

Regulation and Ethics in the Use of ChatGPT: Student Perceptions of Risks in Higher Education

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Abstract

The use of ChatGPT in higher education has sparked debates about its regulation and the ethical implications arising from its application. This study aimed to analyze the perceptions of university students from five countries regarding the need for regulation and the ethical concerns associated with ChatGPT. A quantitative and comparative design was employed, with a sample of 1,692 students from Japan, Mexico, South Africa, Spain, and the Philippines. The instrument used was the international Students' Perception of ChatGPT questionnaire, from which 14 Likert-type items were selected, organized into two dimensions: regulation and ethical concerns. The analysis included descriptive statistics, dispersion evaluation, correlations, and network graphs. The results indicate that perceptions of regulation are medium to high, with higher averages in the Philippines and Spain and lower ones in Japan. Ethical concerns showed greater variability, highlighting central risks such as academic dishonesty, plagiarism, reduced human interaction, replacement of formal education, and loss of active learning. A weak association was identified between the two dimensions, with differentiated network configurations depending on the country, showing that support for regulation is not always accompanied by an ethical-critical judgment. These findings provide input for designing ethical training programs, fostering the responsible use of artificial intelligence.

Keywords

Chatgpt, Ethics, Higher Education, Educational Innovation

1. Introduction

The development of artificial intelligence (AI)-based language models is transforming the way students address academic challenges during their training [1]. One of the most widely used AI-derived tools is ChatGPT, which grew from a few thousand users to more than 100 million in the two months following its launch [2]. This tool offers possibilities to facilitate learning and enhance transversal skills such as writing and information retrieval [3].

Despite its potential to transform the educational process, the use of ChatGPT has been the subject of ethical debate [4, 5], as doubts have emerged about its impact on academic integrity, intellectual authorship, and the encouragement of plagiarism [6]. Similarly, some studies have examined the consequences of possible student dependence on the tool, such as limited critical and cognitive development [7, 8], the trend toward automated production of academic work, and concerns about the authenticity of authorship of assignments and projects [9].

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It should be noted that important differences may exist in ethical perceptions of ChatGPT use across countries [10]). In Asian and Latin American contexts, students tend to adopt more pragmatic attitudes toward the tool, valuing its usefulness over concerns about ethics and originality of information [11]. In China, implications related to its academic use highlight limitations in areas such as professional knowledge, training data, language comprehension, reasoning ability, emotional communication, privacy, and security [12], while European students tend to adopt a more critical and cautious stance when using ChatGPT for academic tasks [13].

Other studies have documented that AI use can be beneficial if integrated under pedagogical principles [14], promoting digital competencies and critical skills [15]. However, this integration requires educational institutions to develop institutional policies that balance the ethical and rational use of ChatGPT with its academic benefits [16]. This suggests that despite ChatGPT's growing presence in universities, there is still a lack of comparative understanding of how students perceive ethical dilemmas and the need for regulation of this tool.

This is particularly relevant in contexts where academic norms and values vary significantly. Within this framework, the present study aims to address the following research question: How do university students from different continents perceive the need for regulation and the ethical implications of using ChatGPT in higher education? Accordingly, the objective of this study is to analyze the perceptions of university students from five countries, representing different continents, regarding the regulatory and ethical aspects associated with the use of ChatGPT.

1.1. Theoretical Framework

1.1.1. AI and ethics in Higher Education

The integration of new tools such as AI is shaped by an interaction of institutional, cultural, and social factors [5]. Moreover, its adoption in educational environments brings a series of challenges, including limited teacher training in technological competencies [17], ethical implications [18] and practical difficulties for pedagogical implementation [19].

Tools such as ChatGPT have become references of educational innovation, as they allow students to access real-time responses [20, 21], develop writing skills, and facilitate autonomous learning [22]. Consequently, universities worldwide are employing these tools to draft texts, obtain quick explanations, or even produce full assignments [23]. Some studies suggest that their use can positively impact student academic performance [24] and improve efficiency in academic tasks [25]. In this regard, students have confirmed perceiving ChatGPT as a complement that enhances their learning [26], suggesting that it can enrich the educational experience [27].

