

Making Sense of the Role of ChatGPT in Education: An Examination of Student Views in China, Italy, Kenya, Uruguay, and the US

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Abstract

This article investigates the diffusion and adoption of ChatGPT among college students from a multinational convenience sample, informed by the scholarly literature on the diffusion and progressive appropriation of ChatGPT by students and teachers within the education sector and the strategies adopted by academic institutions. We applied a figurational approach to this study, offering two theses that try to understand the societal meaning of ChatGPT diffusion in the educational sector. Operationally, we explored university students' behavioral intentions, practices of use, and opinions toward ChatGPT in five countries (China, Italy, Kenya, Uruguay, and the United States of America) through an online survey. Results indicated that: (1) students seem to be cautious or resist the hype of generative intelligence; (2) an essential cultural pattern emerges: American and Italian students

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ISSN 2638-602X (print)/ISSN 2638-6038 (online)
www.hmcjournal.com



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are more pessimistic toward ChatGPT, whereas Chinese students, sometimes accompanied by Kenyan and Uruguayans students, are more optimistic; (3) men and techno-scientific students are more positive toward ChatGPT than women and socio-humanistic students.

Keywords: generative artificial intelligence, ChatGPT, education, university students, writing, critical thinking

Introduction

The discussion surrounding Chat Generative Pre-Trained Transformer (ChatGPT) and its role in education unfolds in two key areas: understanding how ChatGPT functions, including its strengths and limitations, and examining its impact on academic practice. These conversations often take two approaches: a descriptive focus, which highlights ChatGPT's capabilities as a large language model (LLM), and a pedagogical focus, where educators explore strategies to harness its potential responsibly. This approach includes addressing ethical concerns, mitigating risks, fostering critical reflection, and preparing students for emerging opportunities in an AI-driven job market. Building on the growing body of literature on the diffusion and adoption of AI technologies in education, this study examines the role of cultural and disciplinary contexts in shaping college students' perceptions and use of ChatGPT across multiple countries. The following section delves into how these approaches are manifested in current educational practices and the challenges they present.

Strengths and Limitations of ChatGPT

ChatGPT models have improved significantly since the first ones. OpenAI claims to have increased time for reasoning in its latest released model, OpenAIo1 (September 9, 2024). Also, it states that it “scored 83%” in a qualifying exam for the International Mathematics Olympiad. Moreover, it maintains that “their coding abilities were evaluated in contests and reached the 89th percentile in Codeforces competitions” (OpenAI, 2024).

M. Zhang and Li (2021) emphasize ChatGPT's remarkable capabilities in various tasks, including question answering, reading comprehension, text summarization, code generation, language translation, and story creation. Baker (2023) adds that ChatGPT can also assist in writing grant proposals. Elkins and Chun (2020) highlight its ability to generate realistic plots, mimic authors' styles, experiment with different forms, and produce diverse content. However, they warn that it may reflect biases, such as misogyny and stereotypes. Ahmad et al. (2023) identify benefits for students and educators: ChatGPT enhances students' language skills, fosters creative writing, and supports critical analysis. For educators, it improves grading efficiency and enables personalized learning systems.

Although ChatGPT offers notable strengths, it also has significant limitations. M. Zhang and Li (2021) argue that it lacks genuine natural language comprehension,

often producing content without meaningful understanding and sometimes generating uncontrollable output. Ahmad et al. (2023) add that it struggles with contextual awareness. Elkins and Chun (2020) highlight the difficulty of maintaining coherent arguments, narrative consistency, and commonsense reasoning, noting that tasks like visual processing and causal reasoning remain challenging for AI.

Another primary concern is ChatGPT's reproduction of biases from its training data, including gender (Lucy & Bamman, 2021) and racial biases (Wahbeh et al., 2023). Additionally, it can compromise academic integrity by enabling plagiarism (Debouche, 2021) and promoting conformity. Park et al. (2023) observe that post-ChatGPT, scholarly outputs like papers and patents have become less novel and interdisciplinary, stifling innovation. Grudin (2023) further argues that, unlike human educators, ChatGPT cannot adapt its communication to individual students or provide emotional support, limiting its role in personalized education.

M. Zhang & Li (2021) suggest that these limitations indicate that ChatGPT is still at the level of perceptual intelligence rather than general or cognitive intelligence. It lacks genuine logical reasoning and the ability to discern right from wrong, requiring manual review and editing by its users. This requirement implies a shift in the role of humans from original thinkers to editors of machine-generated content, which can be more challenging than producing error-free text from scratch (Baron, 2023). Borji's (2023) identification of ChatGPT's limitations—such as issues in reasoning, logic, math, factual accuracy, bias, and coding—highlights key concerns for student users navigating its advantages and disadvantages. While ChatGPT offers significant benefits as a generative tool for enhancing learning, improving efficiency, and brainstorming, its limitations necessitate critical evaluation. Students must develop skills to verify information, identify biases, and critically assess AI-generated content to avoid over-reliance on potentially flawed output.

The Role of ChatGPT in Education

The second strand of literature explores ChatGPT's role in education, highlighting its benefits and challenges. Imran and Almusharraf (2023) and Polat et al. (2024) emphasize the global debate, with contributions extending beyond the US and Australia. Al Shloul et al. (2024) evaluated ChatGPT's integration into activity-based learning, weighing its advantages and drawbacks. Albadarin et al. (2024) found that students primarily use ChatGPT as virtual assistants to enhance writing and language skills, while educators utilize it to boost productivity and develop innovative methodologies. However, concerns remain regarding its potential to diminish critical thinking, problem-solving, and collaborative learning.

Yang et al. (2023) documented AI's growing adoption in Chinese universities, where 1,577 institutions implemented AI tools. Their 6-month study revealed improved academic performance and teaching efficiency in AI-supported classrooms compared to traditional methods. Surveys across different countries have also assessed ChatGPT use; von Garrel and Mayer (2023) surveyed 6,300 German students, reporting significant usage (63.4%) with varied purposes, including clarifying questions and research. Similar studies in Spain (Romero-Rodriguez et al., 2023), Poland (Strzelecki, 2023), and Jordan (Alshurideh et al., 2024) used adoption models like UTAUT2 (Unified Theory of Acceptance and Use of

Technology) and TAM (Technology Acceptance Model) to reveal that perceived usefulness and ease of use positively influenced attitudes toward ChatGPT.

In the US, Hirabayashi et al. (2024) found that 87.5% of Harvard undergraduates used ChatGPT, with frequent usage patterns that impact study habits, course selection, and career plans. Ngo (2023) similarly observed positive perceptions of ChatGPT among Vietnamese students but noted concerns about information reliability and quality. These studies underscore ChatGPT's widespread adoption and the need to address its educational implications.

