparency about the sources used by AI systems were also raised.

These qualitative insights suggest that, while AI tools are recognised for their potential to improve efficiency and accessibility, significant concerns remain regarding their ethical use, accuracy, and impact on the learning process. The responses indicate a need for clearer institutional policies and guidelines to address these issues and ensure that AI is used responsibly in educational contexts.

Tutors

The survey responses show a broad range of teaching experience in HE, from newcomers to those with over 40 years of experience, with an average of 15.7 years of teaching experience. The group is highly educated, with 41% holding a master's degree and 59% possessing a PhD. The tutors came from a diverse variety of academic disciplines, including Social Sciences, Geography and Environmental Studies, Politics and International Relations, Education, Humanities, Mathematics and Statistics, Music, and Computer Science. Faculty of Arts and Social Sciences (FASS) had 9 representatives, Faculty of Science, Technology, Engineering and Mathematics (STEM) had 7 representatives, Faculty of Wellbeing, Education and Language Studies (WELS) had 4 representatives, and The Faculty of Business and Law (FBL) had 1 representative.

While 95% of participants are familiar with LLMs and GenAI, 32% have received relevant training or support. Additionally, 50% are unsure about the use of these tools at their institution. 27% follow specific standards or policies, with 68% unaware of or not adhering to guidelines. Regarding institutional practices and policies, 18% of tutors are aware of them, and 65% are familiar with related policies. Awareness of national practices and policies is lower, with 68% and 64% respectively unaware.

The open-ended comments provided further insight into how tutors perceive the role of AI tools in education. Many tutors see these tools as valuable for supporting their own work, particularly in pre-drafting material, integrating into curriculum design, and assisting with upstream learning activities. They also highlighted AI's potential for educational support and its ability to 'ease and speed up of some planning activities'. Regarding students, tutors believe that AI could help them better understand course materials and facilitate 'discussing' a topic [with GenAI] without the need to set up a meeting [with the tutor]. Additionally, AI is viewed as a tool that can enhance accessibility, with the potential to explain concepts or topics in different ways to suit a diverse range of students and learning styles. Tutors also noted its potential benefits for students who have English as an additional language, helping to improve language use and comprehension.

However, significant concerns also emerged. Tutors raised issues related to AI reliability, plagiarism, and ethics. One participant remarked, 'Unacknowledged AI-generated student answers are difficult to prove as such', reflecting concerns around maintaining academic integrity. Others voiced worries about the potential of AI-generated content to undermine students' skill development and critical thinking. Ethical concerns about the impact of AI on intellectual property, data privacy, and the environmental costs associated with AI technology were also frequently mentioned. Moreover, tutors expressed apprehension about how AI might reinforce existing biases or challenge inclusive and decolonial education efforts.

These qualitative insights suggest that while tutors recognise the potential of AI to enhance learning and streamline certain educational processes, they remain cautious about its broader impact on education. Ethical use, proper training, and clear institutional policies were frequently cited as necessary to mitigate the risks associated with AI in the academic context.

ITTLSS

The survey shows that the ITTLSS respondents, including roles such as educational technology developers, designers, and managers with bachelor's and master's degrees, are all familiar with LLMs and GenAI tools. All three use these tools in teaching, learning and research, with 33% (one respondent) stating they adhere to specific standards. Regarding institutional and national practices, 33.3% are aware of them, with the same percentage aware of institutional policies. Nationally, 67% (two respondents) recognise the existence of policies.

Open comments highlight key benefits of using LLMs and GenAI tools, such as faster content creation, tailored outputs, time-saving, and brainstorming support. One respondent noted, 'We have already evidenced that using these tools can help produce an initial construct (straw man) that encourages discussion/debate/ideation rather than starting with a blank piece of paper'. These tools allow for quicker iterations and more customised content tailored to specific needs.

