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Attitudes Towards the Use of Generative AI in Education: Triangulating the Perspectives of Students, Teachers, and Industry Professionals

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Abstract. The rapid emergence of generative artificial intelligence (genAI) has transformed nearly every sector, with education experiencing particularly widespread and complex changes. From lesson planning to essay writing, genAI tools are now embedded in students' and educators' daily practices. While existing research has explored educational outcomes and pedagogical strategies, there remains a critical gap in understanding how key stakeholders- students, teachers, and industry professionals- perceive this technology and what implications these views may hold for implementation. Many prior studies have been limited by narrow participant pools (e.g., focusing only on students), short-term survey-based methods, or exclusion of broader social and professional perspectives, making it difficult to formulate responsive and inclusive policy frameworks. To address these limitations, the present study employed a qualitative, interview-based methodology to examine the perspectives of 27 students, 7 industry professionals, and 2 teachers. Through inductive thematic analysis, the study surfaced both shared and group-specific concerns and aspirations. Findings reveal that participants widely view genAI as a powerful learning and productivity tool, yet express concern about academic dishonesty, overreliance, and diminished critical thinking. All groups emphasized the need for ethical guidelines and skill development frameworks. These findings are important because they foreground the lived experiences of multiple educational stakeholders, revealing that responsible integration of genAI must be collaborative, equity-driven, and responsive to both educational and workforce needs.

Keywords: genAI, education, ethics

1. Introduction

The public launch of ChatGPT in November 2022 catalyzed rapid mainstream adoption of generative AI (GenAI), with usage soaring across sectors including business, journalism, and education. Researchers documented its uptake by educators using GenAI to draft lesson plans, generate assessment items, and provide automated feedback, and by students leveraging it for writing assistance, idea generation, summarizing readings, and coding support. Studies across higher education arenas report both enthusiasm for GenAI's ability to personalize learning and persistent

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concerns about plagiarism, hallucinated outputs, and the erosion of critical thinking [1]. This sudden ubiquity has substantial implications: educators must reimagine pedagogical design and integrity enforcement, while students risk over-reliance and diminished ownership of their learning, potentially undermining cognitive development and ethical awareness.

For example, [2] conducted a systematic review, beginning with 625 studies and narrowing to 355 via the PRISMA methodology, and identified key themes in the use of generative AI for teaching and learning in higher education, including content generation, feedback automation, and the pressing need for interdisciplinary policy and equity research. Similarly, [3] conducted a systematic scoping review of 118 peerreviewed papers published since 2017, identifying 53 use cases- including grading, feedback, and content generation-and highlighting practical and ethical challenges such as low technological readiness, lack of replicability and transparency, and insufficient consideration of beneficence and privacy. A critical scoping review by [4] examined agency in generative AI–enabled educational environments, identifying tensions between personalization and learner autonomy, as well as the risk of exacerbating inequality through variable access and control. Collectively, these reviews underscore both the pedagogical opportunities and the complex ethical, practical, and equity challenges of integrating generative AI into higher education, highlighting recurring themes of content generation and feedback automation alongside concerns about technological readiness, transparency, learner autonomy, and equitable access [2-4].

Despite these reviews mapping broad trends, most underlying studies rely heavily on quantitative survey methods or bibliometric analyses [2,3] with relatively few including qualitative interviews, mixed-method designs, or ethnographic depth [1]. Many empirical studies focus on university students or instructors in high-income or urban contexts, leaving out perspectives from parents, policymakers, or educators in less-resourced or rural settings [1-3]. Additionally, few studies triangulate across multiple stakeholder groups, and many are bounded temporally or geographically, preventing broader generalization or policy applicability. Ethical concerns around fairness and bias, though acknowledged, are seldom addressed through multi-stakeholder deliberation or inclusive framework development [2-4]. Because of these limitations, the present study aims to overcome them and further our understanding.

Therefore, this study employs a qualitative framework, using semistructured interviews with a purposive sample of approximately 45 participants across stakeholder types—including parents, teachers, and policymakers—drawn from diverse socioeconomic and geographic backgrounds. The central research question is: How do different stakeholder groups perceive the role of GenAI in education, and what implications do these perspectives suggest for policy, pedagogy, and equitable implementation? By directly engaging multiple voices, the study seeks to build on prior research's contributions while remedying its limitations -extending beyond student- or instructor-focused surveys to include broader stakeholder insights, and aiming for contextresponsive, policy-relevant understanding of GenAI's socioeducational implication.

