From Support to Dependency: Exploring Student Perceptions of Generative AI

Del apoyo a la dependencia: explorando las percepciones de los estudiantes sobre la IA generative

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ABSTRACT

The rapid integration of Generative Artificial Intelligence (GenAI) into education highlights the need for empirical insights into student perspectives to inform institutional policies, pedagogical strategies, and social practices. This study explored Italian university students' perceptions of GenAI's benefits and risks across personal, social, and academic domains. A total of 1,347 students from 24 Italian universities completed an online questionnaire. This manuscript focuses on two open-ended questions investigating perceived advantages and disadvantages of ChatGPT and similar systems, analyzed through manual coding using MaxQDA software. Results show students predominantly adopt an instrumental view of GenAI: operational benefits made up 41.6% of responses, followed by informational (14.3%) and educational advantages (10.9%). The most cited disadvantages were cognitive and learning risks (29.6%), problematic behaviors (23.6%), and technical limitations (15.4%). These findings reveal an ambivalent stance: students value GenAI's efficiency and learning support but express concerns about intellectual dependency, diminished critical thinking, and threats to academic integrity. This study makes several key contributions: it provides the first large-scale qualitative investigation (N=1,347) of GenAI perceptions in Italian higher education, bridging the gap between qualitative depth and quantitative generalizability; it offers culturally situated insights from a non-Anglophone context, enriching the predominantly Anglo-centric literature; and it delivers evidence-based recommendations for institutional policy development grounded in actual student experiences rather than theoretical assumptions. Such insights are crucial for understanding the views of a key stakeholder group in higher education and for guiding the development of ethical usage policies, structured teacher training, and tailored student orientation initiatives. These measures aim to promote technological governance skills that preserve intellectual autonomy while harnessing GenAI's operational benefits.

RESUMEN

La rápida integración de la Inteligencia Artificial Generativa (IAG) en el ámbito educativo pone de relieve la necesidad de obtener evidencias empíricas sobre las percepciones del estudiantado, con el fin de orientar políticas institucionales, estrategias pedagógicas y prácticas sociales. Este estudio exploró las percepciones de estudiantes universitarios italianos respecto a los beneficios y riesgos de la IAG en los ámbitos personal, social y académico. Un total de 1.347 estudiantes de 24 universidades italianas respondió un cuestionario en línea. Este artículo se centra en el análisis de dos preguntas abiertas dirigidas a indagar las ventajas y desventajas percibidas de ChatGPT y sistemas similares, mediante codificación manual con el software MaxQDA. Los resultados muestran que el estudiantado adopta principalmente una visión instrumental de la IAG: los beneficios operativos representaron el 41,6 % de las respuestas, seguidos de ventajas informativas (14,3 %) y educativas (10,9 %). Las desventajas más mencionadas fueron los riesgos cognitivos y de aprendizaje (29,6 %), comportamientos problemáticos (23,6 %) y limitaciones técnicas (15,4 %). Estos hallazgos revelan una postura ambivalente: si bien valoran la eficiencia y el apoyo al aprendizaje que ofrece la IAG, también expresan preocupaciones por la dependencia intelectual, la disminución del pensamiento crítico y las amenazas a la integridad académica. Este estudio aporta varias contribuciones clave: constituye la primera investigación cualitativa a gran escala (N = 1.347) sobre las percepciones de la GenAI en la educación superior italiana, al tender

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un puente entre la profundidad cualitativa y la generalizabilidad cuantitativa; ofrece perspectivas culturalmente situadas desde un contexto no anglófono, enriqueciendo así una literatura predominantemente anglocéntrica; y proporciona recomendaciones fundamentadas empíricamente para el desarrollo de políticas institucionales, basadas en las experiencias reales del estudiantado más que en supuestos teóricos. Estos datos ofrecen orientaciones valiosas para desarrollar políticas éticas de uso, formación docente estructurada e iniciativas de acompañamiento estudiantil orientadas a promover competencias de gobernanza tecnológica.

1. Introduction

The rapid development and widespread adoption of Generative Artificial Intelligence (GenAI)—particularly large language models (LLMs) such as OpenAI's ChatGPT—have ignited substantial debate across academic, professional, and public domains (e.g., Deng et al., 2025; Popenici, 2022). These technologies, capable of producing human-like text, summarizing information, solving complex tasks, and supporting or even replacing various forms of cognitive work, are becoming deeply embedded in daily life and, notably, in higher education. This integration is transforming how knowledge is accessed, processed, and applied, prompting educators, institutions, and learners to reconsider established pedagogical paradigms (Rahiman & Kodikal, 2024; Zhang, Li, & Wu, 2025).

Despite the proliferation of GenAI tools in academic settings, a critical tension has emerged between the operational advantages these technologies offer and potential drawbacks to students' intellectual development and academic practices. Recent studies indicate that while students readily adopt GenAI for its efficiency and learning support capabilities (Cotton, Cotton, & Shipway, 2024), they also voice concerns about diminished critical thinking, reduced creativity, and threats to academic integrity (Kayalı et al., 2023). This ambivalence poses a significant challenge for higher education institutions seeking to harness GenAI's benefits without compromising educational quality or students' autonomy.

The urgency of this challenge is compounded by the fact that student perceptions and usage patterns are rapidly evolving, yet institutional responses often lag behind technological adoption (Sullivan, Kelly, & McLaughlan, 2023). Without an evidence-based understanding of how students conceptualize and experience GenAI across personal, social, and academic dimensions, institutions risk enacting policies that either suppress beneficial uses or fail to guard against genuine risks. Thus, comprehending students' perceptions is essential for developing balanced, evidence-informed approaches to the appropriate use of these tools.

Scholarly interest in AI applications within learning environments has evolved significantly from early investigations centered on adaptive learning systems and intelligent tutoring platforms to contemporary emphasis on LLMs and their broader implications (Chiu et al., 2023). This evolution has been accelerated by the public deployment of tools like ChatGPT, which has prompted a paradigmatic shift in how educators and students approach AI integration in academic contexts (Bond et al., 2024; Montenegro-Rueda et al., 2023).