However, despite these perceived benefits, ethical concerns have also arisen, such as the impact on academic integrity [28], diminished intellectual effort [29], and reduced critical thinking development [30]. Several authors agree that ChatGPT use may encourage unethical behaviors, such as completing assignments without developing personal ideas [31, 32], fulfilling academic commitments without engaging in meaningful learning [33], or facilitating task completion without ethical commitment [34].

As the use of ChatGPT and similar tools becomes more widespread, the risk of students developing cognitive dependence on these systems also increases [34]. This could translate into a decline in transversal skills such as argumentation, academic writing, and independent problem-solving [35], creating a false sense of competence [36], since students may assume their performance is optimal when they have not actually developed the necessary skills to sustain that knowledge in real situations [28].

Beyond individual use, the institutional environment plays a decisive role [37, 38]. Universities that have begun integrating ChatGPT into curricula with pedagogical criteria report better results in terms of meaningful learning and digital competence development [39]. Similarly, it has been noted that students who reflect on ChatGPT's ethical dilemmas show greater commitment to academic integrity [39]. However, achieving this requires understanding student perceptions to ensure responsible and proper use of AI [40].

Student perceptions of ChatGPT ethics are diverse and sometimes contradictory [41, 42, 43, 44], highlighting the lack of uniform criteria for its use [45, 46]. Some studies indicate that students perceive ChatGPT as a learning support tool, while others view it as a shortcut for dishonest advantages [47]. In this regard, some authors [48, 30] found that training in digital ethics positively influences students' critical perceptions of AI and emphasize the importance of fostering ethical and legal awareness in the use of these technologies to prevent malpractice.

Considering students' ethical perceptions regarding the need for regulation and ethical criteria surrounding ChatGPT has pedagogical implications [49], as it allows for redesigning learning objectives and assessment methods [50]. According, some authors [51], many students demand explicit guidance on the ethical use of AI, which suggests the need to incorporate these topics into curricula. Moreover, the responsible integration of ChatGPT into classrooms should be based on ethical deliberation and critical dialogue between teachers and students [52].

2. Method

2.1. Type of study and participants

This research corresponds to a quantitative study with a descriptive and comparative scope [53], using a cross-sectional, non-experimental design [54]. It is based on the analysis of data from the international Students' Perception of ChatGPT questionnaire [55], coordinated by the COVID-19 Social Science Lab at the University of Ljubljana [56]. The study sample consisted of 1,692 university students from five countries: Japan ($n = 175$), Mexico ($n = 538$), South Africa ($n = 71$), Spain ($n = 650$), and the Philippines ($n = 258$). Table 1 shows the demographic characteristics of the participants.

Table 1
Contribution from participating countries.

Status		Japan	Mexico	South Africa	Spain	Philippines
		175	538	71	650	258
Degree of studies	Bachelor's	0	480	29	536	222
	Master's	1	38	8	79	14
	Doctorate	174	20	34	35	22
Field of study	Applied sciences	0	157	28	220	250
	Arts and humanities	25	73	2	22	1
	Natural and life sciences	3	85	32	40	2
	Social sciences	147	223	9	368	5
Gender	Male	75	295	36	341	106
	Female	100	243	35	309	152
Study modality	Blended	72	161	35	193	162
	Online learning	3	111	8	33	15
	Traditional learning	100	266	28	424	81

Source: The authors (2026)

2.2. Instrument

Data collection was conducted using the international Students' Perception of ChatGPT questionnaire, which consists of 11 sections and 42 questions. It was designed to comprehensively explore perceptions

and uses of ChatGPT in higher education, covering dimensions such as sociodemographic characteristics, usage patterns, perceived capabilities, academic impact, satisfaction, ethical considerations, and perceptions of regulation [11].

For this study, the set of items related to the regulation of ChatGPT use (Q21a–Q21d) and the ethical concerns associated with its application (Q22a–Q22j) was selected. This decision responded to the specific research interest in examining two key dimensions: the perceived need to establish regulatory frameworks and the assessment of ethical risks such as plagiarism, misinformation, reduced human interaction, or the replacement of formal education. Table 2 presents the dimensions and items of the instrument.

Table 2

Selected dimensions from the Students' Perception of ChatGPT Questionnaire.