2. Methodology

2.1. Participants

In this experiment, 27 students, 7 industry professionals, and 2 teachers were interviewed, all selected through purposeful sampling. This method ensured relevance by targeting key stakeholders, students and teachers directly involved in education, and professionals actively working with AI across various industries.

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The student group included 27 individuals, including high school sophomores (N=1), juniors (N = 11), and seniors (N=8), with additional representation from college freshmen (N= 5) and college sophomores (N= 2) . The average age was 17.2 years (SD = 1.19), and most students were between 16 and 18 years old. In terms of gender, 55.56% identified as female and 44.44% as male. Regarding ethnicity, 40.74% of students were Caucasian, 25.93% East Asian, 11.11% Middle Eastern, 7.41% multiracial, and 7.41% Mexican. Pacific Islander/American and South Asian students each made up 3.70% of the group.

The industry professionals group comprised 7 participants working in areas such as artificial intelligence, sustainability, software development, and diversity and inclusion. On average, they brought over 27 years of experience, with roles ranging from AI Product Lead to Senior Solutions Architect and Machine Learning Engineer. Some had spent decades at major companies like Microsoft or in academia. Of the group, 57.14% were male and 42.86% were female. Ethnically, 57.14% identified as Caucasian, 28.57% as East Asian, and 14.29% as Pacific Islander, reflecting a range of perspectives across gender, culture, and industry background.

The teacher group consisted of 2 experienced high school educators. One teacher, with over 40 years of experience, served as a Fine Arts Department Chair and taught choir and religion while also leading student retreats. The second teacher had 14 years of experience teaching upper school English. Both teachers were female and identified as Caucasian. These educators were selected for their extensive classroom experience and their engagement with the ethical and pedagogical questions surrounding AI use in schools.

2.2. Procedures

All interviews were conducted remotely via Zoom over a period of approximately four months. Interviews were centered around the guiding question: Should the use of generative AI be normalized in a high school setting? While all interviews shared a core set of questions, they were tailored to suit each participant group's context and experience.

Each interview began with an introduction, in which the researcher explained the project's goals and obtained oral consent to record and participate in the study. Participants then provided basic demographic information (e.g. Age, years of experience, ethnicity) and confirmed that their views were their own, not representative of any institution or employer.

Each interview began with introductory questions designed to establish context—asking participants to describe their role, background, and educational or professional environment. This was followed by general inquiries about familiarity with generative AI and daily usage, including prompts such as "Are you familiar with generative AI?" and "How do you use it in your daily life or work?" Drawing on comparable research instruments, the protocol included questions adapted from higher education studies. Teachers were asked questions similar to those in the ECU semistructured interview guide, such as: "Have generative AI tools made you think differently about how you approach teaching? How?" and "Have you tried to incorporate generative AI into instructional practices? If so, can you provide examples?" [5]. Industry professionals were similarly queried about AI's influence on productivity and innovation using prompts like "What kind of work or expertise benefits most from AI?" and "How does AI impact the future of your field?" Student questions mirrored those used in studies like [1], asking students to describe academic usage of generative AI, its benefits and limitations, and their expectations for its responsible integration into education.

All participants were then prompted to reflect on skill development and ethical dimensions of AI use. Students were asked whether AI might hinder essential learning or encourage overdependence;

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teachers were posed hypothetical scenarios about student reliance and academic integrity; and industry professionals were invited to discuss concerns related to accountability, intellectual property, and professional ethics. Student interviews averaged 28 minutes, while industry professional interviews lasted about 80 minutes. Teacher interviews were in between, typically lasting 40–50 minutes. Each interview concluded with a debrief and invitation for final comments.

The interviews were transcribed using the Notebooklm AI. The audio recordings were uploaded to be transcribed and sorted into word documents. Following transcription, the study employed a bottomup inductive coding strategy grounded in hermeneutic philosophy to examine how students, teachers, and industry professionals perceive the role of generative AI in education. This method "allows patterns, themes, and categories of analysis to emerge from the data itself" [6,7], ensuring that analytic themes are rooted in participants' own language and experiences. The hermeneutic perspective, as articulated in interpretative phenomenological analysis, goes further: it involves interpreting not just what participants say, but why they said it within their unique lifeworld contexts [7].