A Figurational Approach to Generative AI

A figurational approach examines the dynamic, interdependent relationships between individuals and society, offering a nuanced perspective on the societal implications of AI technologies like ChatGPT. Current debates around AI often rely on a binary framework that portrays ChatGPT as beneficial and risky. While this dualistic approach appears balanced and objective, it oversimplifies the discussion and obscures deeper evaluations of its social consequences. This ambiguity makes it challenging to determine whether the benefits outweigh the drawbacks. It hinders scholars from proposing clear, actionable educational policies for the ethical and effective integration of ChatGPT into academic settings.

The second gap in the current debate is that the binary approach overlooks critical questions about ChatGPT's fundamental purpose, rationale, and timing. Discussions often take ChatGPT for granted, neglecting its underlying assumptions and society's lack of preparedness for such technological developments (Natale & Depounti, 2024; Spence, 2023). This unpreparedness highlights the disconnect between academia and the processes that drive technological innovation, which often prioritize technical solutions over human-centered needs. Despite decades of emphasis on user-centered design, ChatGPT exemplifies a techno-scientific paradigm that resolves technical challenges while ignoring broader human considerations. Furthermore, as noted by Kikerpill and Siibak (2023, p. 98), the existing binary literature often overlooks how teachers perceive or intend to use AI tools, revealing a gap between the enthusiasm of technology advocates and the "utility of or willingness towards real world adoption."

The use of this binary framework in technological studies, particularly in the case of AI, might seem more justified because scholars recognize a fundamental methodological problem underlying current social studies on AI. How can we study a phenomenon about which social scientists know relatively little, and even experts in the hard sciences have only limited understanding, which demands investigation due to the potentially profound changes it could bring? In such scenarios, exploratory studies are often a helpful approach. However, with AI, researchers have fewer reference points than usual to guide an exploratory study effectively (Fortunati, 2024). The complexity of AI innovations creates uncertainty, as even engineers frequently struggle to explain how algorithms generate specific results. This lack of transparency in AI raises concerns about potential social consequences. Integrating AI tools like ChatGPT into education will likely lead to unforeseen and undesirable effects.

To address these two gaps, we have adopted a figurational approach, which, in our study, focuses on university students as a network of social actors "who are interconnected

with a certain balance of power and through interrelated communicative practices” (Hepp et al., 2023, p. 51). This approach is structured around a frame of relevance, which, in our case, involves the development of essential collective skills and specific competencies, along with a series of communicative practices within the educational sector. We have further enriched this approach with a critical perspective from the political economy to understand better ChatGPT’s role in societal communication and its broader implications for society.

Our first thesis argues that digital technologies—and more recently smart, robotic, and AI tools—have progressively co-opted education, displacing traditional educational institutions such as families, schools, and universities (Keengwe et al., 2008; K. Zhang & Aslan, 2021). Tech companies now act as the new educators, with engineers, programmers, and data scientists shaping content and interfaces that mediate relationships between students, teachers, and parents. This shift has made the relationships between children and parents and between students and teachers more complex, as these relationships are now often mediated by technology companies. This intermediation has also challenged the role of the state, which ideally should serve as the guarantor of the quality and procedures of education nationwide. In reality, the state and educational institutions have lost much of their authority. Many educators are aware of this encroachment and express skepticism or resistance toward the increasing use of AI in education.

As Berendt et al. (2020, p. 317) explain, this resistance is based on the belief that the incorporation of ChatGPT into education “shifts the locus of expertise and power from teachers and school administrators to the programmers and system designers, who are responsible for creating these technological solutions, thereby transferring responsibilities and power to private actors.” This appropriation has occurred due to crises in primary socialization, where families lack adequate support, and in secondary socialization, where schools struggle to adapt outdated “factory models” to modern economic demands for creativity, analytical skills, and emotional intelligence (Trajtenberg, 2018). Families face dysfunction stemming from insufficient social services, evolving labor divisions, and diverse family structures, while schools often integrate technology superficially, exacerbating rather than solving existing issues.

Our second thesis argues that the rise of automation and AI, such as ChatGPT, represents capitalism’s response to social resistance—particularly from women in the domestic sphere and younger generations rejecting an outdated education system. The aim is to restore productivity in dysfunctional sectors and intensify social isolation, a trend accelerated by digital technologies (Fortunati & Edwards, 2022; Haidt, 2024). Traditionally a space for secondary socialization and peer networks, education is increasingly being used to isolate young people, preemptively curtailing potential social and political mobilization sources. Practically, this manifests as a gradual erosion of reading and writing skills—the foundational competencies underpinning knowledge creation, democratic participation, and analog-mediated sociality. Hard-won through labor movements, these skills have declined since the rise of digital technologies (Fortunati & Vincent, 2014) and now they have been directly subsumed by AI, marking a significant shift in the technological continuum (Edwards et al., 2024).

Grounded in a comprehensive theoretical framework, the current study focuses on five countries’ college students and key stakeholders in the education sector. The global

nature of the sample is essential for capturing the diverse cultural, institutional, and disciplinary contexts that shape students' perceptions and uses of ChatGPT. By including participants from multiple countries, this study ensures that findings reflect a range of educational systems, technological infrastructures, and societal attitudes toward AI. Additionally, for most of the research questions, we explore whether women perceive ChatGPT differently than men, drawing on long-standing discussions about gendered perspectives on technology and recent insights from Fortunati and Edwards (2022). Accordingly, our research questions for this group are as follows:

RQ1: What do college students think about the nature and meaning of ChatGPT?

RQ2: How and with what frequency do college students use ChatGPT?

The second gap in the ChatGPT literature lies in its failure to consider the historical dynamics of the education sector. Understanding the specific circumstances and timing of GPT's introduction is crucial for assessing its impact on families, education systems, and society. Building on Baron's (2023) work on ChatGPT and writing, we examine its influence on foundational skills such as reading, writing, and thinking.

ChatGPT represents a punctum in the technological continuum—an innovation imposed from above rather than a response to education's actual needs. Like prior digital technologies that automated parts of the writing process, ChatGPT risks further eroding writing abilities by taking over the task entirely. While its text generation capabilities are impressive, they come at a cost. As Baron (2023) argues, writing is inseparable from thinking and reading; removing this task deprives us of essential cognitive habits like reflection and critical thought, skills increasingly sidelined in a capitalist system.

This reasoning led us to our third research question:

RQ3: How do college students assess the effects of ChatGPT on their skills, including writing, reading, understanding, thinking, communication, and learning, as well as on collective competencies such as critical thinking, problem-solving, creativity, and effective communication?

Additionally, considering that national debates on ChatGPT vary and that different cultures may express distinct attitudes and opinions toward technology and innovation, our fourth research question is:

RQ4: Are there similarities and differences in assessments of ChatGPT based on students' culture or nationality?