Construct	Code	Item
PQ21 Regulations in the usage of ChatGPT	Q21a	International regulation is necessary for ChatGPT.
	Q21b	Government regulation is necessary for ChatGPT.
	Q21c	ChatGPT should be subject to university/faculty ethical guidelines.
	Q21d	ChatGPT should be subject to employer ethical guidelines.
PQ22 Ethical concerns related to ChatGPT	Q22a	ChatGPT might encourage unethical behaviour.
	Q22b	ChatGPT might encourage students to cheat.
	Q22c	ChatGPT might encourage students to plagiarize.
	Q22d	ChatGPT might threaten the ethics of the study.
	Q22e	ChatGPT might mislead with inaccurate information.
	Q22f	ChatGPT might invade privacy.
	Q22g	ChatGPT might reduce human interaction.
	Q22h	ChatGPT might replace formal education.
	Q22i	ChatGPT might increase social isolation.
	Q22j	ChatGPT might hinder learning by doing the work for students.

Source: The authors (2026)

To guarantee the reliability of the instrument, a reliability evaluation was carried out, the results observed in Table 3 indicate high indices of internal consistency. In general, the McDonald's ω and Cronbach's coefficients α show values above 0.84, indicating that the questionnaire is suitable for use in research related to the regulation and ethics in the use of ChatGPT.

Table 3

Coefficient of McDonald's ω , Cronbach's Alfa (α) and Guttman's λ^2 .

Reliability	PQ21	PQ22
McDonald's ω	0.839	0.897
Cronbach's α	0.829	0.888

Source: The authors (2026)

2.3. Ethical Considerations

The procedures were carried out in strict adherence to the ethical principles established in the Declaration of Helsinki for research involving human participants [57], ensuring respect at all times for the dignity, rights, safety, and well-being of respondents. Before starting the questionnaire, all participants received clear and sufficient information about the study's objectives, the voluntary nature of their participation, the possibility of withdrawing at any time without consequences, and the measures adopted to ensure the confidentiality and anonymity of their responses. Only individuals who confirmed their informed

consent, declared that they were at least 18 years old, and were enrolled in a higher education institution were able to complete the survey. The protocol was reviewed and approved by the ethics committees of various higher education institutions participating in the project [58].

3. Results

Figure 1 shows the comparison of response distributions for the dimensions PQ21 (need for regulation) and PQ22 (ethical concerns) across the five countries studied. In PQ21, the Philippines and Spain show the highest medians (≈ 3.6), confirming stronger agreement with the need for regulation, while Japan presents the lowest median (≈ 3.37), reflecting a weaker inclination toward this position. Mexico and South Africa fall at intermediate values, close to 3.5. For PQ22, the highest medians correspond to the Philippines (≈ 3.07) and South Africa (≈ 3.06), followed by Mexico (≈ 3.00), while Japan (≈ 2.98) and, especially, Spain (≈ 2.91) show the lowest values, revealing lower levels of ethical concern. These differences suggest the influence of institutional factors in shaping perceptions of both regulation and ethical risks associated with ChatGPT use.

Regarding the presence of outliers, the graph reveals that all countries present outliers in both dimensions, distributed mainly at the lower and upper extremes of the scale (1 and 5). In PQ21, Japan and Mexico show low outliers close to 1, indicating a small group of students who strongly reject regulation, while in Spain and the Philippines, high outliers close to 5 are observed, representing positions of absolute agreement. In PQ22, the dispersion of extreme values is more evident: Mexico and Spain show a greater number of outliers both low (≈ 1) and high (≈ 5). The presence of these outliers reflects the existence of subgroups with strongly divergent opinions, increasing internal heterogeneity and providing relevant nuances for the comparative interpretation of results.