2.3. Data analysis

This study employed bottom-up inductive coding, guided by hermeneutic principles, to understand how different groups interpret and experience generative AI. Rather than applying predefined categories, codes and themes emerged organically from participants' language and insights [8]. Coding began with a close reading of the transcripts, identifying initial codes line-by-line based on the data itself. These lower-level codes were then grouped into higher-level codes through thematic analysis, which allowed for the development of broader themes as saturation was reached. The process was iterative and interpretive: patterns were not simply counted but understood in context, drawing on a hermeneutic lens that emphasizes meaning-making and subjective understanding [9]. Throughout the process, codes were cross-checked and refined through discussion with research assistants to resolve discrepancies and ensure interpretive consistency until no new themes emerged. This grounded, context-sensitive approach ensured that participants' roles and lived experiences directly informed the analytic structure.

3. Results

3.1. Students

All 14 student participants described AI as at least somewhat helpful for schoolwork, using it for studying, generating ideas, writing assistance, and organizing information. Student 23 likened ChatGPT to a "tutor available anytime," while Student 15 noted that it could provide "hints on math problems," helping to clarify challenging concepts. However, 10 students, including Students 8, 12, 14, 16, and 22, raised concerns about academic integrity and overuse. Student 12 warned, "I worry that if I use AI to do my assignments, I'm not actually learning the material," and Student 14 observed that some classmates "just copy answers without understanding the lesson." Five students, such as Students 24, 25, and 26, mentioned accuracy issues, reporting that AI sometimes produces wrong or off-topic answers. Four students (Students 16, 23, 25, and 27) expressed interest in clearer school guidelines for responsible AI use, with Student 16 emphasizing, "We should be taught the right way to use AI tools in class."

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3.2. Industry workers

Seven of the eight industry professionals agreed that AI skills are essential for students' future careers, with Industry Worker 1 stating, "Every job will involve AI in some way," and Industry Worker 2 noting that many recent graduates still lack the competencies employers now expect. Five participants (Industry Workers 1, 3, 4, 5, and 7) described using AI in workplace training and customization, such as onboarding tools and personalized learning pathways, with Industry Worker 3 emphasizing that AI "cuts training time significantly" and Industry Worker 7 highlighting its ability to "customize learning materials for each person." Four professionals (Industry Workers 2, 4, 6, and 7) warned that education is lagging behind technological change and stressed the urgency of teaching AI ethics, with Industry Worker 2 cautioning, "The technology is moving fast, and schools risk falling behind," and Industry Worker 7 urging, "We need to teach young people about AI ethics now."

3.3. Teachers

The two teachers interviewed both expressed concern that students might use AI to cheat or bypass genuine learning. Teacher 1 warned, "I'm worried students will use AI to get answers instead of thinking for themselves," while Teacher 2 reported already encountering AI-generated student work. At the same time, both acknowledged that AI could serve as a useful tool for teaching tasks such as lesson planning or providing feedback. Teacher 1 mentioned using AI to "draft quiz questions," and Teacher 2 noted that it could assist in offering feedback on essays. Both emphasized the need for clearer training and guidelines, with Teacher 1 stating, "We haven't gotten any formal training," and Teacher 2 adding, "It would help to have official guidelines on what's acceptable."

3.4. Common themes

Participants across all groups -students, industry professionals, and teachers- described AI as a valuable tool for enhancing learning and productivity when used thoughtfully. Students highlighted its versatility, from generating ideas and providing "hints on math problems" (Student 15) to acting like "a tutor available anytime" (Student 23). Industry professionals pointed to its role in streamlining workplace processes, such as onboarding, training, and creating customized learning pathways; one noted it can "cut training time significantly" (Industry Worker 3), while another emphasized its ability to "customize learning materials for each person" (Industry Worker 7). Teachers also recognized its potential for lesson planning and feedback, with Teacher 1 using AI to "draft quiz questions" and Teacher 2 applying it to provide targeted feedback on essays. At the same time, many participants voiced concerns about overreliance, academic dishonesty, and the erosion of critical thinking. Students warned that classmates might "just copy answers without understanding the lesson" (Student 14) or risk "not actually learning the material" (Student 12) when depending too heavily on AI-generated work. Several industry workers cautioned that the rapid pace of technological change could leave education lagging behind, with Industry Worker 2 warning, "The technology is moving fast, and schools risk falling behind." Teachers reinforced these concerns, with Teacher 1 worried students might "use AI to get answers instead of thinking for themselves" and Teacher 2 confirming they had already encountered AI-generated student work. Across all groups, there was broad agreement on the need for clearer guidance, stronger ethical training, and safeguards to preserve human judgment, with calls for explicit instruction on responsible AI use -such as Student 16's request, "We should be taught the right way to use AI tools in class"- and for formal