Then, we investigated a variable that has significantly influenced perceptions of emerging technologies among college students: their field of study. Previous research indicates that students in techno-scientific disciplines often have different perspectives, perceptions, attitudes, and practices of using technological innovations than those in socio-humanistic fields (Edwards et al., 2024; von Garrel & Mayer, 2023).

This led us to our fifth research question:

RQ5: Do students in techno-scientific fields perceive ChatGPT differently from those in socio-humanistic fields?

Finally, we examined students' views on which industries will experience positive or negative effects as ChatGPT and similar technologies become more widespread. This exploration highlights potential opportunities, challenges, and shifts in labor demand, skill requirements, and economic implications. Understanding these perspectives can inform educational institutions and policymakers as they prepare the workforce to adapt to a rapidly evolving technological landscape.

RQ6: What are college students' opinions on which industries will face positive or negative effects following the adoption of ChatGPT?

Methodology

Procedures and Participants

In 2023, we simultaneously administered a questionnaire about ChatGPT to students in five universities worldwide: China, Italy, Kenya, Uruguay, and the US. These countries were selected to build a multinational sample that includes at least one country for each continent. Being able to deconstruct how perceptions and opinions on the role of ChatGPT in the educational sector are formed in various countries characterized by different economic and technological developments, different cultures and histories, and different educational systems seemed fundamental to us to contribute to the current debate on the application of AI in educational contexts significantly. In particular, for us, it was vital to have voices from Kenya, given that the capital of this country, Nairobi, is becoming a strategic, technological hub in Africa, where a relevant amount of content moderation of ChatGPT is done and where several cutting-edge educational projects such as M-Shule and IMLango have been implemented (Ndungi & Siregar, 2023).

A total of 2,245 students accessed the survey, but 445 were eliminated because they immediately abandoned or filled out the sociodemographic variables without answering whether they knew about ChatGPT. In total, 1,800 valid questionnaires formed a convenience multinational sample of university students. Completing the entire questionnaire took an average of 23 minutes, and the questions were always presented in the same order. Various sociodemographic variables, including country, nationality, gender, age, degree course, and type of course, were examined.

The distribution of respondents among the various countries was as follows: China ($n = 508$, 28.2%), Italy ($n = 573$, 31.8%), Kenya ($n = 124$, 6.9%), Uruguay ($n = 308$, 17.1%), and the US ($n = 287$, 15.9%). Respondents' age ($n = 1,665$, with 135 missing) ranges from 17 to 65 years with a mean of 23.64 ($SD = 6.54$). Gender¹ ($n = 1,791$, with nine missing)

1. To cross the variable gender we eliminated not binary ($n = 29$, 1.6%), I prefer not answer ($n = 42$, 2.3%), other ($n = 1$, 0.1%) because of their low number of answers.

sees a prevalence of women in the sample: men ($n = 801$, 44.5%), women ($n = 918$, 51.0%), not binary ($n = 29$, 1.6%), I prefer not to answer ($n = 42$, 2.3%), other ($n = 1$, 0.1%). If we cross this variable by country, it emerges that the sample is more males in Italy (49.7%, Std. Residual = 2.9) and in Uruguay (51.1%, Std. Residual = 2.5) while it is more females in the US (63.4%, Std. Residual = 4.5), where there is also the higher percentage of not binary (3.5%, Std. Residual = 4.5) ($\chi^2_{16} = 60.92$, $p < .0001$).

As to education ($n = 1,788$, with 12 missing), the majority of our respondents are bachelors ($n = 1193$, 66.3%), 449 (24.9%) are enrolled in a master's program, 51 (2.8%) in a single-cycle degree program, 83 (4.6%) are PhD students and 12 (0.7%) other. Recoding the data on education concerning the type of program in which they are enrolled ($n = 1540$, with 260 missing), it turned out that 794 (44.1%) are techno-scientific students and 746 (41.4%) socio-humanists. Unfortunately, they are not distributed homogeneously among the various countries: the Italian and the Uruguayan respondents who have a higher rate of males are also those who are more techno-scientific than the others (respectively 70.6% and 65.8%, Std. Residuals = 10.4 and 5.3) and American respondents who are more feminine are also more socio-humanistic (86.1%, Std. Residual = 12.8) ($\chi^2_{(4)} = 281.04$, $p < .0001$).

Measures and Data Analysis

We used a closed-ended questionnaire for the current study to explore students' attitudes, opinions, and behavior toward ChatGPT. We included one question related to ChatGPT knowledge with a yes/no answer format: "Are you familiar with ChatGPT or have you at least heard of it?"

Those who answered affirmatively to this question were asked three questions about behavioral intentions toward it. With these three questions, we used the same 5-point scale: *definitely no*, *probably no*, *don't know*, *probably yes*, *definitely yes*. The first question was: "Would you use ChatGPT to write an essay, assignment, or report?" The second and the third questions were: "Would you use ChatGPT to obtain information in place of tools such as Google search engine, Wikipedia, encyclopedias, etc.?" "Would you be willing to pay for a subscription to ChatGPT4, which is a higher performance model than the free one? (Example: ChatGPT-4 is currently available for \$20 per month)."

Additionally, we asked, "Have you personally used ChatGPT?" with a yes/no answer format. Those who responded that they had used ChatGPT were asked three questions. We began by inquiring about its frequency of use, using a 5-point scale where 1 = *almost never*, 2 = *rarely* (e.g., *a few times a month*), 3 = *sometimes* (e.g., *once a week*), 4 = *often* (e.g., *several times a week*), and 5 = *always* (e.g., *daily or almost daily*). We also explored the frequency with which respondents ask ChatGPT regarding its sources with the question: "Generally, how often do you ask ChatGPT to indicate the sources from which it drew the information you requested?" using a 5-point scale (where 1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, 5 = *always*). The question of sources is connected to the users' habits and the structure of LLMs because many do not have metadata links to attribute assertions to their sources (Ahmad et al., 2023).

At this stage, we delved into respondents' evaluations of the consequences determined by ChatGPT diffusion and adoption with three specific questions. The first, "How do you

assess the consequences that the use of ChatGPT may have on the collective ability to do each of these activities: writing, reading, understanding, thinking, communicating, learning, teaching?” used a 5-point scale (1 = *very negative*, 2 = *negative*, 3 = *both negative and positive*, 4 = *positive*, 5 = *very positive*). There was also the possibility to answer: *no consequences*. The second, “ChatGPT could help develop the following critical skills: critical thinking, effective communication, problem-solving, creativity, and writing ability,” and the third, “How relevant do you think it is to understand if a text was written by a human being or ChatGPT?” with the 5-point scale where 1 = *not at all*, 2 = *a little*, 3 = *quite a bit*, 4 = *much*, and 5 = *very much*.