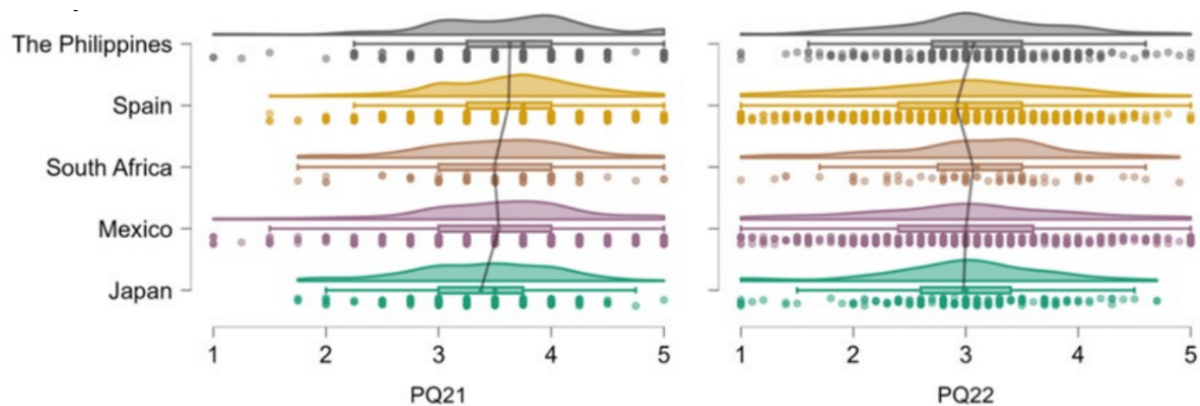


Figure 1: Comparison of perception of regulation and ethics by country.

To confirm these dispersions, Figure 2 presents a comparison of standard deviations. In PQ21, relatively low and homogeneous deviations can be observed across all countries, with values ranging between 0.8 and 1.1. Spain and Japan show the lowest deviations in Q21d (≈ 0.8), suggesting strong consensus that ChatGPT should be subject to university ethical guidelines. Conversely, in Q21c (university ethical guidelines), Japan shows a notably higher deviation (≈ 1.1) compared to the rest, indicating greater diversity of opinions on this specific point.

In PQ22, standard deviations are generally higher and more variable, reflecting greater polarization in perceptions of ethical concerns. Mexico stands out with the highest values in Q22b (≈ 1.27) and Q22c (≈ 1.25), corresponding to the perception that ChatGPT may encourage academic cheating and plagiarism, evidencing highly divided opinions within its student population. Spain shows a similar pattern, with high and stable values in Q22h–Q22i (≈ 1.22), suggesting diverse views on the replacement of formal education and increased social isolation. In contrast, the Philippines tends to show more moderate deviations, with a marked drop in Q22c (≈ 1.0), indicating greater consensus on this particular risk. Japan, while maintaining a middle profile in most ethical items, exhibits the

highest dispersion value in Q22j (≈ 1.29), corresponding to the perception that ChatGPT replaces active learning, reflecting significant internal divisions around this aspect. These patterns confirm that ethical concerns generate more variability in opinions than regulatory perceptions, and that such variability is influenced by institutional factors in each country.

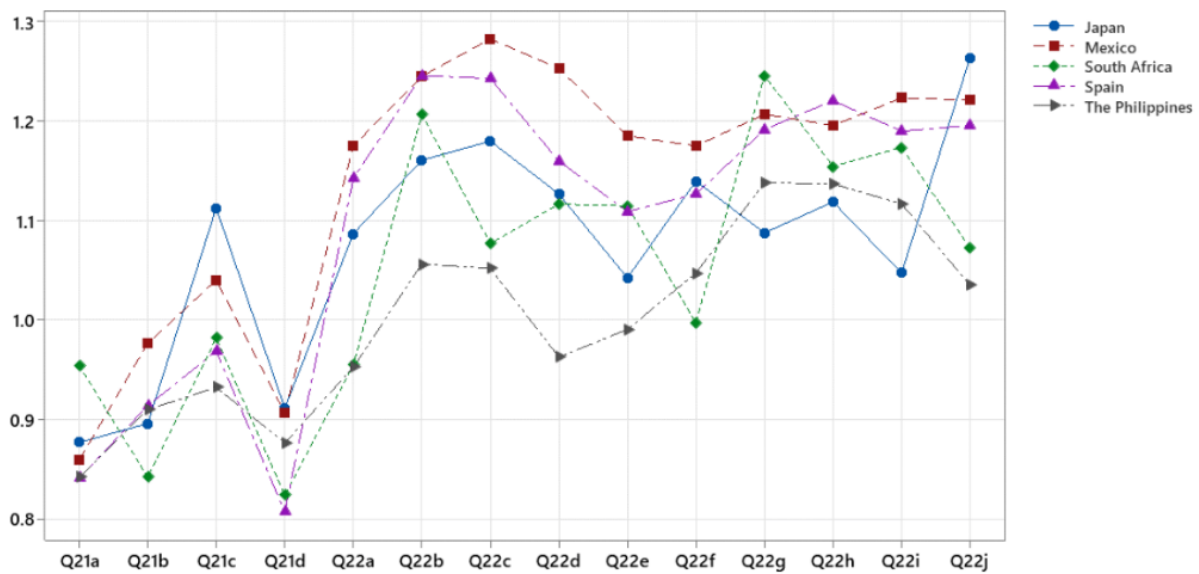


Figure 2: Compare standard deviations by country.