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4. Discussion

This study investigated the perspectives of stakeholders on the use of genAI in education. They were interviewed individually, and the interviews were coded using a hermeneutic methodology. The findings showed that despite apprehensions, there is an overall positive view towards the usage of genAI given that proper guidelines are implemented.

The findings revealed a convergent understanding of generative AI across all participant groups. Overall, generative AI is seen as a useful but double-edged tool in the high school context. Participants widely acknowledged the technology’s potential to enhance learning and productivity, reflecting broader trends of increased AI adoption in education. At the same time, common concerns emerged around ethical use, academic integrity, and the need for guidance, indicating a cautious awareness of AI’s pitfalls across stakeholders [10]. While potential concerns arise surrounding the use of genAI, the potential benefits of using AI in education seem to outweigh the risks. If proper guidelines are to be implemented, genAI would greatly enhance the productivity of students. In conclusion, there was a shared sentiment that while generative AI could substantially benefit teaching and learning, its integration must be handled thoughtfully to mitigate risks.

High school students in our study exhibited at times divided, views on generative AI’s role in their education. Many students described using tools like ChatGPT to spark ideas or get help with assignments, showing optimism about AI’s usefulness for learning. However, they also voiced reservations about over-reliance and fairness; For instance, questioning whether it is equitable or educationally sound if some peers complete homework with AI assistance while others do not. This ambivalence is consistent with recent research showing that students are split on whether AI should be embraced or restricted in schools [11]. found that high-schoolers’ attitudes toward integrating or banning ChatGPT were strongly shaped by their perceived usefulness of the tool, personal experiences with it, and broader ethical considerations. Our student interviewees mirrored these patterns: those who found AI genuinely helpful tended to emphasize its convenience and creative potential, whereas those more skeptical stressed the importance of human learning and the dangers of plagiarism or “cheating.” Notably, several students in our sample, much like those in [11], advocated for clear guidelines and training on AI use in the classroom to ensure it is introduced safely and responsibly. This proactive stance aligns with the idea that including student voice in policymaking can lead to more acceptable and effective AI integration in schools. Overall, the students’ perspective in our study underscores a balance between enthusiasm and caution, echoing common themes in the literature that highlight both the educational benefits of generative AI and the need to uphold academic integrity [12,10].

Teachers approached generative AI with cautious optimism, recognizing its potential value while mindful of its challenges. Both teachers in our study noted that AI tools could streamline certain teaching tasks, for example, aiding in lesson planning or grading, which resonates with reports that generative AI can help lighten teacher workloads and save time [12]. found that AI integration can indeed free educators to focus on higher-value instructional activities by automating routine tasks, a benefit our participants also observed. However, the teachers were equally emphatic about ethical and pedagogical concerns. They worried that students might misuse ChatGPT to complete assignments dishonestly, thereby undermining genuine learning. Such apprehensions reflect the wider ethical reservations among educators documented in recent studies [10]. In line with [10] findings, our teachers raised questions about how to preserve authenticity in student work and

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prevent a decline in critical thinking skills if AI does too much of the work. Both teachers stressed the need for clear school policies and professional development to guide AI use in classrooms, indicating that they do not want to "ban" the technology but rather learn how to harness it effectively. This call for greater support and AI literacy among educators echoes recent literature urging that teachers be better prepared and trained to integrate genAI tools responsibly [10]. In summary, the teachers' perspective highlights a desire to leverage AI's advantages (time-saving and personalized resources) while proactively managing its risks through education and policy.