The Technology Acceptance Model (TAM), originally introduced by Davis (1989), provides a foundational lens for understanding student engagement with GenAI tools, positing that Perceived Usefulness (PU)—the belief that a tool will improve performance—and Perceived Ease of Use (PEOU)—the degree to which the technology is seen as straightforward—shape user attitudes and adoption behaviors. Empirical studies within educational contexts find that positive perceptions of usefulness and usability strongly predict technology uptake (Lai, Cheung, & Chan, 2023; Ma et al., 2025; Saif et al., 2024). However, emerging research suggests that the TAM framework, while useful, may be insufficient for capturing the complex emotional and ethical dimensions of GenAI adoption in educational contexts (Yilmaz et al., 2023). Factors such as technological self-efficacy, compatibility with existing learning habits, alignment with pedagogical goals, and concerns about academic integrity also significantly influence students' willingness to adopt GenAI (Pinho, Franco, & Mendes, 2021). Disciplinary differences further complicate this picture: students in fields like engineering and architecture often exhibit higher affinity for digital innovation than those in the humanities and social sciences (Huedo-Martínez, Molina-Carmona, & Llorens-Largo, 2018), reflecting the interplay between technological familiarity and disciplinary culture in shaping engagement patterns. Additionally, cultural norms, regulatory policies, and educational values influence student attitudes, underscoring the necessity of context-sensitive analyses (Acosta-Enriquez et al., 2024).

Despite its novelty, a growing body of empirical studies have begun to explore student perceptions of GenAI, revealing a complex picture where perceived benefits often coexist with substantial concerns. On the positive side, ChatGPT and similar tools are widely viewed as valuable aids for learning enhancement, motivation, and personalization (Karakose & Tülübas, 2023). They offer immediate access to information and clarification, enabling students to navigate complex topics at their own pace (Holmes & Tuomi, 2022), and are praised for their capacity to provide continuous feedback, generate tailored recommendations, and support knowledge retention (Chan & Hu, 2023). Non-native speakers particularly benefit from GenAI support in improving academic writing through grammar refinement, structural enhancement, and coherence improvement (Erito, 2023; Hasanein & Sobaih, 2023). Beyond linguistic support, students leverage

GenAI for brainstorming, summarizing, and alleviating writer's block, functions that contribute to reduced cognitive load and increased productivity (Al-Obaydi, Pikhart, & Klimova, 2023), fostering learner autonomy and self-directed study, especially where immediate human support is unavailable. Furthermore, recent studies emphasize GenAI's role in cultivating analytical and metacognitive skills by facilitating information evaluation, prompting reflective thinking, and modeling inquiry-based approaches (Kosmyna et al., 2025). Many students also report viewing GenAI literacy as essential for future employment, advocating for its formal integration into university curricula (Lee, Hwang, & Chen, 2022).

Conversely, increasing reliance on GenAI introduces substantial pedagogical, ethical, and psychological challenges that distinguish this technology from previous educational tools. Students express concern about reduced interpersonal interaction, fearing diminished instructor roles and weakened peer-to-peer and teacher-student relationships, crucial for emotional and cognitive development (Idroes et al., 2023). These concerns reflect broader anxieties surrounding the dehumanization of education and the possible substitution of human insight with algorithmic reasoning. Academic integrity issues represent another critical dimension, as GenAI tools can generate content indistinguishable from student-written work, raising alarms about plagiarism, authorship, and intellectual honesty (Rawas, 2024). Technical limitations, including the fabrication of sources and production of plausible but inaccurate content (hallucinations), further undermine scholarly reliability and contribute to misinformation dissemination (Famaye et al., 2024; Farrokhnia et al., 2024; Rudolph, Tan, & Tan, 2023). Moreover, the underlying data used to train LLMs may contain cultural or linguistic biases, leading to the perpetuation of stereotypes and discriminatory outputs (Yu, 2024), with potentially harmful effects in multicultural learning environments and among under-represented student populations. Concerns have also been raised about overdependence on GenAI tools, which may limit students' ability to cultivate original thoughts, creativity, and critical reasoning (Ngo, 2023), with some students even reporting increased stress when these tools become inaccessible (Ajlouni, Abd-Alkareem Wahba, & Salem Almahaireh 2023). While student attitudes vary, a recurring theme is the demand for institutional transparency and support regarding acceptable GenAI use and structured training opportunities (Tierney, Peasey, & Gould, 2025), though many students remain unaware of existing policies (Malmström, Stöhr, & Ou, 2023). Beyond educational concerns, GenAI adoption intersects with broader societal anxieties about automation and labor market transformations, with students frequently expressing uncertainty about future career prospects due to job displacement fears and increased demand for specialized skills (Ghotbi, Ho, & Mantello, 2022).

While existing research has made valuable contributions to understanding GenAI adoption patterns, two critical gaps persist in the literature, gaps that this study seeks to address. First, most studies rely on quantitative methods, capturing prevalence and general patterns but failing to illuminate the interpretive frameworks and lived experiences through which students make sense of GenAI's impact (Xu et al., 2024). Qualitative investigations into how students conceptualize and emotionally respond to GenAI remain scarce, especially in non-Anglophone contexts, where cultural and linguistic factors may shape perceptions in idiosyncratic ways (Roberts et al., 2023). Recent qualitative studies, such as semi-structured interviews exploring "students' lived experience" with ChatGPT (Holland & Ciachir, 2025), or grounded-theory inquiries into Chinese users' behavioral inclinations (Liu & Zhang, 2024) exemplify this emerging direction. Second, the Italian higher education context remains underrepresented. Italy's distinctive cultural, regulatory, and pedagogical landscape likely shape student attitudes in ways not captured by global findings.

This study addresses these gaps by conducting the first large-scale investigation of Italian university students' perceptions of GenAI across personal, social, and academic domains. Departing from adoption-intention or general-attitude frameworks, it investigates the interpretive frameworks students use to understand GenAI's multifaceted impact. The study offers several key contributions to the existing literature: a) *Methodological Innovation*. By employing large-scale qualitative analysis (N=1,347) across 24 institutions, this study bridges the gap between the depth of qualitative inquiry and the generalizability typically associated with quantitative research, providing unprecedented scale for qualitative GenAI research in higher education; b) *Contextual Specificity*. It provides a comprehensive examination within the Italian higher education system, enriching an Anglo-centric literature with culturally situated insights and filling a notable national research gap; *Holistic Domain Analysis*.