However, challenges include the creation of content that, while convincing, may be false or inaccurate, as well as conceptual difficulties in understanding and resolving poor outputs. Technical issues, such as inconsistent software installation and hardware requirements, also arise. The results often necessitate human intervention to ensure accuracy. As one participant emphasised, 'There must be human 'quality assurance' to verify that what is produced by AI is correct and suitable for the intended audience.'

Administration

The administrator, a professor leading an Institute of Educational Technology, indicated full familiarity with LLMs and GenAI tools, with 100% awareness. They had no specific training and use these tools within the institution, and 100% adhere to standards and policies, indicating strong compliance and integration into their operations. They are 100% aware of both institutional and national practices, highlighting their role in policy implementation.

Open comments highlighted several notable benefits, including the ability of AI tools to provide personalised feedback for students, which enhances individual learning experiences and offers more targeted support. However, the comments also pointed to significant challenges. One issue raised was the overemphasis on personalised learning, which risks neglecting AI's potential as a social learning tool, particularly for distance learners. Another concern is the danger of students sharing too much university content, such as textbooks and other valuable resources, through AI systems. As one participant noted, 'This data is more valuable than realised', highlighting the importance of protecting institutional intellectual property while incorporating AI into educational settings.

Interview Results

The interviews were conducted between July and August 2024. To analyse the transcripts, we employed an inductive thematic analysis approach (Braun & Clarke, 2006). This method allowed us to uncover and explore theme patterns within the data without imposing predefined categories.

To ensure the reliability and depth of the findings, two researchers independently analysed the transcripts. One researcher generated 145 codes, while the other generated 160 codes. This collaborative effort was designed to capture a comprehensive understanding of the data, ensuring that both overlapping and distinct themes were thoroughly considered. Through an iterative process of coding, reviewing, and refining, three central themes emerged:

Transition to a new paradigm: this theme explores the growing awareness and initial considerations regarding GenAI in HE. Some interviewees are beginning to engage with these tools whilst others are avoiding them completely. Through these experiences, they are reflecting on their implications while also discussing their current understanding of these technologies, as well as the guidance and policies surrounding them.

Potential Uses: this theme highlights opportunities for using GenAI in HE, such as enhancing learning experiences, personalising education, supporting diverse learners, analysing large datasets to identify trends and streamlining workflows.

Risks: this theme addresses the potential risks associated with AI adoption, including data privacy, academic integrity, the ethical implications of using GenAI in educational settings, and the possibility of deskilling students by reducing their reliance on critical thinking and problem-solving skills.

Transition to a new paradigm

There is recognition that the availability of GenAI to the public is a significant milestone for all societies and it is already having a clear impact across all aspects of HE. Since the technology is far from mature this milestone marks the beginning of the transition whilst the exact nature of the paradigm shift continues to evolve. This is very unsettling for many, leading some to avoid it all together. Even amongst those who are already experts in AI and who see great potential, there is caution because the impact depends on how individuals and society respond.

There are varying levels of awareness and understanding. While some embrace GenAI for its potential to enhance academic and creative tasks, others are more concerned about its accuracy and ethical implications. The interviewees raise concerns about academic integrity, intellectual property, and maintaining the human element in learning.

Awareness of GenAI capabilities varies widely. Some individuals have deep understanding, while others possess only basic familiarity or 'tend to avoid it' (Student-1). One tutor noted that 'people are naturally curious and have experimented with these technologies' (Tutor-6), while an ITTLSS member shared that they have used GenAI for projects involving 'chatbots, report generation, and helping to cluster topics'

(ITTLSS-1). Information about GenAI comes from various sources, family members, social media, podcasts, news, discussions with colleagues, communities of practice, academic papers, and official institutional documents.

Challenges and concerns about GenAI use in HE are growing, particularly regarding academic conduct. Tutors worry about students potentially using these tools to complete assessments. The institution has guidelines for handling suspected AI use in assignments, but these primarily focus on marking and plagiarism, with little emphasis on integrating AI into teaching (Tutor-3). Some staff tested their colleagues' ability to identify AI-generated content in student submissions, but 'very few tutors were aware they were assessing scripts generated by a machine' (Tutor-5), prompting further training in spotting AI-generated work.