Industry professionals offered a future-oriented outlook, emphasizing that generative AI is rapidly becoming an integral part of the workplace and that today's students need to be ready for this reality. Several professionals pointed out that AI is already widely used in their fields to improve efficiency and innovation, underscoring the importance of students developing AI fluency and adaptability. This aligns with observations that generative AI tools like ChatGPT are praised for improving work quality and enabling more personalized outputs in professional settings. From the industry viewpoint, the high school classroom is a training ground for the collaboration between humans and AI that the next-generation workforce will experience. At the same time, many professionals in our study cautioned that schools must still prioritize fundamental skills and ethics even as they adopt AI. They echoed concerns that over-reliance on AI could impair students' development of critical thinking and original problem-solving abilities – a sentiment reflected in educational research warning of potential skill atrophy if AI is misused [10]. Professionals also discussed issues of academic honesty and originality, noting that these mirror the concerns in industry about maintaining trust and integrity when AI generates content. In essence, the industry experts advocated for an educational approach that integrates AI in a balanced manner: teaching students how to use AI as a collaborative tool to augment their capabilities, rather than as a wholesale replacement for human effort. This balanced perspective is about preparing students to enter a workforce where working with AI is the norm, and it reinforces calls in research for responsible AI integration that maximizes benefits while curbing misuse [11].

Together, these viewpoints form a cohesive narrative about generative AI in high school settings. Students, teachers, and industry professionals all see promise in generative AI yet urge caution, each highlighting complementary aspects: students focus on fairness and learning, teachers on integrity and pedagogy, and industry on future readiness. Notably, all groups converge on the need for responsible implementation; Reflecting a common call for clear guidelines, education, and ethical frameworks to harness generative AI's advantages without compromising educational values. This convergence suggests that a collaborative approach, involving all stakeholders, is essential for successfully integrating generative AI into education in a way that enriches learning and aligns with broader societal and workforce trends. Blanket restrictions risk widening the gap between students who can access and learn AI tools outside of school and those who cannot. Without guided exposure in an academic setting, students may either misuse AI or miss out entirely on developing critical digital literacy skills. Embedding AI into the curriculum -paired with frank discussions about its limitations, biases, and ethical implications- can transform potential risks into teachable moments. Such an approach ensures that AI complements rather than replaces human thinking, enriching learning in ways that both preserve educational values and prepare students for the demands of a rapidly evolving world.

5. Conclusion

This study used a qualitative approach, drawing on multiple sources of data and centering students' experiences, to explore how high school students, teachers, and industry professionals perceive and

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use generative AI. Across all groups, there was broad recognition of AI's benefits for learning, teaching, and career readiness. Students found AI helpful for brainstorming and academic support but expressed concerns about overuse and fairness. Teachers valued AI for planning and grading yet stressed risks to academic integrity. Industry professionals viewed AI literacy as critical for future careers while underscoring the need for ethics education. All groups called for clearer policies and guidance, highlighting the importance of responsible, collaborative integration of AI in schools. While this study makes an important contribution to the literature, it is limited by its small, Seattle-based sample, lack of quantitative data, and exclusive reliance on qualitative interviews. Limited teacher participation (two interviewed) may underrepresent educators' perspectives, and the absence of longitudinal or comparative data means findings offer only a snapshot rather than evolving trends. These constraints limit generalizability, as there is no statistical validation or broad demographic representation. Nonetheless, this work offers a valuable reference point for future research, which should expand the sample size, include diverse regions and school types, and integrate quantitative measures to strengthen and deepen insights.

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Appendix

Table 1. Student demographic

Name	Grade	School	gender	Age	ethnicity
Student 1	senior	BLE in Mississauga, Ontario, Canada	male	18	Caucasian
Student 2	Senior	Forest Ridge	Female	18	East Asian

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Table 1. (continued)