Rather than focusing on isolated aspects of GenAI use, this study systematically examines student perceptions across personal, social, and academic dimensions, providing a holistic understanding of how students conceptualize GenAI's role in their lives; *Policy-Relevant Insights*. By foregrounding students' own

language and reasoning, it generates evidence-based recommendations for institutional policy development, pedagogical practice, and student support initiatives that are grounded in actual student experiences rather than theoretical assumptions.

The investigation is guided by three primary research questions that orient the empirical focus:
- RQ1: How, and to what extent, do university students perceive and describe the potential positive effects of GenAI on personal, social, and academic levels?
- RQ2: How, and to what extent, do university students perceive and describe the potential negative effects of GenAI on personal, social, and academic levels?
- RQ3: How can students' perceived advantages and disadvantages of GenAI be translated into actionable recommendations for higher education to strengthen technological governance and safeguard academic integrity?

Together, these questions aim to capture both the breadth and depth of student perceptions, identifying not only what students see as benefits and risks but also how they conceptualize and articulate these impacts. The systematic analysis of student responses across multiple domains will illuminate the complex ways students navigate the opportunities and challenges presented by GenAI integration in higher education.

In sum, existing literature portrays GenAI tools in higher education as embodying a fundamental tension: they hold significant promise for advancing learning, autonomy, and skill development, yet they also introduce significant challenges concerning accuracy, ethics, equity, and cognitive development. Addressing this complexity requires systematic inquiry. Through a comprehensive qualitative study of student perceptions across Italian universities, this research provides the empirical foundation for evidence-informed policy, pedagogical innovation, and student support strategies that harness GenAI's transformative potential in higher education. By centring student voices, the findings aim to enrich current debates on GenAI integration and guide institutional responses to this technological shift.

2. Material and Methods

The study, approved by the Ethics Committee of the Department of Mathematics, Informatics and Physics of the University of Udine, is based on an online questionnaire. The initial phase involved the dissemination of an invite to participate, accompanied by the research prospectus, to the Public Relations Offices of all 97 Italian universities (for the list: MUR, 2024). The URPs were invited to forward the survey to the institutional mailing lists of all their students at all levels of education. The questionnaire was disseminated to students, at the 24 Italian universities that decided to distribute it, between October 2023 and March 2024.

The convenience sample (Galloway, 2005) consists of 1,347 Italian university students who completed the questionnaire (70% aged 18–25 years; prevalence from STEM fields, likely reflecting a bias linked to their specific interest in the study topic). The characteristics of the sample are presented in Table 1.

Table 1: Sample Characteristics.			
1,347 Italian Students		**24 Italian Universities**	
Male	56%	Prevalent universities	Politecnico di Torino, University of Parma, E-campus, University of Udine, University of Salerno, IUSVE
Female	42.4%		
Other	1.6%		
Mean age	26.02 years (SD=9.291)	Disciplinary distribution (MUR, 2024)	Industrial/Computer Engineering (26.5%)
Median age	23 years		Computer Science and ICT (20.2%)
Modal	19 years		Natural Sciences (8.8%)
Skewness	2.044; SE=0.067		Psychology (7.1%)
Three-year courses	63%		Economics (6.6%)
Master's courses	33.9%		Humanities and Philosophy (6.2%)
Postgraduate	3.2%		Other (24.6%)

This paper presents a qualitative analysis of open-ended responses provided to two questions: "In your opinion, what are the main advantages (disadvantages) associated with the diffusion of ChatGPT (or similar systems)?". A total of 2,682 open-ended responses were collected: 1,344 (3 missing) for the question about advantages and 1,338 (9 missing) for the question about disadvantages.

All 2,682 responses were analysed using: (1) extensive preliminary reading; (2) manual coding with the assistance of MaxQDA software. The preliminary reading allowed for the identification of 16 distinct codes, seven for the advantages (Table 2) and nine for the disadvantages (Table 3).

The coding process did not follow the principle of exclusivity: different responses (or parts of them) were coded with multiple codes whenever their complexity and articulation contained meanings or nuances that we considered useful to report in several codes. Two researchers carried out the analysis independently. At the end of this phase, the results were compared and harmonised. The data encoded were then subjected to two types of synthesis: a qualitative analysis to identify the typical responses given by students in each category (the "pivotal phrase") and a quantitative reconstruction to assess the most prevalent topics. Please note that, in the results, all parts of the text enclosed in double guillemets represent exact quotations of answers (or extracts of answers) provided by the students, translated into English by the authors.

3. Results
3.1. Advantages

A significant proportion of the advantages identified in the students' responses (695 answers coded, 41.6% of total number of imputed codes in all responses pertaining to advantages) can be classified under the thematic category designated as "operational advantages" (Table 2). This domain exemplifies the efficacy of GenAI in accelerating processes and enhancing simplicity, especially in contexts characterised by having a time-consuming or repetitive nature. In particular, «the ability to perform a task much faster than a human being» is widely recognised, and so the potential energy savings in such situations where «speed of execution» is a key factor. The efficacy of GenAI becomes clear when it comes to «speeding up monotonous and routine tasks» or managing activities that «would require enormous time and effort», thereby enabling the redistribution of cognitive resources. Some emphasise how, thanks to ChatGPT, it is possible to «automate certain basic processes and activities» or even obtain «speed in formulating text» or «speeding up code writing». The most recurrent effect, according to the students, is the perception of «obtaining a sufficiently acceptable result with a minimum of effort», making it possible to «simplify and reduce human work through targeted answers».