Concerns were also raised about ethics and intellectual property in education, particularly regarding authorship and content verification. GenAI challenges traditional teaching, requiring new skills like 'checking information' and 'triangulating data' (Administrator). While GenAI can aid in preparing teaching materials, it is essential that 'the human being needs to always remain the author' to maintain ethical standards (Tutor-6).

Furthermore, discussions highlighted the need for improved policies on GenAI use, the need to preserve the human element in education, and addressing job loss concerns. One student stressed that AI is not about cheating but learning to use it wisely, necessitating evolving policies (Student-4). Despite AI's potential, the core of education—critical thinking, problem-solving, and teamwork—remains human and irreplaceable, especially in social learning (Student 3 and 4, Administrator). The ethical debate questions not just AI's ability to achieve positive outcomes, but whether it should be used in certain contexts. As one tutor asked, 'If AI can generate, summarize, and assess, what is the role of the human assessor?' These dilemmas arise when AI takes on roles traditionally held by humans, potentially leading to job displacement (Tutor-4).

The uses of GenAI in HE settings presents both promising opportunities and significant challenges. While GenAI can enhance learning and streamline academic processes, it also raises ethical concerns, particularly around academic integrity, intellectual property, and potential displacement of human roles. Ensuring that AI complements rather than replaces the human element is essential to preserving the core values of education, such as critical thinking and collaboration.

Potential Uses

Interviewees emphasized AI's potential to enhance personalized learning, foster creativity, improve accessibility, and support both students and educators. They envision GenAI reshaping education by providing tailored experiences, driving innovation, and making learning more inclusive and efficient. Additionally, they have used GenAI for tasks such as writing emails, checking codes, drafting essays, and working on projects, as well as enhancing student learning and improving academic writing, though some remain cautious about its accuracy for academic tasks.

GenAI is seen as a tool that can deliver highly personalized learning experiences. Interviewees anticipate AI tutors providing continuous, 'just-in-time learning', helping students crystallize complex ideas (ITTLSS-1) and assisting students in 'summarizing and clarifying their learning' (Tutor-6). AI's ability to tailor content, summarize document, and support students with additional needs can make education more accessible and effective for all (Tutor-4, Student-4). Current initiatives, such as the development of AI digital assistants, illustrate how this technology is advancing education (Administrator).

Beyond personalization, GenAI can enhance both creativity and production in education by enabling the creation of diverse assets, from essays to multimedia projects, and improves academic writing, aiding students in 'planning and structuring' their work and offering valuable feedback (Tutor-3). Additionally, GenAI helps create polished 'presentations, graphics, and diagrams,' improving the quality of learning materials (Tutor-6) and contributing to the development of short courses (Administrator). As a productivity tool, AI streamlines workflows by automating content creation such as generating images from text prompts, and simplifying routine tasks like creating student references templates, emails, supporting the delivery of seminars and PowerPoint presentations from learning outcomes (Tutor-4). Additionally, AI can enhance efficiency by streamlining processes like student support through AI-powered chatbots (Tutor-3).

AI also can improve accessibility, as intelligent assistants and on-screen readers could make learning more accessible by being 'super accurate and easier to use' (Student-3). Additionally, AI could support students who struggle with reading, with the possibility of integrating these tools into educational platforms (Student-1). Practical uses, such as a chatbot to help students disclose disability information, further demonstrate GenAI's ability to foster a more accessible learning environment (ITTLSS-1). Furthermore, AI challenges assumptions and highlights unconscious biases through its mistakes or 'hallucinations', prompting us to reconsider how we view technology and our own biases (ITTLSS-2).

Moreover, GenAI makes contributions to scientific research by analysing large datasets, identifying trends, and generating insights that would be difficult to achieve manually. Interviewees highlighted AI's potential to 'aggregate information and assist in research tasks' (Tutor-4). These tools can also act as powerful analysis instruments, helping researchers explore existing fields and identify knowledge gaps (Tutor-2). The integration of GenAI may also mark the true beginning of the 'knowledge economy,' where data and information drive innovation and progress, much like a technological revolution (Student-4).