Student 3	College Sophomore	Seattle Central	Female	20	Caucasian
Student 4	College freshman	Carnegie Mellon	Female	18	East Asian
Student 5	Junior	SAAS Seattle Academy of Arts and Sciences	male	17	Caucasian
Student 6	college sophomore	UVA	male	19	East Asian
Student 7	junior	Woodenville High School	Female	16	Middle Eastern
Student 8	senior	Inglemore	Male	18	Middle Eastern
Student 9	junior	Forest Ridge	Female	17	Caucasian
Student 10	junior	Forest Ridge	Female	17	Pacific Islander/American
Student 11	Senior	Forest Ridge	Female`	18	multiracial
Student 12	senior	The Scots College	Male	18	East Asian
Student 13	junior	Bishop Blanchet	Female	16	multiracial
Student 14	College freshman	UW	Male	18	South Asian
Student 15	Junior	Forest Ridge	Female	16	Caucasian
Student 16	junior	The Overlake School	Female	16	Mexican
Student 17	junior	Prepawak Campus Oxford	Female	17	Mexican
Student 18	College freshman	Caltech	Female	18	East Asian
Student 19	College freshman	Sorbonne university	Male	18	Caucasian
Student 20	junior	Forest Ridge	Female	17	Caucasian
Student 21	Junior	Bellevue High School	Male	16	Caucasian
Student 22	Sophomore	Jackson High School	Male	14	Caucasian
Student 23	Senior	Newport High School	Female	17	Caucasian
Student 24	Senior	Newport High School	Male	17	Caucasian
Student 25	Junior	Newport High School	Female	16	East Asian
Student 26	Senior	Newport High School	Male	17	East Asian
Student 27	College Freshman	University of Wisconsin–Madison	Male	18	Middle Eastern

Table 2. Industry worker demographic

Interviewee	AreaofExpertise	YearsofExperience	gender	ethnicity
Industry worker 1	AI, sustainability, architecture design of AI solutions	30 years in general and 14 at Microsoft	Male	East Asian
Industry worker 2	Software development, technical program management, sustainability technologies	since 1984, 41 years	Male	Caucasian
Industry worker 3	Diversity, equity, and inclusion, sociology, political science	5-6 years in DEI, 20 years in related fields	Female	Pacific Islander
Industry worker 4	Senior Solutions Architect in AI and analytics	7 years full-time	Male	Caucasian
Industry worker 5	Data and AI Product	30 years	Female	East Asian

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Table 2. (continued)

Industry worker 6	AI Research	30 years tech 40 years academia	Female	Caucasian
Industry worker 7	Machine Learning Engineer	19 years	Male	Caucasian

Table 3. Teacher demographic

Name	yearsofexperience	subjectstaught	gender	ethnicity
Teacher 1	40-45 years	Fine Arts Department Chair, Choir, Religion, and lead retreats	Female	Caucasian
Teacher 2	14 years	Upper School English	Female	Caucasian

Table 4. Perceived benefits and risks of students, industry workers, and teachers

Name	PerceivedBenefits	PerceivedRisks
Student 1	Collaborative Research & AI Literacy: Although not explicitly detailed, he notes that classmates use AI for research and that teacher integration aids in understanding AI.	Erosion of Research Skills & Trust Issues: Overreliance on AI may hinder independent research and diminish trust in AI as a credible source.
Student 2	Enhanced Research Capabilities: AI aids in locating hard-to-find sources, making research more efficient.	Restricted Research Skill Development: Dependence on AI might limit the growth of essential, independent research skills.
Student 3	Field-Specific Practical Support: AI shows potential in specialized domains (e.g., medical applications), offering targeted assistance for complex tasks.	Undermining Educational Value: Heavy reliance on AI can devalue traditional educational practices and critical engagement with learning material.
Student 4	Bridging Learning Gaps: AI can serve as a supplementary tool to help students who lack strong fundamentals better understand and tackle challenging concepts.	Impairment of Writing & Critical Thinking: Excessive use may stunt the development of independent writing skills and critical analytical abilities.
Student 5	Automation of Routine Tasks: AI helps with repetitive calculations and small tasks, freeing time for more complex problem solving.	Diminished Skill Development: Overuse could lead to a decline in developing key academic and analytical skills.
Student 6	Analytical Enhancement: AI assists in filtering and processing information, supporting clearer analytical thinking.	Hindrance to Core Skill Acquisition: Dependence on AI might impede learning fundamental research and analytical methods.
Student 7	Technical Support in CS: AI is particularly useful in computer science contexts, helping to solve technical problems and providing practical assistance.	Limited Nuance in Analysis: AI may struggle with tasks requiring nuanced opinion, leading to oversimplification of complex issues.
Student 8	Academic Writing Aid: AI can help in structuring and drafting major academic projects, such as these, thereby streamlining the writing process.	Defeating Critical Thinking: Reliance on AI for writing support might reduce the development of original ideas and independent critical analysis.
Student 9	Idea Generation & Creative Spark: When stuck on a question, AI can generate fresh ideas and perspectives, aiding creative academic inquiry.	Overdependence on AI Content: Excessive reliance on AI-generated ideas could limit originality and personal creative input.
Student 10	Unexplored Potential: Has not actively used AI, implying that its benefits remain largely theoretical and untested in her experience.	Skill Handicapping: Concerns that avoiding AI might result in missing opportunities to develop essential research and learning skills.