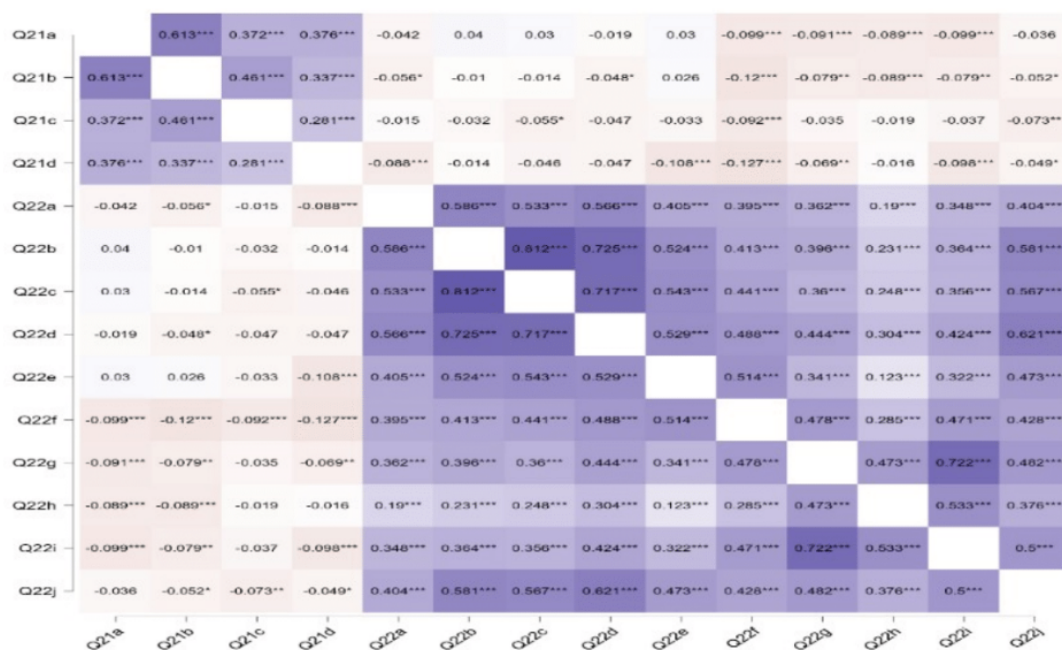


Figure 3: Pearson Heat Map.

The following study was a correlational analysis. Figure 3 shows low associations, many of them negative or close to zero, indicating that for a large portion of students, agreement with the regulation of ChatGPT is not always directly related to ethical concerns. Among the highest positive correlations, Q21a (international regulation needed) with Q22a (unethical behavior) stands out ($r = 0.042$), as well as Q21d (workplace ethical guidelines) with Q22j (replacement of active learning) ($r = -0.049$), although these values are very low and in some cases negative, reinforcing the weak association between both

dimensions.

The weakest correlations are observed between Q21a and Q22f (privacy invasion) ($r = -0.099$), or between Q21b (government regulation) and Q22g (reduction of human interaction) ($r = -0.079$). These findings suggest that support for regulation may respond more to institutional acceptance than to an internalized ethical concern—that is, a student may favor regulating ChatGPT without necessarily considering that it entails specific ethical risks. This represents a dissociation between normative perception and individual ethical judgment.

To further explore the relationships between items, a graph analysis was conducted. Figure 4 shows that in Japan, the network is characterized by strong and concentrated connections between Q22a (unethical behavior), Q22b (academic cheating), and Q22c (plagiarism), as well as between Q22g (reduction of human interaction) and Q22i (social isolation). This suggests that, in this context, ethical concerns are mainly structured around two axes: academic integrity and the impact on social interaction. In Mexico, the connections between Q22b, Q22c, and Q22j (replacement of active learning) are particularly robust, indicating that perceptions of plagiarism and loss of cognitive autonomy form a central core of ethical judgment.