Finally, we explored respondents’ opinions on ChatGPT with two questions. These questions investigated the effect of ChatGPT on the main sectors at the social level: education, labor (companies and industries), public administration, sales and consumption, service sector, journalism, health and personal care, media and entertainment, advertising, law and politics, and other. The first question was: “In which area of society do you think ChatGPT can have the most positive effect?” The second was: “In which area of society do you think ChatGPT may have the most negative effect?”

All these variables were crossed by country, gender, and type of the course program. For statistical analyses, SPSS 25 was employed to conduct χ^2 tests with standardized residuals, *t*-tests, and analysis of variance. For parsimony, only significant results of the statistical analyses will be reported.

Results

Knowledge About ChatGPT and Behavioral Intentions Toward It

Research Question 1 asked, “What do college students think about the nature and meaning of ChatGPT?” Almost all respondents ($n = 1,739$, 96.6%) stated that they knew about ChatGPT, ranging from a high of 99.4% in Uruguay to a low of 92.7% in Kenya. We analyzed students’ behavioral intentions toward ChatGPT, investigating whether they would use it to write in their place, get information, and pay for it. The results are reported in Table 1. All those who said they knew about ChatGPT were asked the questions, even if they had never used it personally.

TABLE 1
Behavioral Intentions Toward ChatGPT (in Absolute Numbers and Percentages)

Questions	Definitely or probably no	Definitely or probably yes	Don’t know	Total
Would you use it to write?	602 (44.8%)	542 (40.3%)	200 (14.9%)	1,344 (100%)
Would you use it to obtain information?	430 (32.1%)	786 (58.6%)	125 (9.3%)	1,341 (100%)
Would you be willing to pay?	864 (64.5%)	317 (23.7%)	159 (11.9%)	1,340 (100%)

Missing values are 395, 398, and 399, respectively. The percentages have been calculated on valid responses only.

Table 1 shows that most respondents expressed the intention to use ChatGPT to obtain information in place of other sources of information usually exploited online, such as Wikipedia or Google research engine, and so on. Students still seem divided regarding their possible use of it to write in their place, with relatively close proportions indicating yes versus no. By contrast, the majority demonstrated an unwillingness to pay for ChatGPT.

The intention of using ChatGPT to write varies according to the country to where students belong. Of American students, 79% (the highest percentage by country) would not use it to write; by contrast, Chinese (55.9%), Uruguayan (52.6%), and Kenyan (57.9%) students are more likely to use it for writing. On the other hand, more than the others, Italian students expressed uncertainty about whether they would be inclined to do so (21.8%).

Even the intention to use ChatGPT to retrieve information varies significantly according to the country to where students belong. More than half of the students sampled declared the intention to use ChatGPT to retrieve information, but the percentages range from 82.1% of Kenyan students to 34.2% of Italian students. Among the uncertain or undecided, American students stand out with the highest percentage (19.2%).

Regarding willingness to pay, 86.4% of American students, followed by Italian students (72.7%), indicated a low willingness to pay for its use. In contrast, 51% of Chinese respondents (the highest percentage among all surveyed groups) expressed a willingness to pay.

Gender and Program Course Differences

Neither gender nor type of educational qualifications are associated with the knowledge of ChatGPT. However, gender and the field of study are associated with the intention to use ChatGPT to write an essay, an assignment, or a report ($\chi^2_2 = 9.29, p < .05$ and $\chi^2_2 = 21.49, p < .0001$). Men (44.6%) are more likely than women (36.4%), and techno-scientific students (45.6%) are more likely than socio-humanistic students (36.2%) to use ChatGPT for this purpose (Std. Residual = 3.3 and 4.6). Gender and the field of study are not associated with the intention to use ChatGPT to obtain information for replacing tools such as the Google search engine, Wikipedia, encyclopedias, and so on. Finally, regarding the willingness to pay for ChatGPT, gender is associated with this variable ($\chi^2_2 = 33.16, p < .0001$) in the sense that men (30.3%) are more likely to pay for it than women (18.2%) (Std. Residual = 5.1), while the type of field is not associated.

Use and Frequency of Use of ChatGPT

For Research Question 2, we examined the use and frequency of ChatGPT. Regarding this LLM, most respondents ($n = 1,051, 58.4\%$) stated that they had used it, 292 (16.2%) declared not to have used it, and 457 (25.4%) did not answer the question. Students who had reported using ChatGPT were asked about the frequency of use and how often they asked for sources (Table 2). Relatedly, in Research Question 4, we systematically examined similarities and differences in ChatGPT's use based on students' culture or nationality. Crossing this variable by country, the percentages of our respondents who have used it vary from 58.5% in the US ($n = 155$) to 90.2% ($n = 50$) in Kenya.

TABLE 2
Frequency of Use of ChatGPT

	Total Sample	China	Italy	Kenya	Uruguay	US
Frequency of use						
Almost Never	143 (14.6)	11 (3.4)	60 (22.1)	4 (10.5)	23 (12.0)	45 (30.0)
Rarely	316 (32.3)	107 (32.9)	86 (31.6)	11 (28.9)	53 (27.6)	59 (39.3)
Sometimes	237 (24.3)	80 (24.6)	70 (25.7)	13 (34.2)	44 (22.9)	30 (20.0)
Often	199 (20.4)	81 (24.9)	41 (15.1)	8 (21.1)	55 (28.6)	14 (9.3)
Always	82 (8.4)	46 (14.2)	15 (5.5)	2 (5.3)	17 (8.9)	2 (1.3)
Total	977 (74 no answers)	325 (22 no answers)	272 (20 no answers)	38 (12 no answers)	192 (15 no answers)	150 (5 no answers)
Frequency of asking sources						
Never	318 (32.6)	52 (16.0)	126 (46.3)	12 (31.6)	75 (39.3)	53 (35.3)
Rarely	285 (29.2)	115 (35.4)	62 (22.3)	10 (26.3)	47 (24.6)	51 (34.0)
Sometimes	180 (18.4)	82 (25.2)	38 (14.0)	10 (26.3)	28 (14.7)	22 (14.7)
Often	133 (13.6)	61 (18.8)	32 (11.8)	5 (13.2)	20 (10.5)	15 (10.0)
Always	60 (6.1)	15 (4.6)	14 (5.1)	1 (2.6)	21 (11.0)	9 (6.0)
Total	976 (1 no answer)	325 (0 no answer)	272 (0 no answer)	38 (0 no answer)	191 (1 no answer)	150 (0 no answer)

The percentages have been calculated based only on valid responses.