Table 2: Codes and Descriptions of Perceived GenAI Advantages			
Code	Illustrative Phrase	N°	%
Operational Benefits	AI speeds up/simplifies cognitive time-consuming or repetitive tasks (in study/everyday life) by reducing steps as well as saving time, effort, and energy	695	41.6
Information Benefits	AI provides fast, tailored, and synthesised access to clear information—especially on complex topics—reducing the need for numerous sources and high cognitive load	239	14.3
Training Benefits	AI enhances quick, personalised understanding of complex topics through clear, interactive, and adaptive explanations	182	10.9
Advantages Accessibility	AI enables instant access to knowledge across different contexts/devices—reducing cognitive, technical, and physical barriers. It also supports inclusivity (e.g., learning disabilities)	177	10.6
Creative Advantages	AI stimulates creative thinking, offers alternative views, helps overcome creative blocks, and supports structuring original projects	162	9.7
Other non-codifiable	Incoherent, off-topic, or unclear answers ("don't know", "never used", "no advantages").	160	9.6
Professional Benefits	AI automates routine tasks, improves personal/organisational productivity, optimises workflows, and supports work–life balance.	54	3.2
	Total	1669	100

The second most recurrent subject area (14.3%) is "information benefits". The students appreciate the rapid, tailored, and synthesised access to information (that they often define as «clear and detailed») without the need to search for and through multiple sources. They emphasise the immediacy of information retrieval, describing ChatGPT as a tool that «allows you to learn about a topic precisely, without having to search through various sites». Moreover, it is not just a matter of speed, as students also stress a reworking of content that reduces cognitive load: «being able to find and condense a lot of information on a certain topic in a not very long text». Further, the ability of GenAI to adapt to the user's level and language is explicitly appreciated, as in the case where a student observes that ChatGPT provides «well-argued answers, clear

examples» and «more precise and personalised explanations». This sort of facilitated access is especially helpful for specialised content or content that is difficult to find.

"Training benefits" are traced in 10.9% of the imputed codes. GenAI is a «valuable support for completing academic tasks in less time and with less effort». Similarly, GenAI «facilitates the creation of papers or projects, offering practical and immediate support in daily study activities». Many students emphasised the value of GenAI in facilitating comprehension of challenging academic subjects: «it allows you to easily understand hostile topics» and «make understandable complex and broad concepts by expressing them in a concise and simple manner». The clarity of the explanations offered is perceived as a distinguishing feature of GenAI: «it often helps to understand questions that are not clear from books» and «it makes it easier for the student to understand concepts that are perhaps difficult, since it is possible to ask them several times to explain the concept using perhaps simpler terms».

A further strength lies in the possibility to obtain personalised and immediate answers, adapted to one's own level of understanding: «it easily adapts to the level of in-depth study desired by the user» and «it is possible to 'work' with ChatGPT to better understand and pose a counter-example to assess whether one has understood the concept well or not». Furthermore, the dialogic function of GenAI is enhanced, allowing the student to have a continuous bilateral exchange: «to have someone to submit a dilemma on a task, other opinions» and «to be able to learn things with an entity that explains and re-explains without ever getting bored». In this way, GenAI is perceived as a real study support tool, capable of filling gaps and reinforcing autonomous learning.

Still above 10% of the input codes (10.6%), we find the most pronounced advantages revolve around "accessibility". The students emphasise how GenAI allows for «pocket-sized help, always with me wherever I go» and «a large encyclopaedia at my fingertips», underlining the possibility of accessing information even on the move. This accessibility also translates into the reduction of cognitive barriers through simplified and dialogic interaction, as earlier mentioned. At the same time, on the level of "cognitive democratisation", several students highlight how GenAI favours the inclusion of users with different upstream skills («knowledge becomes within everyone's reach»; «anyone who is aware of this tool can access any kind of information») as well as bringing out the dimension of accessibility in the strict sense, referring to special educational needs, for example: «it can be useful to help people with DSA find some ideas and information».

We also find several answers that can be summarised in the concepts of "creative" (9.7%) and "professional" (3.2%) advantages. Many students point to the role of GenAI in enhancing creative thinking and generating new ideas: «it stimulates creativity»; «it can point you towards the solution». The system is also recognised for its ability to provide alternative perspectives and unconventional points of view, useful to reformulate one's own vision: «see things from another, perhaps more objective point of view, but not necessarily be influenced». In situations of creative blockage, ChatGPT is perceived as a valuable form of support to "get unstuck" and start on a project path: «to maybe give a cue»; «rather than to get it to do things for me, I use it to get ideas». Its usefulness further extends to support in the initial structuring phase of complex work, acting as an "outline" or operational base: «to have a base on which to start one's work/project/research».

The "professional advantages" largely follow the same concepts expressed in the "educational advantages", simply transposed to the work environment. As one participant said, «automating repetitive, mundane and time-consuming tasks» is one of the main benefits of GenAI. Such automation results in tangible improvements in productivity, both individual and organisational: «AI permits increased productivity in most fields». In addition, the responses point to an optimisation of workflows: GenAI makes it possible to «optimise the performance of mundane tasks to focus on the critical parts». Furthermore, a positive impact on the quality of working life is expressed, thanks to reducing the cognitive load associated with more mechanical tasks, and this has positive effects on life, as indicated by the response: «speeding up work → improving work-life balance».

The code "Other" (9.6%) contains (in addition to incomprehensible, off-topic, or truncated responses) a series of frequent statements that highlight the cognitive or experiential distance from the GenAI tool: «I don't know what it is, I've never used it and I don›t intend to use it in the future». In other cases, negative judgments emerged in an unarticulated sense, with responses like «no advantages» or «I think there are no advantages but only "shortcuts" with such a tool».

3.2. Disadvantages (and risks)

The most frequently cited disadvantages in the students' responses (Table 3) pertain to the subject

categories of "cognitive & learning risks" (529 imputed codes; 29.6% of the total codes of disadvantages) and "problematic behaviours" (23.6%).

A considerable number of responses emphasise how the use of GenAI tools can undermine the development and maintenance of independent and critical thinking («one stops thinking and doing independently»; «lack of critical thinking»). Indeed, many of the responses blame the excessive use of GenAI for a progressive reduction in the capacity for autonomous judgement. Associated with this is a widespread perception of the "annihilation of human creativity" («AI kills the creative process») and the theme of cognitive laziness («gradually we will become so lazy that we will not be able to write or express opinions without the use of the medium»), both of which emphasise the risk of increasing disengagement in cognitive tasks. Many also point to the danger of a reduction in skills and motivation: «we are losing that which is personal curiosity, that which leads us to research and discover» and «it does not stimulate people to reason».