Overall, interviewees highlighted AI's transformative potential in education, from personalized tutoring and creative support to improving accessibility and streamlining tasks. They see AI as a key tool in making education more inclusive, efficient, and innovative.

Risks

Interviewees highlighted several risks associated with GenAI in HE, including data security, the impact on teaching and learning, and broader societal implications. A primary concern is adherence to data security, with strict compliance with GDPR regulations to protect personal information (Student-2, ITTLSS-1). The accuracy and reliability of AI-generated content also emerged as critical issues, as some technologies might mislead users, fostering misplaced trust in educational contexts (ITTLSS-2).

Another significant concern is the potential de-skilling of students, with reliance on GenAI might erode essential skills like critical thinking and problem-solving (Tutor-6). This raises questions about whether universities could eventually become mere credentialing bodies rather than centres of learning (Administrator). Additionally, the displacement of human roles, particularly in repetitive tasks, underscores GenAI's limitations, as it cannot fully replicate the critical human presence needed in education (Student-3).

The interviewees also expressed concern about the deepening existing inequalities, particularly the digital divide. Students without consistent access to necessary technology might be increasingly disadvantaged, exacerbating digital poverty (Student-4, Tutor-6). Furthermore, the varied use of GenAI by students complicates its implementation, as a one-size-fits-all approach may not be effective in diverse educational settings (Tutor 1).

Educators face challenges in adapting to AI, including resistance to its adoption, time constraints, and the rapid pace of technological advancement. Some educators view GenAI as a form of 'cheating' or lack familiarity with learner-centred teaching models, which could result in a significant portion of the teaching staff being 'left behind' (Tutor-1, Student 4). Time constraints, already burdensome due to grading and other responsibilities, make AI training seem like an additional strain (Tutor-1). The rapid evolution of technology further complicates consistent and effective practices across diverse educational environments (Tutor-3).

The broader societal implications of GenAI adoption were also a significant concern. Interviewees noted the risk of society rushing to monetise GenAI without fully understanding its consequences, potentially leading to unforeseen shifts in social dynamics and employment (ITTLSS-2). Furthermore, there is a reputational risk for institutions that adopt AI without fully understanding its implications. As one interviewee pointed out, if a student were to use GenAI to complete a major project undetected, it could result in a scandal with severe repercussions for the institution's reputation (Tutor-5).

Interviewees highlighted key risks of GenAI in HE, including data security concerns, potential de-skilling of students, and deepening inequalities due to the digital divide. They also raised issues about AI's impact on teaching, such as the erosion of critical thinking skills and the displacement of human roles. Additionally, educators face challenges in adapting to AI, with resistance, time constraints, and rapid technological

changes complicating integration. Broader societal risks include rushing to monetise AI without fully understanding its consequences and potential reputational damage for institutions.

Discussion

When we look at the wider literature about the use of GenAI in HE we find that papers fall into four main categories: Awareness, Policy, Benefits, and Challenges. The difference between this list and the three main categories of our thematic review may be due to the delay between experience, and research and publication.

As with any significant transition we are passing through a phase where there is a wide range of familiarity with and attitude towards GenAI. A recently published UK YouGov Whitepaper (2024) aligns with our findings and identifies three types of AI user: The AI Ignorant, The AI Abstainers, and The AI Optimist. The first group has limited knowledge about AI, are not frequent users and are indifferent to it. The second group also has limited knowledge about AI and members are not frequent users but hold very negative attitudes towards AI. The last group is made up of frequent, active users of AI with a belief that it can benefit society overall. The extended nature of this transition is likely to mean that this phase will also persist for some time.