Concerning the frequency of use of ChatGPT, 977 students provided a valid answer (74 missing values): 32.3% of students affirm they use it *rarely*, 24.3% *sometimes*, and 28.8% say they use it *often* or *always*. Crossing this variable by country, it emerges that the frequency of use is lower among American and Italian students and is higher among

Uruguayans, while Chinese respondents are the most likely to state that they use this generative artificial intelligence *always*.

How often do you ask ChatGPT to indicate the sources from which it drew the information you requested? In the total sample ($n = 976$, 75 missing values), 61.8% of respondents ask for sources *never* or *rarely*, 18.4% *sometimes*, and 19.7% *often* or *always* (Table 2). As to country, 46.3% of Italian and 39.3% of Uruguayan respondents state that they *never* do this. Chinese students, more than others, reveal that they do this from *rarely* to *often*, with percentages varying from 35.4% to 18.8%.

Gender and Program Course Differences

Gender and the field of course are significantly associated with the use of ChatGPT ($\chi^2_1 = 32.89, p < .0001$ and $\chi^2_1 = 23.87, p < .0001$), as men more than women (85.0% vs. 71.8%, Std. Residual = 5.7) and techno-scientific students more than socio-humanistic ones (84.4% vs. 72.8%, Std. Residual = 4.9) have used it. We tested if the gender variable was associated with the frequency of use by running an analysis of variance (ANOVA), and it turned out that men ($M = 2.96$) use ChatGPT more frequently than women ($M = 2.55$) ($F(1, 936) = 29.93, p < .0001$). We did the same statistical analysis also for the program course, and we found out that techno-scientific students ($M = 2.89$) use ChatGPT more frequently than the socio-humanistic ones ($M = 2.58$) ($F(1, 868) = 15.17, p < .0001$). Gender is not related to the frequency with which students ask ChatGPT for its sources, while the type of study does ($F(1, 867) = 9.21, p < .003$): socio-humanistic students ($M = 2.46$) more frequently than techno-scientific students ($M = 2.21$) ask them.

Assessment of the Consequences of ChatGPT Use

In Research Question 3, we examined students' assessment of the consequences of ChatGPT's use on the collective ability to do the following activities: writing, reading, understanding, thinking, communicating, learning, and teaching. All respondents who said they used ChatGPT were asked the question: Table 3 reports students' evaluations ($n = 954$, 97 missing values).

TABLE 3
Students' Assessment of the Consequences on Collective Skills
(Absolute Numbers and Percentages)

Skill's consequences	Negative or very negative	Both negative and positive	Positive or very positive	No consequences	Total
Writing	309 (32.4)	316 (33.1)	297 (31.1)	32 (3.4)	954 (100%)
Reading	213 (22.3)	297 (31.1)	365 (38.3)	79 (8.3)	954 (100%)
Understanding	161 (16.9)	300 (31.4)	465 (48.7)	28 (2.9)	954 (100%)
Thinking	350 (36.7)	387 (40.6)	190 (19.9)	27 (2.8)	954 (100%)
Communicating	192 (20.1)	367 (38.5)	316 (33.1)	79 (8.3)	954 (100%)
Learning	127 (13.3)	321 (33.6)	493 (51.7)	13 (1.4)	954 (100%)
Teaching	127 (13.3)	336 (35.2)	462 (48.4)	29 (3.0)	954 (100%)

The percentages have been calculated based only on valid answers.

About a third of the respondents think that ChatGPT will have a very negative or negative consequences concerning thinking skills (36.7%) and writing skills (32.4%). On the other hand, positive or very positive consequences are attributed to learning (51.7%), teaching (48.4%), and understanding (48.7%). It remains to be noted that regarding the ability to write, a third of the respondents attribute negative or very negative consequences, a third positive or very positive, and a third both positive and negative. Compared to the complexity of these skills, percentages ranging from 31.1% to 40.6% of respondents believe that ChatGPT generates positive and negative consequences.

We cross these assessments with the country variable, and it turned out that the most pessimistic regarding the consequences of ChatGPT adoption are the Italians (relating to the abilities to write, read, think, learn, and teach), sometimes accompanied by the Americans and Uruguayans. The most optimistic are the Chinese and the Kenyan students.

In detail, as to ChatGPT's effects on writing, 42.8% of Italians and 40.3% of Uruguayans (the highest percentages in the sample) are convinced that ChatGPT will bring negative or very negative consequences. In comparison, 40.0% of Chinese, more than the others, think that there will be positive or very positive consequences, and 40.3% believe there will be both positive and negative consequences. Regarding ChatGPT's effects on reading, 31.5% of Uruguayan students and 27.9% of Italians (the highest percentages in the sample) are convinced that ChatGPT will bring negative or very negative consequences. More than the others, 52.5% of Chinese participants think there will be positive consequences.

Concerning understanding, American and Uruguayan students (23.5% and 22.7%, which are the highest percentages) more than others think that the use of ChatGPT will have negative or very negative effects on the ability to understand, while Italians (4.8%) more than others are convinced that there will be no consequences. By contrast, more than half of the Chinese students (53.8%, the highest percentage) think ChatGPT will positively or negatively affect their understanding capability. Regarding thinking, 42.8% of Italian and 40.3% of American students, more than the others, believe that ChatGPT use will have negative or very negative effects on this capability. By contrast, 26.9% of Chinese believe that the diffusion of ChatGPT will positively or negatively affect thinking. In this case, higher percentages of respondents from all the countries (from 30.9% of Americans to 43.4% of Chinese) indicate that ChatGPT use will affect thinking with both positive and negative effects.

As to communicating, while American students more than others (45.6%) judge that adopting this LLM will have positive and negative consequences on communication capability, 38.1% of Chinese respondents think there will be positive or very positive effects. Regarding learning, American and Italian students are again the more pessimistic (22.8% and 17.8%), and Chinese the more optimistic (60.0%).

Finally, considering teaching emerges the same pattern: Italian and American respondents (20.8% and 19.5% respectively) more than the others are convinced about the negative or very negative effects of ChatGPT use. In comparison, 59.1% of Chinese respondents think the opposite, that the impact will be positive or very positive.

At this stage, we passed to examine to what extent ChatGPT could help develop the following general competencies: critical thinking, effective communication, problem-solving, creativity, and writing ability. Our respondents are convinced that ChatGPT does not help develop these competencies. The means of the answers range from 2.30 to 3.06,

which indicates a low or a moderate effect of ChatGPT (see Table 5 for the mean scores of the total sample). Only in the case of problem-solving are they slightly more optimistic, and their judgment reaches *quite a bit*. The competencies where respondents see the help of ChatGPT as the more modest are critical thinking and creativity.

Here, the variable country also designs a patchwork of differences regarding the assessments of these students. As to critical thinking, there is a contraposition between Americans and Chinese. A third of the former is convinced that the impact of ChatGPT is null, while 43.8% of the latter evaluate that the effect will be “quite” if not much relevant. With respect to effective communication, half of Uruguayans and more than half of Americans think that this effect will be null or little. At the same time, Italians and Chinese are convinced that the effect will be quite relevant.