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Table 4. (continued)

Student 11	Simplifying College Work: AI is seen as a tool that can make college tasks easier by streamlining information and possibly automating routine tasks.	Hindering Younger Students' Skill Development: There's a concern that AI use may negatively impact the learning process, especially for less experienced students.
Student 12	Essay Structuring Aid: AI can provide ideas for structuring essays, helping to organize thoughts for more coherent writing.	Substitution of Learning: Reliance on AI might substitute genuine learning, hindering the development of writing and analytical skills.
Student 13	Showcasing Analytical Thinking: AI can highlight and foster analytical thinking by providing hyper-specific insights, aiding in the deep analysis of topics.	Promoting Cheating: There's a risk that AI usage might encourage academic dishonesty by making it easier to bypass genuine effort.
Student 14	Support in Idea Formulation: AI assists with writing and formulating ideas, acting as a brainstorming partner for academic projects.	Facilitating Cheating & Outsourcing Work: AI could make it easier for students to cheat or outsource their writing tasks, compromising the integrity of learning.
Student 15	Clarification & Support: AI can be used to clarify questions and serve as a supplementary support tool during studies.	Reduction in Human Interaction: There's a risk that reliance on AI might substitute necessary human interaction and mentorship, which are vital for learning.
Student 16	Prompt Learning & Engagement: AI helps in learning how to use prompts effectively, potentially enhancing digital literacy and creative brainstorming.	Citation and Academic Integrity Issues: Concerns include the need for proper citation and the risk of academic dishonesty if AI outputs are not critically evaluated.
Student 17	Efficient Information Retrieval: AI is effective at finding information and sources quickly, aiding comprehension and supporting learning.	Hindrance to Essay Writing Ability: Overuse may impair the development of independent essay writing skills, reducing personal academic growth.
Student 18	Selective Usage for Testing: Uses AI sparingly, mainly for testing purposes, implying that it can be useful without dominating the learning process.	Content Ownership & Attribution: Concerns that AI-generated content does not belong to the user and may complicate proper sourcing and originality.
Student 19	Idea & Information Source: AI serves as a tool to gather information and generate ideas, potentially enhancing research and creative output.	Inhibition of Essential Skills: Heavy reliance might hinder the development of foundational skills, particularly in critical thinking and independent research.
Student 20	Fun & Enriching Experience: AI is seen as potentially fun and enriching when used in moderation, adding a dynamic element to learning.	Persistent Negative Impact on Skill Development: There is a risk that constant use could permanently undermine the acquisition of core academic skills.
Student 21	Academic Struggle Support: AI is utilized when academic challenges arise, offering support during times of struggle.	Artificiality & Reduced Engagement: The use of AI might lead to outcomes that seem less "human" and can reduce genuine student engagement and authenticity in learning.
Student 22	Potential for Customized Learning: AI could be harnessed to provide tailored educational content, addressing individual student needs effectively.	Enabling Cheating Through "Free Essay Writing": There is a concern that AI could be exploited as a "free essay writer," thereby facilitating cheating and undermining academic integrity.
Student 23	AI as Tutoring/Support Tool: Helps with tasks like physics problems and Spanish translations; sees it as a resource to fill gaps for students lacking external tutors. "Calculator" Analogy: Believes AI can speed up smaller tasks, similar to how a calculator simplifies arithmetic.	Erosion of Research Skills: Worries that easy answers from AI discourage students from learning how to do independent research. Academic Integrity: Concerned about students simply copying AI-generated outputs without genuine learning; calls for policies to ensure proper usage.