The students interviewed revealed a lower-than-expected use of GenAI. This may in part be due to our students being on average older than most. Albayati (2024) found the perceived ease of use and usefulness of ChatGPT significantly shape students' attitudes toward the tool. Privacy concerns and security measures were also highlighted as vital in influencing students' perceptions. Whilst we found comments that support both of these we only found evidence of this following finding in the interview with an administrator who is a senior member of staff. Albayati also finds when students perceive a positive social influence regarding the use of ChatGPT. They are more likely to adopt a favourable attitude toward the tool. All bar this final finding.

Beyond our findings, others also find gen AI tools can be integrated into curriculum design, encouraging institutions to leverage GenAI for developing and updating course content. Mohebi writes that this integration can enable educators to create a more dynamic, current, and relevant curriculum. Therefore, policies should promote training and workshops to introduce educators to the potentials and methodologies of such integration (Mohebi, 2024). Our findings emphasised the importance of raising GenAI literacy, and Mohebi (2024) recommends that institutions prioritise continuous professional development for educators in AI, including technical training and strategies for incorporating AI tools into their teaching. This should be accompanied by ethical guidelines for AI use to address potential biases and data privacy issues, ensuring alignment with the institution's values and educational goals.

The most positive and hopeful views expressed within our interviews accord with Mohebi and see GenAI as a transformative initiative, redefining traditional pedagogical practices and the student's role in the learning process (Mohebi, 2024). Bektik et al. (2024) also highlight the role of GenAI as a co-design partner in curriculum development, enhancing efficiency and effectiveness in creating personalised educational materials, such as quizzes and interactive activities, through the automated generation and customisation of content according to students' needs. Both survey and interview data indicate that AI tools can enhance accessibility, particularly for students with learning difficulties or special needs. Students noted that AI aids in tasks such as restructuring sentences, proofreading, and summarising articles, which can benefit those struggling with traditional methods. Tutors also highlighted AI's potential to support diverse learning styles, aligning with Mohebi's (2024) view of AI offering personalised and inclusive learning experiences. According to Adiguzel et al. (2023) and Mogavi et al. (2023), GenAI enhances educational experiences by offering students a dynamic and responsive platform for inquiries, discussions, and knowledge acquisition.

We found some evidence that GenAI can be more readily used in some fields than others. Yilmaz and Yilmaz (2023) highlighted its potential in programming education, suggesting that students could use the platform for instant feedback, code-related inquiries, and problem-solving assistance. Similarly, Huang and Li (2023) explored ChatGPT's potential in foreign language instruction, envisioning it as a 'virtual language partner' that guides students through the nuances of language via real-time conversational practice. This is similar to the personal learning assistant described by some of our interviewees. Researchers Larsson and Eriksson (2023) highlighted the positive impact of ChatGPT on students' self-study experiences in HE. ChatGPT has a capacity to guide students through complex topics and clarifying any confusion they may have. Additionally, some institutions are exploring the use of ChatGPT beyond traditional settings. Kilinc

(2023) emphasized its importance in distance science education, noting its ability to overcome geographical barriers and provide consistent educational experiences. While geographical barriers were not highlighted in our findings, the idea of supporting consistent learning experience is implicit in many comments.

Whilst there were some interview voices stating that GenAI could undermine learning, the predominant view is that GenAI holds significant potential for both students and teachers when used appropriately and responsibly in education (Patrício et al., 2024). Ethical concerns around academic integrity were prominent in our findings. Students worried that AI tools could encourage cheating, with one commenting that 'AI tools may encourage students to pass tests without truly learning.' Both students and tutors questioned the accuracy and reliability of AI-generated content, echoing Lim et al.'s (2023) concerns about plagiarism and the challenges in verifying AI outputs.

As an accessible and easy-to-use software, ChatGPT can reduce the time and effort required for academic tasks, aiding in the development of linguistic and cultural skills (Hung et al., 2023). Time-saving is emphasized by Naidu and Sevnarayan (2023) who note ChatGPT's capability to automate tasks and processes, particularly in assessment correction, allowing for personalised learning experiences tailored to individual student needs. The feature of providing on-demand feedback and support enhances student engagement and participation is a common theme across many studies. According to Muñoz et al. 2023, incorporating ChatGPT into educational programs can boost students' motivation to study independently and under teacher supervision (p. 20). Another relevant study by Limo et al., 2023 highlights that students using ChatGPT as a virtual tutor take greater responsibility for their learning, asking questions and making decisions, leading to autonomous, quick, and effective learning.