Regarding problem-solving, American students think that the effect will be null or small, while Chinese believe that ChatGPT use will contribute significantly to developing this competence. In addition, more than the others, Italian students think that its effect will be quite important. The same pattern emerges also regarding creativity: its development is seen by American students as not at all fostered by ChatGPT use, while it is seen by Chinese students as quite enhanced. Finally, as to writing ability, the contraposition is here between Italians and Chinese students: the former think that ChatGPT will give a little or quite a bit of contribution to the development of this ability, while Chinese students more than all the others are convinced that its contribution will be very relevant.

To synthesize these results, we performed a multivariate analysis of variance with countries as the independent variable revealing a significant main effect of this variable ($F(20, 3792) = 7.01, p < .0001$). Examining the means highlights that those who think that ChatGPT will have less influence on the development of all these competencies are always American² and Italian students, except for the issue of problem-solving, where Italians are more open. By contrast, Chinese³ and Kenyan students are more convinced that ChatGPT will help develop all these competencies.

The third issue we investigated was “How relevant do you think it is to understand if a text was written by a human being or ChatGPT?” with a 5-point scale: *not at all*, *a little*, *quite a bit*, *much*, and *very much*. The answers of the total sample collocate between *quite a bit* and *much*, with a mean of 3.59 ($SD = 1.11$), and this judgment does not show substantial differences between the countries. The only difference found was that for American and Uruguayan students, knowing this matters “very much,” while for Chinese students, it matters only “much.”

2. As to the development of critical thinking the total mean is $M = 2.31$ while for Americans the mean is $M = 2.06$ and Italians $M = 2.17$; as to effective communication the total mean is $M = 2.70$, while for Americans the mean is $M = 2.42$ and Italians $M = 2.73$; as to problem-solving the total mean is $M = 3.06$, while for Americans the mean is $M = 2.46$ and Italians $M = 3.09$; as to creativity the total mean is $M = 2.33$, while for Americans the mean is $M = 2.15$ and Italians $M = 2.25$; as to writing ability the total mean is $M = 2.64$, while for Americans the mean is $M = 2.52$ and Italians $M = 2.39$.

3. As to the development of critical thinking the total mean is $M = 2.31$ while for Chinese the mean is $M = 2.54$ and Kenyans $M = 2.60$; as to effective communication the total mean is $M = 2.70$, while for Chinese the mean is $M = 2.88$ and Kenyans $M = 2.80$; as to problem-solving the total mean is $M = 3.06$, while for Chinese the mean is $M = 3.42$ and Kenyans $M = 3.00$; as to creativity the total mean is $M = 2.33$, while for Chinese the mean is $M = 2.50$ and Kenyans $M = 2.63$; as to writing ability the total mean is $M = 2.64$, while for Chinese the mean is $M = 3.00$ and Kenyans $M = 2.63$.

To test if gender was associated with respondents' assessment of the consequences generated by ChatGPT's use on a series of collective skills we ran a multivariate analysis of variance (MANOVA). In this analysis, we excluded participants who had chosen the response with *no consequences*. The main effect of gender is significant ($F(7, 759) = 2.53$ $p < .02$). Univariate effects analysis shows that men's mean scores are consistently higher than women's, indicating that they believe ChatGPT will have more positive (or less negative) consequences for all the collective skills considered (Table 4).

TABLE 4
Students' Assessment of the Consequences on Collective Skills
(Means and Standard Deviations) by Gender

Skill's consequences	Total Sample (<i>n</i> = 767)	Men (<i>n</i> = 391)	Women (<i>n</i> = 376)	<i>F</i> univariate <i>df</i> = 1,765
Writing	3.01 (1.16)	3.12 (1.19)	2.89 (1.11)	7.23**
Reading	3.20 (1.07)	3.32 (1.12)	3.08 (1.01)	10.15**
Understanding	3.44 (1.04)	3.56 (1.06)	3.31 (1.04)	11.28**
Thinking	2.77 (1.03)	2.87 (1.09)	2.67 (0.95)	7.10**
Communicating	3.17 (0.99)	3.27 (1.03)	3.07 (0.94)	7.38**
Learning	3.53 (1.05)	3.65 (1.05)	3.40 (1.03)	11.39**
Teaching	3.45 (1.01)	3.56 (1.04)	3.33 (0.97)	9.60**

** $p < .01$. The response scale was a 5-point scale from 1 = *very negative* to 5 = *very positive*.

The MANOVA aimed to investigate if gender was associated with the judgment on general competencies development revealed a significant main effect, $F(5, 910) = 4.01$, $p < .0001$ (Table 5).

TABLE 5
Students' Assessment of ChatGPT's Role in General Competencies Development
(Means and Standard Deviations)

General competencies' development	Total Sample (<i>n</i> = 916)	Men (<i>n</i> = 488)	Women (<i>n</i> = 428)	<i>F</i> univariate <i>df</i> = 1,914
Critical thinking	2.30 (1.03)	2.36 (1.05)	2.23 (1.00)	3.88*
Effective communication	2.70 (1.02)	2.77 (1.04)	2.62 (0.99)	4.94*
Problem-solving	3.06 (1.14)	3.18 (1.13)	2.93 (1.13)	11.81**
Creativity	2.33 (1.08)	2.46 (1.10)	2.18 (1.04)	14.93***
Writing ability	2.65 (1.10)	2.73 (1.14)	2.54 (1.05)	6.80**

* $p < .05$, ** $p < .01$, *** $p < .0001$. The 5-point scale used here is: 1 = *not at all*, 2 = *a little*, 3 = *quite a bit*, 4 = *much*, and 5 = *very much*.

All univariate effects are significant and examining the differences between men's and women's judgments indicates that men, more than women, are convinced that ChatGPT use can help develop these competencies.

Finally, to test if gender was associated with the answers to the question about the relevance of knowing if a text was written by a human being, we applied a *t*-test. It turned out that women ($M = 3.71$) attributed much more importance than men ($M = 3.49$) to knowing this ($t_{873} = 2.92, p < .01$).

Field of Study Related to Perceptions of ChatGPT

Research Question 5 asked if students in techno-scientific fields perceive ChatGPT differently from those in socio-humanistic fields. To test whether the course program was associated with respondents' assessment of the consequences generated by ChatGPT adoption of these collective skills, we ran a multivariate analysis of variance (MANOVA). Again, we excluded participants who had chosen the response with *no consequences*. The main effect of the course program is significant ($F(7, 698) = 3.42, p < .002$). It turned out that the scores were significantly different only for the three skills. Techno-scientific students gave significantly higher scores than socio-humanistic students on the consequences brought by ChatGPT, only regarding the skills of understanding, learning, and teaching (Table 6).