Table 3: Codes and Descriptions of Perceived GenAI Disadvantages.			
Code	Illustrative Phrase	N°	%
Cognitive & learning risks	AI hinders critical/independent thinking; fosters cognitive laziness; reduces creativity/ engagement/development of autonomous problem-solving skills; leads to intellectual dependence and standardisation of thought	529	29.6
Problematic behaviour	AI overuse leads to mental laziness, low engagement, loss of original thinking, and over-reliance on GenAI for problem-solving	422	23.6
Tech limitations & reliability	AI generates errors and unverifiable content due to opaque data sources and reasoning (careful interpretation is required)	276	15.4
Socio-cultural impacts	AI encourages standardised thinking, reduces diversity and expression, weakens real-world social bonds and the richness of human connectedness	141	7.9
Ethical issues	AI raises ethical concerns about plagiarism, cheating, personal data misuse, intellectual property violations, lack of transparency, erosion of merit, and responsibility	130	7.3
Educational issues	AI undermines study motivation, weakens key academic skills (writing, reasoning, and autonomy), distorts assessment fairness (with consequent demotivation of committed students), and impedes academic skill development	111	6.2
Other (not categorizable)	Incoherent, off-topic, or unclear answers ("don't know", "no disadvantages")	102	5.7
Professional concerns	AI threatens employment and devalues human input, especially in creative and knowledge-based sectors; risks disruption of entire professional domains	47	2.6
Systemic & dystopian risks	Uncontrolled use of GenAIs may harm democracy and privacy; it may spread disinformation; concentrate power in a few hands, risking surveillance, manipulation, and fears of uncontrollable or "sentient" GenAI	32	1.8
	Total	1790	100

A recurring theme is the risk of negative and/or problematic behaviours, established as a result of the use of GenAI. There is concern of the risk that excessive use of ChatGPT weakens personal engagement or independent/individual thinking. Numerous participants report a form of cognitive laziness, i.e., a tendency to rely on the tool to avoid mental effort: «people get lazy»; «the human brain shuts down». This laziness is often associated with a progressive deresponsibility: «you rely too much on it, without trying to refute it»; «you no longer try to do a task yourself because you think ChatGPT will do it better». Some students point to a loss of critical thinking and verification skills: «people believe everything they read, there is no verification of information written by an AI». In addition, there is the risk of functional dependency and systematic delegation of cognitive tasks: «someone could get used to asking ChatGPT everything even at the first difficulty, without thinking much about the problem»; «getting lazy and using them as the only answer». Finally, several participants describe a flattening of individual expressive abilities: «it could make students very dependent so that they cannot write a couple of words on their own»; «it nullifies the intellectual abilities of the subjects who become automatons of a robot».

A significant proportion of the responses (15.4%) were categorised as "technological limitations & reliability". A consensus emerges on the unreliability of the information provided by GenAI, due to technical limitations and the opacity of the generation processes: «it often makes mistakes and wastes your time», or «if it doesn't know the answer completely, it starts inventing, combining reality and fiction». Added to this is the difficulty in verifying sources: «the source of information is uncertain, so the generation of answers is not always reliable». The students denounce a general opacity in the functioning of the system, which

makes it impossible to understand how the answers are processed: «the information is not error-free, and if you ask ChatGPT 'are you sure?' with respect to the generated answer, he changes his mind several times». For these reasons, many emphasise the need to adopt a critical and vigilant attitude: «one should always double-check the information that is given, especially to questions that are too specific».

Much less frequent, but still relevant, are the codes related to "socio-cultural impacts" (7.9%), "ethical issues" (7.3%), and "educational issues" (6.2%). Regarding socio-cultural impacts, themes emerge that overlap with those outlined in the previous codes but are, here, "elevated to a systemic level". Students express concern about increasing cognitive standardisation («AI leads to standardisation of thinking»; «uniformity of thought and work»). In addition, a reduction in the diversity of expression and personal identity is perceived, compromised by content that tends to flatten subjective uniqueness («there is no more growth») and the denunciation of a «loss of diverse thinking and 'humanity'». A weakening of social ties and "authentically human" forms of interaction is also detected, with many emphasising the «loss of physical communication», the «absence of empathy», and the feeling that these tools «frustrate human contact». In this sense, the students describe a scenario in which the propagation of GenAI compromises not only the variety of cultural expressions, but also the quality and depth of interpersonal relationships.

The codes related to "ethical issues" are varied and articulated. We find the fear of «inappropriate and transparent use of users' personal data» or, more bluntly, the «theft of data from millions of unsuspecting users». Many students highlight concerns about the infringement of intellectual property: «it does not protect intellectual rights»; «it steals from artists and damages our current understanding of copyright». Finally, some answers mention the risk of such tools being used for deception, misinformation, or manipulation (e.g., «use of new technology for fraud, theft, and false identities»; «possible fraudulent use of the tool to manipulate and deceive others»).

Regarding the code related to "educational issues", one of the most recurring themes is the possibility that, with GenAI, «the learning process is thwarted» with direct repercussions on training and the ability to tackle complex problems autonomously. A recurrent theme is the risk of plagiarism and deception: «it is like cheating»; «some people use it to copy or in other unhelpful ways». Several students express their concerns about the negative impact of GenAI on motivation to study («[ChatGPT may] demoralise the ability to study») or on core academic skills such as writing and reasoning («written production and loss of personal critical thinking»; «writing skills will worsen because the AI will write for you»). Several participants point out how the extensive use of these tools compromises the development of an autonomous study method as well as the ability to deal with complex university tasks: «if used in the wrong way (doing the task totally with it) it does not help the student in obtaining the skills». Finally, some students emphasise the risk of injustice in the assessment system, with the erosion of personal merit and the loss of ethics in learning which can demoralise those who take their academic integrity seriously: «deprivation of merit»; «it defeats the purpose and meaning of student work assessments»; «it is more difficult to distinguish talent from copying, it amplifies the scepticism of professors that have to evaluate»;
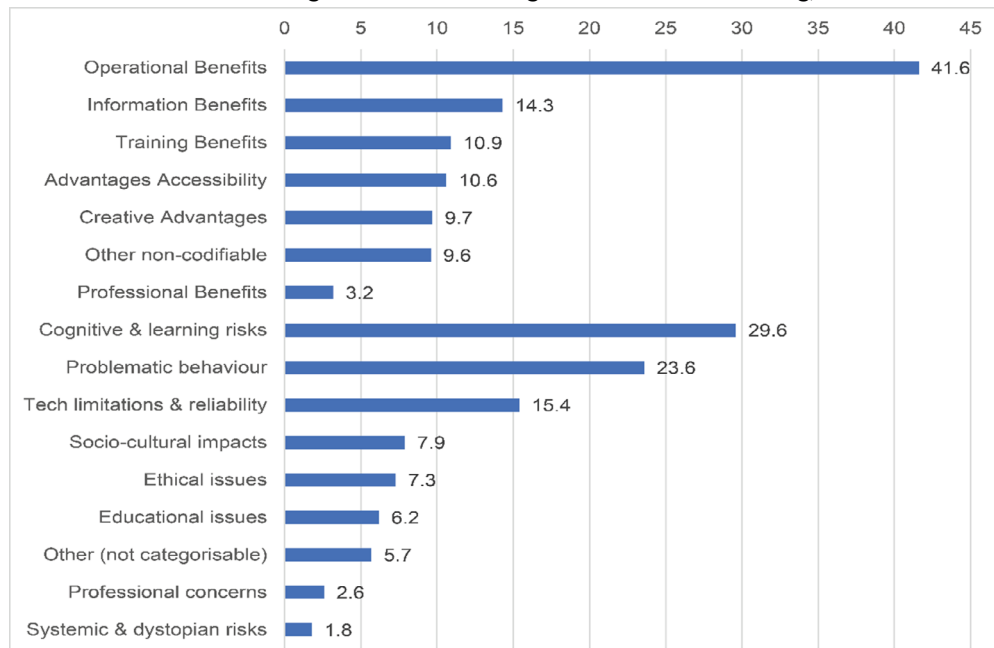
Quantitatively residual, but interesting, are the codes related to "professional concerns" and "systemic & dystopian risks". Many point to the direct threat to jobs («it will take away jobs»; or simply «unemployment»), but this perception is often accompanied by a reflection on the devaluation of human contribution, especially in creative industries («professionals 'lose' their jobs and artistic products are no longer the result of artists' emotional needs»). In several cases, the concern extends beyond the individual, affecting entire industries: «it could easily replace many tasks hitherto performed by people»; «I am thinking about the strikes by writers and actors during the summer of 2023».