Our results identified some risks and integrating AI technologies could impede students' growth in areas such as teamwork, problem-solving, leadership, empathy, and creativity (Chan, 2023). Hence, universities must continually help students cultivate comprehensive skillsets, equipping them for an AI-dominated job market where adaptability, resilience, and transformational abilities are essential. Within and beyond our study both students and teachers widely agree that institutions learn to handle the potential risks of GenAI, emphasizing the importance of addressing data privacy, transparency, accountability, and security (Chan, 2023).

The risks around the accuracy and reliability of GenAI and its potential to lead to plagiarism (Lim et al., 2023 and Kasneci, 2023) are perplexing those in our interviews. Both students and tutors expressed concerns about AI replacing human creativity, with students particularly worried about the loss of authenticity in academic work. This aligns with concerns in the literature about AI potentially undermining academic quality by reducing critical thinking and creativity, raising questions about the balance between efficiency and originality. Additionally, the reliability of information is a significant concern (Kim et al., 2023). The training data for LLMs contains bias or outdated information, which can also lead to the propagation of harmful stereotypes or inaccurate information (Kim, J.K. et al., 2023 and Lo, 2023). Concerns are raised about 'hallucinations', presenting false information as accurate, thus complicating students' learning and critical judgment, especially as ChatGPT becomes integrated into various software tools, obscuring its AI nature and complicating the validation of information (Loos, Gröpler, and Goudeau, 2023). Some even claim that GenAI will lead to the end of creative expression and individual thought, and ChatGPT could negatively impact students critical thinking and problem-solving skills (Kasneci, 2023). Educators worry that if students do not learn about the limitations and ethical implications of GenAI (and AI tools more broadly), they may be susceptible to misinformation and inappropriate reliance on GenAI outputs (Liu, 2023).

Conclusion

This initial analysis of survey and interview data from one institution has been very informative, with some surprising results. For example, we were expecting more than 4 of the 51 students to say they used GenAI. The extended nature of the transition to a paradigm of a GenAI enabled society was a very strong theme and potentially makes this a new kind of transition. The breadth of impact of the technology and its speed of ongoing development inevitably mean training lags substantially behind. However, the need to improve GenAI literacy is recognised by many as being very important.

The three broad themes we have identified from the analysis of this round of interviews: transition to a new paradigm, potential uses of the technology, and risks associated with it reflect the uncertainty as to

which possible future will dominate. For HE, the technology is seen on one hand as offering huge potential in personalisation of learning for students, supporting learning and the development of important academic skills. Perhaps, it can even help to strengthen social interaction. Whilst on the other hand it is feared it will undermine learning and encourage cheating, making it very hard to judge what is real and true and what is not. Similarly, it can be seen as either enabling us to do much more and to do it better or replacing humans in roles. Some see it as helping us become more creative whilst others see it embedding mediocrity.

Currently, we see no reason to assume all of these outcomes will not appear in some way. It is therefore up to institutions, individually and collectively to actively work to promote the outcomes that best support the academic endeavour and society more widely.

We will continue to reflect on these results and will repeat the study each of the next two years.

Acknowledgements

The data collection for this study was funded by the ADMIT Erasmus + project.