TABLE 6
Students' Assessment of the Consequences on Collective Skills
(Means and Standard Deviations) by Course Program

Skill's consequences	Total Sample ($n = 706$)	Techno-scientific ($n = 390$)	Socio-humanistic ($n = 316$)	<i>F</i> univariate $df = 1,705$
Writing	3.01 (1.16)	2.97 (1.22)	3.05 (1.09)	n.s.
Reading	3.21 (1.06)	3.24 (1.10)	3.18 (1.02)	n.s.
Understanding	3.44 (1.06)	3.54 (1.08)	3.32 (1.01)	7.72**
Thinking	2.76 (1.02)	2.76 (1.03)	2.75 (1.00)	n.s.
Communicating	3.16 (1.01)	3.19 (1.04)	3.12 (0.98)	n.s.
Learning	3.55 (1.05)	3.67 (1.06)	3.40 (1.01)	12.04**
Teaching	3.47 (1.01)	3.54 (1.04)	3.39 (0.97)	3.96*

* $p < .05$; ** $p < .01$. The response scale was a 5-point scale from 1 = *very negative* to 5 = *very positive*.

By contrast, the MANOVA aimed to investigate if the course program was associated with the judgment on general competencies development did not reveal any difference between students of the two fields of study.

To test if the course program was associated with the answers to the question about the relevance of knowing if a text was written by a human being, we applied a *t*-test and socio-humanistic students ($M = 3.74$) gave more importance than techno-scientific ($M = 3.48$) ($t_{806} = 3.38, p < .01$).

Discussion

In the introduction, we highlighted the implications that the diffusion and adoption of ChatGPT has brought on education and how education has tried to make sense of ChatGPT and has reacted. Our analysis has shown that the current literature has focused primarily on descriptive studies and has identified two relevant gaps. These studies also include some surveys on students, but these are few and dispersed. Our global figurative perspective inspired us to focus on college students for contributing to the most underserved sector of studies. To give voice to students of different cultures, economic situations, and so forth, we involved a multinational sample of students from the five continents. What emerged from this study?

Regarding RQ1—“What do college students think about the nature and meaning of ChatGPT?”—our findings document that, despite the high awareness of ChatGPT among students globally (96.6%), less than half of these students are willing to use it to write and more than half to obtain information. Furthermore, more than half of the students are unwilling to pay for ChatGPT. The analysis of their behavioral intentions shows that AI struggles to become a key part of learning environments. Although, it may suggest that AI tools become another technology supplied by schools and universities or that existing educational models will not radically change for grassroots initiatives by students.

As to RQ2—“What is the use and frequency of use, of ChatGPT by college students?”—our findings highlight that nearly half of students who know ChatGPT use it. The analysis of the frequency of use reveals, even more, the dimension of ChatGPT adoption in the routines of these students since almost half of the sample states they use it rarely or occasionally. This picture is completed by considering how frequently the students request sources when using ChatGPT: only 19.7% do this often or always. The use of ChatGPT, on the one hand, is related to caution or doubts or disinterest toward generative intelligence among these students and, on the other, to the serious risks of their awareness of using this technology. These students’ behaviors indicate that college students’ adoption of generative intelligence is not without its difficulties and resistance, similar to teacher behavior (Kikerpill & Siibak, 2023).

In respect to RQ3—“How do college students conceptualize the effects of ChatGPT on their main skills and on the development of their fundamental collective competencies?”—overall, students’ judgments tend to assess the changes brought by ChatGPT on these fundamental skills quite positively, except for writing, where they are divided between negative and positive consequences and for thinking where three quarters of the students see the possibility of negative consequences even if sometimes accompanied by positive aspects. This picture is further enriched by the findings regarding the assessment of general competencies development: critical thinking, effective communication, problem-solving, creativity, and writing ability. Students’ evaluations attribute a moderate effect of ChatGPT on developing these competencies. Moreover, our respondents consider knowing if a text is AI-generated or human-generated not important. These students’ assessments seem to scale back the hype built around AI.

Regarding RQ4—“Are there similarities and differences in evaluations of ChatGPT based on students’ culture or nationality?”—a critical pattern emerges. On the one hand, American and Italian students expressed an intention to use ChatGPT for writing and

retrieving information much weaker than their colleagues. This also partly explains their low willingness to pay for the use of ChatGPT. Even the use and frequency of use of ChatGPT by them is significantly lower than the others, including the practice of asking for the sources on which ChatGPT builds its outputs. Also, when examining the most critical skills and collective competencies, American and Italian students are the most pessimistic in evaluating the consequences of using ChatGPT. Conversely, Chinese individuals, often followed by Kenyans and Uruguayans, tend to express an optimistic outlook on ChatGPT. This enthusiasm translates into stronger intentions to use ChatGPT for writing, information retrieval, and even paid services. It also manifests in more frequent utilization of this generative AI technology. Furthermore, these groups perceive ChatGPT positively regarding its impact on enhancing critical academic skills and developing essential collective competencies.

These differences are probably related to several variables, from diverse historical contexts to different perceptions of innovation, to cite only two. In China, rapid technological advancement is often considered essential for national progress and competitiveness. This cultural attitude may foster a more positive reception of technologies like ChatGPT in educational contexts (Hine & Floridi, 2024; Liengpunsakul, 2021; Sindermann et al., 2021). In the US and Italy, while innovation is also valued, there is often more emphasis on the potential drawbacks and disruptions that new technologies might cause, leading to a more cautious approach. Students in Kenya and Uruguay might have more limited access to advanced educational tools and technologies than US and Italian students. In countries with fewer resources, new technologies like ChatGPT might be seen as advancements that significantly improve existing tools. In contrast, students in more tech-reliant countries might have higher expectations and are more critical of technology due to their extensive access to existing high-quality resources.