The issue of "systemic & dystopian risks" relates to the concern that use of GenAI has the potential to compromise fundamental values like democracy and privacy. Some students express fears about the concentration of technological and informational power: «if such technology were to actually catch up with or surpass human intelligence, the few who control it would find themselves with disproportionate power». Data misuse and surveillance emerge as risks («misuse of data that could be used for individual surveillance») along with the spread of misinformation, to the point of fully dystopian scenarios, fearing that «AI could become self-aware» or that «uncontrolled and destructive use could result».

Finally, the "Other" code (5.7%) contains answers that are incomprehensible, off-topic, or that emphasise such a distance from the tool that one cannot express an opinion on it. It is worth noting, however, the significant presence of a general uncertainty or confusion with respect to the topic («dunno», «I wouldn't

know where to start») as well as a smaller proportion of answers that tend to deny the existence of disadvantages, instead claiming that disadvantages depend primarily on the use of the technologies: «I don't think there are any disadvantages, if used in the right way it only brings benefits»; «for the moment I don't think there are any disadvantages, especially if used sparingly and with awareness» (Figure1).

Figure 1: Perceived Advantages and Disadvantages of GenAI (% within the total imputed instances of advantages and disadvantages; non-exclusive coding).

4. Discussion and Conclusion

The data emerging from the analysis suggest that the advantages of GenAI (RQ1) focus on practical and instrumental aspects, while the disadvantages (RQ2) mainly concern systemic or cognitive issues. In other words, the positive aspects of GenAI are considered to be practical, tangible and "close", while its disadvantages are viewed as more "distant", social, or future-oriented (a future characterised by mental laziness, inability to judge, and detriment to typically human abilities).

With regard to the specific impact of GenAI on the educational process, an even more explicit contradiction emerges: the predominant perspective emphasises the enhancement of learning mechanisms, comprehension, and "constructive dialogue" with the machine (RQ1); conversely, a notable minority opinion denounces their deterioration, characterised by a progressive inability to independently engage with complex activities and a detriment to the merit and integrity of the educational process itself (RQ2).

Although a minority of students offer opinions that are clearly positive or negative, the majority provide responses that are both conflicting and contradictory. This inherent ambiguity regarding the prospective implications of GenAI on the educational process is consistent with the findings of existing literature, as previously delineated in the introduction.

In light of the fact that it is impossible to determine today which of these dynamics will prevail (and assuming that this technological revolution is impossible to stop with controls or bans), a range of operational considerations emerge (RQ3). Firstly, it is imperative to emphasise the importance of GenAI literacy, not only among students but also among teaching professionals (and indeed at the broader societal level). AI literacy should encompass the ability to optimise the positive aspects (operability, speed, informativeness, dialogue, customisation, accessibility) while minimising the negative ones (passivity, mental laziness, lack of critical thinking, "sense of fraud"). In this regard, structured professional development for teachers aligned with the

European Commission's Ethical Guidelines on the use of AI and data in teaching and learning for educators (European Commission, 2022) and coherent with institution-wide principles for ethical AI use (Jisc, 2024; UNESCO, 2023) would be beneficial. This training should cover several non-negotiable pillars, namely: 1) transparency towards learners (in terms of use, proper attribution and disclosure); 2) human oversight in assessment; 3) privacy and data protection (in accordance with the General Data Protection Regulation); 4) fairness, bias and inclusion; 5) technical robustness and safety; and 6) accountability and documentation.

Concurrently, there is a necessity for targeted training programmes for students that address personalised guidance pathways, integrated study strategies, and general "AI practices" where students can experiment under the supervision of qualified staff while reflecting on critical issues (e.g., reliability, over-reliance, problematic behaviours). By "personalised student guidance initiatives", we refer to needs-based pathways that: 1) start from an assessment of AI skills and privacy preferences; 2) provide discipline-specific micro-modules with explicit guidelines on AI use; 3) offer supervised AI "sandboxes" to practise prompting, source-checking and bias detection with short reflective logs; and 4) include accessibility/language support and periodic checks to prevent over-reliance and to enforce clear disclosure standards for AI assistance (European Commission, 2022; Jisc, 2024; UNESCO, 2023).