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Table 4. (continued)

Student 24	Quick Code & Research Aid: Uses AI to spot-check code and gather preliminary information; finds it more direct than a standard search engine. Idea Generation: Values AI's ability to provide concise answers and spark new directions for problem-solving.	Verification Needed: Notes AI can be incorrect, so students must critically evaluate its outputs. Cheating Concerns: Fears entire essays/homework could be AI-generated; sees a need for in-class writing or open-ended tasks to ensure real understanding.
Student 25	Summarizing & Organizing: Relies on ChatGPT to condense papers and compile notes efficiently, especially for science/biomedical topics. Normalization in Academia: Believes AI's integration is inevitable and can be beneficial (e.g., teachers using AI for grading feedback).	Dependency & Skill Degradation: Warns that overreliance on AI undermines critical thinking and creativity. Biased Outputs & IP Issues: Highlights biases in AI training data; sees murky ownership if users provide minimal input yet claim the AI's work as their own.
Student 26	Background "Consultant": Uses AI primarily for brainstorming and preliminary debate research; sees it as an efficient way to gather quick insights. Support Role Over Full Control: Believes humans should retain primary creative control, letting AI assist rather than produce entire works.	Creativity & Skill Erosion: Worries that if AI does most of the "heavy lifting," students lose practice in writing and critical thought. Ownership Ambiguity: Raises questions about who truly "owns" AI-generated content; suggests schools adapt teaching to verify students' genuine understanding.
Student 27	Search Engine / "Calculator": Uses ChatGPT to gather sources, do quick research, and generate code templates before refining them himself. Real-World Tool: Argues older students should learn to integrate AI responsibly, focusing on higher-level tasks while AI handles routine "dirty work" (grammar, formatting).	Overreliance & Plagiarism: Concerned that copying AI outputs reduces students' ability to synthesize information; sees risk of failing to cite sources properly. Clear Usage Rules: Suggests requiring logs of AI interactions or explicit guidelines so teachers can track how students are actually using generative AI.
Industry worker 1	Efficiency in Information Retrieval: AI tools can save time by providing context-centric searches that quickly locate and organize relevant information.	Limited Reliability for Formal Outputs: AI may be unsuitable for generating formal reports or precise answers, potentially leading to inaccuracies.
Industry worker 2	Research & Communication Support: AI assists in research and drafting communications, thereby enhancing academic work and overall productivity.	Over-reliance & Trust Issues: Heavy dependence on AI might diminish critical oversight, fostering mistrust and reducing students' analytical engagement.
Industry worker 3	Automated Reporting & Data Tracking: AI can efficiently generate reports and monitor data, allowing more time for analysis and decision-making in learning.	Overcorrection Leading to AI Avoidance: Excessive caution may cause students to avoid using AI tools, potentially missing out on their beneficial applications.
Industry worker 4	Writing Enhancement & Feedback: AI offers revision suggestions that improve clarity and quality of writing, serving as a supportive tool in the learning process.	Avoidance of Learning & Skill Weakening: Reliance on AI for writing revision might discourage students from developing their own writing and critical thinking skills.
Industry worker 5	Automated Assessment Creation: AI can generate tests and quizzes, contributing to the development of adaptive and personalized learning experiences.	Lack of Engagement & Misuse: Using AI without active student participation may lead to passive learning, reducing the tool's effectiveness and proper use.
Industry worker 6	Expanded Access to Learning Materials: AI aids in discovering and diving into diverse educational resources, broadening the spectrum of available learning material.	Dependency Affecting Creative Skills: Excessive reliance on AI for tasks such as writing could hinder students' independent creative and critical expression.

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Table 4. (continued)

Industry worker 7	Personalized Instruction & Tutoring: AI's capability to offer one-on-one support mirrors personalized teaching, tailoring guidance to individual needs.	Decline in Critical Thinking & Reputation Risks: Overdependence may lead to a reduction in critical thinking skills and could potentially harm academic credibility.
Teacher 1	Augmented Learning: Generative AI can support students who already have some foundational knowledge, enhancing their learning experience with additional context.	Administrative Efficiency: AI can assist with routine tasks (e.g., writing emails), allowing teachers to focus more on teaching and personalized student engagement.
Teacher 2	Uncertain Impact on Students: While not explicitly detailing benefits, there's an implication that AI's generative capabilities might offer support, though its value remains unclear.	Cautious or Opposed Adoption: Expresses strong opposition to using AI unless absolutely necessary, reflecting concerns over its reliability and suitability for teaching tasks.