Considering now RQ5—“Do students in techno-scientific fields perceive ChatGPT differently from those in socio-humanistic fields?”—like the country, also the field of study generates a clear pattern: techno-scientific students are more positive and engaged with ChatGPT than socio-humanistic students. This pattern includes the intention to use ChatGPT for writing and retrieving information, the frequency of use of ChatGPT and asking for its sources, and the evaluations of the consequences of the use of ChatGPT on understanding, learning, and teaching. By contrast, socio-humanistic students request sources more frequently than techno-scientific students and more than their techno-scientific colleagues think that knowing if a text is written by ChatGPT or by a human is very important. This apparent pattern could widen further technological literacy and proficiency among students in these two fields of study, reinforcing existing divides. This could have long-term implications for career opportunities and access to resources for students in these two fields of study, highlighting existing power dynamics and reinforcing current social hierarchies. The higher frequency of requesting sources among socio-humanistic students underscores their more significant attention to verifying the credibility of information, which could become even more crucial as AI-generated content becomes more widespread. From a figurational perspective, we could highlight the need to balance technological fluency with traditional humanistic skills to ensure well-rounded education and critical engagement with information. The reluctance of many students to ask

ChatGPT for its sources could reflect a shift in academic standards and practices, where the ease of accessing information may overshadow the importance of verifying its accuracy. This trend might impact educational quality and academic integrity, especially if AI tools become more ingrained in learning environments without adequate emphasis on critical evaluation skills. These findings also suggest that cultural and disciplinary contexts significantly shape how students perceive the value and risks of AI tools like ChatGPT. These perceptions are critical for understanding how technology might be adopted or resisted within different academic fields, potentially influencing future educational landscapes.

Finally, as regard to RQ6—“What are college students’ opinions of which sectors of industries will have positive or negative effects following the diffusion and adoption of ChatGPT?”—education is seen as both positively and negatively influenced by AI, highlighting its vulnerability and potential for transformation depending on its integration. We argue that tech companies have progressively and silently co-opted education at the expense of traditional educational agencies, which confirms the awareness of the high price that education is obliged to pay to evolve on a technological level. Concerns about journalism and law reflect worries over misinformation and ethical issues, underscoring the need for strategies to manage AI’s role in public discourse and governance. Differences in opinions across countries show us how cultural contexts may shape expectations about AI. Kenyan students’ optimism about AI’s impact on education may reflect a focus on using technology to enhance access and quality in education.

In contrast, Chinese students’ positive views on public administration, journalism, and law suggest confidence in AI’s potential to improve governance and information flow. Techno-scientific students view AI as a tool for efficiency and innovation in labor markets, as opposed to socio-humanistic students who are more concerned about AI’s effects on creative sectors like media and entertainment. The varied perceptions by our students of AI’s role suggest that in these countries, a reconfiguration of social structures, as technologies like ChatGPT become more embedded, is at work.

The same pattern that we found regarding techno-scientific and socio-humanistic students can also be extended to gender: men more than women intend to use ChatGPT for writing, and they are also more willing to pay for its use. Even their use and frequency of use of ChatGPT are significantly higher than those of women. Also, examining essential skills and collective competencies, we see that men are more optimistic than women in evaluating the consequences of the use of ChatGPT on skills and collective competencies. By contrast, women consider it much more critical than men knowing if ChatGPT or a human generates a text. This could reflect a figurational dynamic where women emphasize authenticity, originality, and critical engagement with content. At the same time, men’s more positive assessments of ChatGPT’s role in developing competencies such as problem-solving and creativity may suggest different expectations or comfort levels with AI technology. This could be shaped by existing gender dynamics in educational contexts, where men might feel more confident in adopting new technological tools (Acilar & Sæbø, 2023). This could have long-term implications for career opportunities and access to resources for men and women, reinforcing current social hierarchies. Gender differences also emerge, with women more focused on potential negative impacts in education and men on changes in advertising and labor, reflecting different views on AI’s role in shaping

future job markets. These findings show that the diffusion of this innovation reimposes the usual pattern of women having minor access to and use of ChatGPT, crystallizing power dynamics among men and women in a conventional term. Our findings suggest a possible future shift in global education. Institutions that embrace AI could gain an edge, potentially leading to new centers of innovation and a more fragmented global educational landscape.

To conclude, let us offer some final reflections on Norbert Elias's figurational approach (1970) we adopted in this study. Our results demonstrate how in our case different social actors—namely students, teachers, educational institutions, policymakers, and technology developers—are both interdependent and, at times, disconnected. Within this network, technology developers emerge as the most proactive agents, while students, teachers, and educational institutions either attempt to adapt or develop forms of resistance. This pattern has repeated itself numerous times with the introduction of various technologies into the education system, such as the calculator (e.g., Close et al., 2008), the computer (e.g., Cuban, 1986), the internet (e.g., Selwyn, 2013), and the interactive whiteboard (e.g., Smith et al., 2005). However, with the advent of ChatGPT and AI more broadly, the scale of change is likely to be even greater. These technologies are not only reshaping learning and teaching routines but also introducing new forms of social control, discipline, and interaction, which will contribute to transform education for generations to come. Our findings highlight an ongoing shift in power dynamics among these social actors, not in favor of students and teachers, although some current power relationships (men/women, tecno-scientific vs. socio-humanistic students) seem to be strengthened.

Limitations of the Study

This study is ambitious, examining five distinctly different countries representing each continent. However, the reliance on students completing the questionnaire online poses challenges, as it does not guarantee full participation. Our sample consists of a convenience group of university students from five countries, so caution should be exercised when generalizing these findings. Despite this limitation, the achievement of building a multinational sample of this size is valuable, as it captures diverse voices and experiences. The countries involved have varying histories of engagement with digital technologies and artificial intelligence, shaped by their unique socioeconomic and political trajectories. This diversity enriches the study with a wide range of perspectives and perceptions.

To further enhance the robustness of future research, representative national samples are required to explore sociodemographic variables better. Larger-scale national studies will also be undertaken to address these needs. Another limitation pertains to the translation of the survey into multiple languages. Certain words or phrases that are clear in the original language may lack direct equivalents in other languages, potentially leading to misinterpretation or confusion among respondents. The authors addressed this challenge by translating the survey from English into the respective languages and then conducting back-translation as a verification step. While this process helps mitigate translation issues, some nuances may still be lost.

Finally, the study's reliance on self-reported measures introduces a third limitation. These measures may be subject to interpretive biases and the influence of social desirability, which could impact the accuracy of the responses. Despite these limitations, the study contributes significantly by providing a multinational perspective.

Conclusion

This study comprehensively explores college students' perceptions, usage, and evaluations of ChatGPT across diverse cultural, academic, and demographic contexts. Despite high levels of global awareness, actual usage and willingness to pay for ChatGPT remain moderate, with significant variations based on culture, educational field, and gender. Chinese, Kenyan, and Uruguayan students exhibit more optimism and frequent use than their American and Italian peers, who show greater caution and skepticism. Techno-scientific students are more engaged and positive about ChatGPT's potential, while socio-humanistic students emphasize critical evaluation and authenticity. Gender differences also emerge, with men showing greater adoption and optimism while women prioritize authenticity and ethical concerns. Across the board, students recognize ChatGPT's moderate impact on critical skills like creativity, problem-solving, and communication but remain divided on its effects on writing and thinking. These findings highlight how cultural, disciplinary, and gendered contexts shape perceptions of AI tools, signaling a potential reconfiguration of education and power dynamics as technologies like ChatGPT become more integrated into academic and societal structures.

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