In order to counteract uncertainty and doubts about the integrity of the use of these tools in the educational process, it is important that universities develop clear guidelines and rules that promote the ethical and effective use of GenAI. Rather than imposing bans (a practice which, in accordance with the findings presented here, is unwelcome to students) it is preferable for universities to establish guidelines that encompass: 1) the requirement for transparent disclosure of AI assistance and appropriate attribution in coursework; 2) the specification of permitted and prohibited uses by task and assessment type; 3) the protection of privacy and intellectual property; 4) the mandate of human oversight, accountability and contestability for AI answers; and 5) the inclusion of procedures to monitor accuracy, bias and reliability. These components are consistent with international guidance (UNESCO, 2023) and, in the EU context, with the AI Act's transparency obligations and high-risk classifications that cover educational uses of AI (European Parliament & Council, 2024).

The primary challenge is to cultivate technological governance competencies that enable students to navigate GenAI consciously, protect intellectual autonomy and ethical responsibility, and still benefit from its operational efficiency. In higher education, staff development and personalised student guidance enable the redesign of assessment with integrity guarantees, strengthen students' capacity for critical evaluation and transparent disclosure of AI use, and align the education system with the new context by supporting responsible adoption and reducing the risks discussed in this paper.

The same reasoning applies to society as a whole, which is also exposed to both potential positive and negative effects. It is only through enhanced literacy and widespread knowledge (both practical and critical) of the benefits and risks of GenAI systems that our societies can attempt to shape the future to maximise advantages and mitigate disadvantages. The future of GenAI integration in our societies will be significantly influenced by the capacity to cultivate a well-developed technological culture that encompasses the individual, social, and systemic dimensions, promoting a utilisation of technology that enhances rather than substitutes fundamental human capabilities.

References

Acosta-Enriquez, B. G., Arbulú Ballesteros, M. A., Huamaní Jordan, O., López Roca, C., & Saavedra Tirado, K. (2024). Analysis of college students' attitudes toward the use of ChatGPT in their academic activities: effect of intent to use, verification of information and responsible use. *BMC Psychology*, *12*(1), 255. https://doi.org/10.1186/s40359-024-01764-z

Ajlouni, A. O., Abd-Alkareem Wahba, F., & Salem Almahaireh , A. (2023). Students' Attitudes Towards Using ChatGPT as a Learning Tool: The Case of the University of Jordan. *International Journal of Interactive Mobile Technologies (iJIM)*, *17*(18), 99-117. https://doi.org/10.3991/ijim.v17i18.41753

Al-Obaydi, L. H., Pikhart, M., & Klimova, B. (2023). ChatGPT and the general concepts of education: Can artificial intelligence-driven chatbots support the process of language learning? *International Journal of Emerging Technologies in Learning (iJET)*, *18*(21), 39-50. https://doi.org/10.3991/ijet.v18i21.42593

Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., et al. (2024). A meta systematic review of artificial intelligence in higher education: a call for increased ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education*, *21*(1), 4. https://doi.org/10.1186/s41239-023-00436-z

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20*(1), 43. https://doi.org/10.1186/s41239-023-00411-8

Chiu, T. K. F., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, *4*, 100118. https://doi.org/10.1016/j.caeai.2022.100118

Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, *61*(2), 228-239. https://doi.org/10.1080/14703297.2023.2190148

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319-340. https://doi.org/10.2307/249008

Deng, R., Jiang, M., Yu, X., Lu, Y., & Liu, S. (2025). Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies. *Computers & Education*, *227*, 105224. https://doi.org/10.1016/j.compedu.2024.105224

Erito, S. N. P. (2023). Exploring ESP Students' Perception toward the Potential of Artificial Intelligence to Promote Students' Self-Efficacy in English Writing Skill. *Journal of English Language Learning (JELL)*, *7*(2), 457-464. https://doi.org/10.31949/jell.v7i2.7598

European Commission. (2022). *Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators*. Publications Office of the European Union. https://doi.org/10.2766/153756

European Parliament & Council. (2024). *Regulation (EU) 2024/1689 of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*. *Official Journal of the European Union* [incl. Annex III]. https://bit.ly/4mOSKoT

Famaye, T., Bailey, C. S., Adisa, I., & Irgens, G. A. (2024). "What Makes ChatGPT Dangerous is Also What Makes It Special": High-School Student Perspectives on the Integration or Ban of Artificial Intelligence in Educational Contexts. *International Journal of Technology in Education*, *7*(2), 174-199. https://doi.org/10.46328/ijte.651

Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2024). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, *61*(3), 460-474. https://doi.org/10.1080/14703297.2023.2195846

Galloway, A. (2005). Non-Probability Sampling. In K. Kempf-Leonard (Ed.), *Encyclopedia of Social Measurement* (pp. 859-864). Elsevier. https://doi.org/10.1016/B0-12-369398-5/00382-0

Ghotbi, N., Ho, M. T., & Mantello, P. (2022). Attitude of college students towards ethical issues of artificial intelligence in an international university in Japan. *AI & Society*, *37*(1), 283-290. https://doi.org/10.1007/s00146-021-01168-2

Hasanein, A. M., & Sobaih, A. E. E. (2023). Drivers and Consequences of ChatGPT Use in Higher Education: Key Stakeholder Perspectives. *European Journal of Investigation in Health, Psychology and Education*, *13*(11), 2599-2614. https://doi.org/10.3390/ejihpe13110181

Holland, A., & Ciachir, C. (2025). A qualitative study of students' lived experience and perceptions of using ChatGPT: immediacy, equity and integrity. *Interactive Learning Environments*, *33*(1), 483-494. https://doi.org/10.1080/10494820.2024.2350655

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, *57*(4), 542-570. https://doi.org/10.1111/ejed.12533

Huedo-Martínez, S., Molina-Carmona, R., & Llorens-Largo, F. (2018). Study on the Attitude of Young People Towards Technology. In P. Zaphiris & A. Ioannou (Eds.), *Learning and Collaboration Technologies. Learning and Teaching* (pp. 26-43). Springer International Publishing. https://doi.org/10.1007/978-3-319-91152-6_3

Idroes, G. M., Noviandy, T. R., Maulana, A., Irvanizam, I., Jalil, Z., Lensoni, L., et al. (2023). Student Perspectives on the Role of Artificial Intelligence in Education: A Survey-Based Analysis. *Journal of Educational Management and Learning*, *1*(1), 8-15. https://doi.org/10.60084/jeml.v1i1.58

Jisc. (2024, February 1). *Generative AI – A Primer* [updated ed.]. Jisc. https://bit.ly/47CQuMX