References

- Adiguzel, T., Kaya, M. H., & Cansu, F. K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. *Contemporary Educational Technology*, 15(3), ep429.
- Albayati, H. (2024). Investigating undergraduate students' perceptions and awareness of using ChatGPT as a regular assistance tool: A user acceptance perspective study. *Computers and Education: Artificial Intelligence*, 6, 100203.
- Bektik, D., Ullmann, T. D., Edwards, C., Herodotou, C., & Whitelock, D. (2024). AI-Powered Curricula: Unpacking the Potential and Progress of Generative Technologies in Education. *Ubiquity Proceedings*, 4(1).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20(1), 38.
- Creswell, J.W., 1999. Mixed-method research: Introduction and application. In *Handbook of educational policy* (pp. 455-472). Academic press
- Huang, J., & Li, S. (2023). Opportunities and challenges in the application of ChatGPT in foreign language teaching. *International Journal of Education and Social Science Research*, 6(4), 75–89.
- Hung, J., & Chen, J. (2023). The benefits, risks, and regulation of using ChatGPT in Chinese academia: A content analysis. *Social Sciences*, 12(7). <https://doi.org/10.3390/socsci12070380>
- Kasneci, E.; Seßler, K.; Küchemann, S.; Bannert, M.; Dementieva, D.; Fischer, F.; Gasser, U.; Groh, G.; Günemann, S.; Hüllermeier, E.; et al. ChatGPT for good? On opportunities and challenges of large language models for education. *Learn. Individ. Differ.* 2023, 103, 102274.
- Kılınc, S. (2023). Embracing the future of distance science education: Opportunities and challenges of ChatGPT integration. *Asian Journal of Distance Education*, 18(1), 205–237. <https://eric.ed.gov/?id=EJ1389448>
- Kim, J.K. et al. (2023) 'ChatGPT and large language model (LLM) chatbots: The current state of acceptability and a proposal for guidelines on utilization in academic medicine', *Journal of pediatric urology*, 19(5), pp. 598–604. Available at: <https://doi.org/10.1016/j.jpuro.2023.05.018>.
- Larsson, N., & Eriksson, H. (2023). Chatting up the grade: An exploration on the impact of ChatGPT on self-study experience in higher education. Umeå University.

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education*, 21(2), 100790

Liu, L. (2023). The opportunities and challenges brought to international Chinese education by ChatGPT: Expert perspectives from the joint forum of Beijing Language and Culture University and the American Association of Chinese Teachers. *Chinese Teaching in the World*, 37, 291–315.

Loos, E., Gröpler, J., and Goudeau, M-L. S. (2023). Using ChatGPT in Education: Human Reflection on ChatGPT's Self-Reflection. *Societies*, 13(8), 196. [DOI: 10.3390/soc13080196].

Mogavi, R. H., Deng, C., Kim, J. J., Zhou, P., Kwon, Y. D., Metwally, A. H. S., et al. (2023). Exploring user perspectives on ChatGPT: Applications, perceptions, and implications for AI-integrated education. *arXiv preprint arXiv:2305.13114*.

Mohebi, L. (2024). Empowering learners with ChatGPT: Insights from a systematic literature exploration. *Discover Education*, 3(1), 36.

Muñoz, S. A. S., Gayoso, G. G., Huambo, A. C., Tapia, R. D. C., Incaluque, J. L., Aguila, O. E. P., & Arias-González, J. L. (2023). Examining the impacts of ChatGPT on student motivation and engagement. *Social Space*, 23(1), 1-27.

Naidu, K., & Sevnarayan, K. (2023). ChatGPT: An ever-increasing encroachment of artificial intelligence in online assessment in distance education. *Online Journal of Communication and Media Technologies*, 13(3). <https://doi.org/10.30935/ojcm/13291>

Patrício, M. R., & Gonçalves, B. F. (2024, January). ChatGPT: Systematic review of potentials and limitations in education. In *International Conference on Information Technology & Systems* (pp. 339-348). Cham: Springer Nature Switzerland.

Suonpää, M., Heikkilä, J., & Dimkar, A. (2024). Students' Perceptions of Generative AI Usage and Risks in a Finnish Higher Education Institution. *INTED2024 Proceedings*, 3071–3077. 18th International Technology, Education and Development Conference. <https://doi.org/10.21125/inted.2024.0825>

YouGov. (2024). Attitudes towards artificial intelligence (AI) in the public sector. A YouGov Public Showcase. <https://business.yougov.com/content/49495-uk-attitudes-towards-artificial-intelligence-in-the-public-sector>