Karakose, T., & Tülübas, T. (2023). How Can ChatGPT Facilitate Teaching and Learning: Implications for Contemporary Education. *Educational Process: International Journal*, *12*(4), 7-16. https://doi.org/10.22521/edupij.2023.124.1

Kayalı, B., Yavuz, M., Balat, Ş., & Çalışan, M. (2023). Investigation of student experiences with ChatGPT-supported online learning applications in higher education. *Australasian Journal of Educational Technology*, *39*(5), 20-39. https://doi.org/10.14742/ajet.8915

Kosmyna, N., Hauptmann, E., Yuan, Y. T., Situ, J., Liao, X.-H., Beresnitzky, A. V., et al. (2025). Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task. *arXiv preprint arXiv:2506.08872*. https://doi.org/10.48550/arXiv.2506.08872

Lai, C. Y., Cheung, K. Y., & Chan, C. S. (2023). Exploring the role of intrinsic motivation in ChatGPT adoption to support active learning: An extension of the technology acceptance model. *Computers and Education: Artificial Intelligence*, *5*, 100178. https://doi.org/10.1016/j.caeai.2023.100178

Lee, Y.-F., Hwang, G.-J., & Chen, P.-Y. (2022). Impacts of an AI-based chabot on college students' after-class review, academic performance, self-efficacy, learning attitude, and motivation. *Educational Technology Research and Development*, *70*(5), 1843-1865. https://doi.org/10.1007/s11423-022-10142-8

Liu, Z., & Zhang, W. (2024). A qualitative analysis of Chinese higher education students' intentions and influencing factors in using ChatGPT: a grounded theory approach. *Scientific Reports*, *14*(1), 18100. https://doi.org/10.1038/s41598-024-65226-7

Ma, J., Wang, P., Li, B., Wang, T., Pang, X. S., & Wang, D. (2025). Exploring User Adoption of ChatGPT: A Technology Acceptance Model Perspective. *International Journal of Human–Computer Interaction*, *41*(2), 1431-1445. https://doi.org/10.1080/10447318.2024.2314358

Malmström, H., Stöhr, C., & Ou, A. W. (2023). *Chatbots and other AI for learning: A survey of use and views among university students in Sweden* (Chalmers Studies in Communication and Learning in Higher Education, 1). Chalmers University of Technology. https://doi.org/10.17196/cls.csclhe/2023/01

Montenegro-Rueda, M., Fernández-Cerero, J., Fernández-Batanero, J. M., & López-Meneses, E. (2023). Impact of the Implementation of ChatGPT in Education: A Systematic Review. *Computers*, *12*(8), 153. https://doi.org/10.3390/computers12080153

MUR. (2024). *Istituzioni universitarie accreditate*. http://bit.ly/4mFuAxa

Ngo, T. T. A. (2023). The Perception by University Students of the Use of ChatGPT in Education. *International Journal of Emerging Technologies in Learning (iJET)*, *18*(17), 4-19. https://doi.org/10.3991/ijet.v18i17.39019

Pinho, C., Franco, M., & Mendes, L. (2021). Application of innovation diffusion theory to the E-learning process: higher education context. *Education and Information Technologies*, *26*(1), 421-440. https://doi.org/10.1007/s10639-020-10269-2

Popenici, S. (2022). *Artificial Intelligence and Learning Futures: Critical Narratives of Technology and Imagination in Higher Education*. Routledge. https://doi.org/10.4324/9781003266563

Rahiman, H. U., & Kodikal, R. (2024). Revolutionizing education: Artificial intelligence empowered learning in higher education. *Cogent Education*, *11*(1), 2293431. https://doi.org/10.1080/2331186X.2023.2293431

Rawas, S. (2024). ChatGPT: Empowering lifelong learning in the digital age of higher education. *Education and Information Technologies*, *29*(6), 6895-6908. https://doi.org/10.1007/s10639-023-12114-8

Roberts, H., Babuta, A., Morley, J., Thomas, C., Taddeo, M., & Floridi, L. (2023). Artificial intelligence regulation in the United Kingdom: a path to good governance and global leadership? *Internet Policy Review*, *12*(2), 1-31. https://doi.org/10.14763/2023.2.1709

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education? *Journal of Applied Learning & Teaching*, *6*(1), 342-363. https://doi.org/10.37074/jalt.2023.6.1.9

Saif, N., Khan, S. U., Shaheen, I., Alotaibi, F. A., Alnfiai, M. M., & Arif, M. (2024). Chat-GPT; validating Technology Acceptance Model (TAM) in education sector via ubiquitous learning mechanism. *Computers in Human Behavior*, *154*, 108097. https://doi.org/10.1016/j.chb.2023.108097

Sullivan, M., Kelly, A., & McLaughlan, P. (2023). ChatGPT in higher education: Considerations for academic integrity and student learning. *Journal of Applied Learning & Teaching*, *6*(1), 31-40. https://doi.org/10.37074/jalt.2023.6.1.17

Tierney, A., Peasey, P., & Gould, J. (2025). Student perceptions on the impact of AI on their teaching and learning experiences in higher education. *Research and Practice in Technology Enhanced Learning*, *20*, 005. https://doi.org/10.58459/rptel.2025.20005

UNESCO. (2023). *Guidance for Generative AI in Education and Research*. UNESCO. https://doi.org/10.54675/EWZM9535

Xu, X., Su, Y., Zhang, Y., Wu, Y., & Xu, X. (2024). Understanding learners’ perceptions of ChatGPT: A thematic analysis of peer interviews among undergraduates and postgraduates in China. *Heliyon*, *10*(4), e26239. https://doi.org/10.1016/j.heliyon.2024.e26239

Yilmaz, H., Maxutov, S., Baitekov, A., & Balta, N. (2023). Student Attitudes towards Chat GPT: A Technology Acceptance Model Survey. *International Educational Review*, *1*(1), 57-83. https://doi.org/10.58693/ier.114

Yu, H. (2024). The application and challenges of ChatGPT in educational transformation: New demands for teachers' roles. *Heliyon*, *10*(2), e24289. https://doi.org/10.1016/j.heliyon.2024.e24289

Zhang, W., Li, A. W., & Wu, C. (2025). University students' perceptions of using generative AI in translation practices. *Instructional Science*, *53*(4), 633-655. https://doi.org/10.1007/s11251-025-09705-y