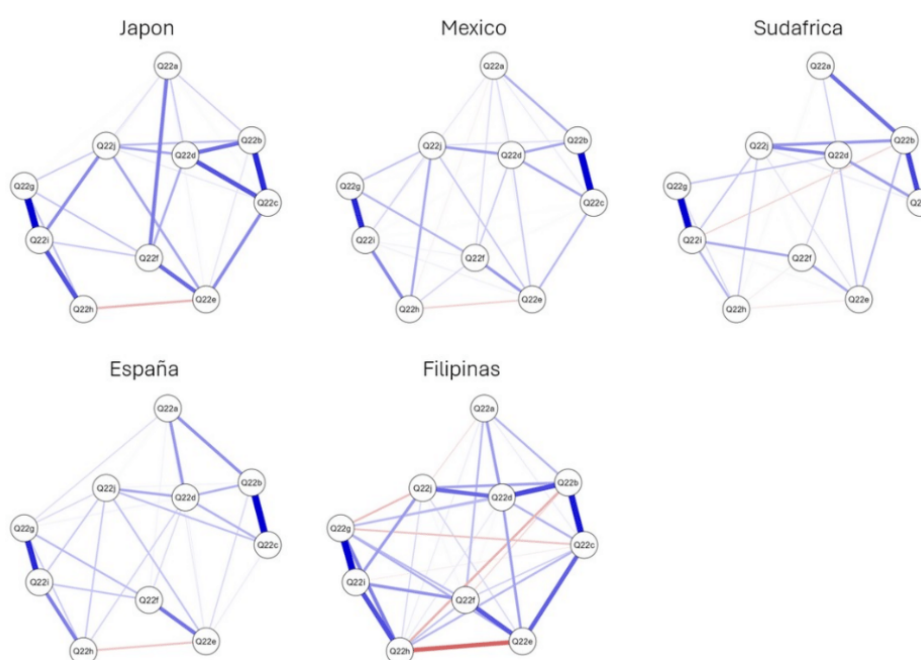


Figure 4: Correlation graphs by country.

In South Africa, the network is distinguished by a highly cohesive cluster among Q22a, Q22b, and Q22c, with weaker links to other items, suggesting a clear focus on immediate academic risks rather than long-term social or educational effects. Spain presents a more balanced structure, with consistent interconnections among the risks of misinformation (Q22e), isolation (Q22i), and reduction of active learning (Q22j), in addition to the relationship between plagiarism and academic cheating. Finally, the Philippines shows the densest and most diversified network, with multiple strong links across academic, social, and cognitive ethical dimensions, but also with the presence of some negative correlations (red lines), evidencing contradictory perceptions about certain risks. This more complex pattern reinforces the interpretation that in contexts with more open debates on AI, ethical attitudes tend to be multidimensional, integrating elements of both academic integrity and social impact.

To complement the findings, a centrality analysis of the network of ethical concerns (Q22a–Q22j) was conducted for each country, evaluated through four metrics: betweenness, closeness, strength, and expected influence. On the betweenness axis, items Q22j (hinders active learning) and Q22i (social isolation) stand out in most countries as nodes acting as bridges between different groups of concerns,

meaning they connect ethical subthemes that would otherwise be more isolated. In contrast, items such as Q22a (unethical behavior) and Q22b (academic cheating) show low values on this metric, indicating that while they are relevant, they do not play a structural role as intermediaries.

In closeness, which measures how quickly an item can connect with others within the network, Q22h (replacement of formal education) and Q22j tend to occupy high positions in several countries, especially in Mexico and the Philippines, suggesting that these concerns are conceptually close to many others and can exert a cross-cutting influence on ethical judgment. Regarding strength and expected influence, Q22j and Q22i again emerge as the strongest nodes with the greatest potential impact on the network, followed by Q22g (reduction of human interaction) in countries such as Japan and Spain. This confirms that perceptions about the loss of cognitive autonomy and the dehumanization of learning are not only central but also exert significant influence on how students integrate the rest of the ethical concerns into their overall evaluation of ChatGPT use.

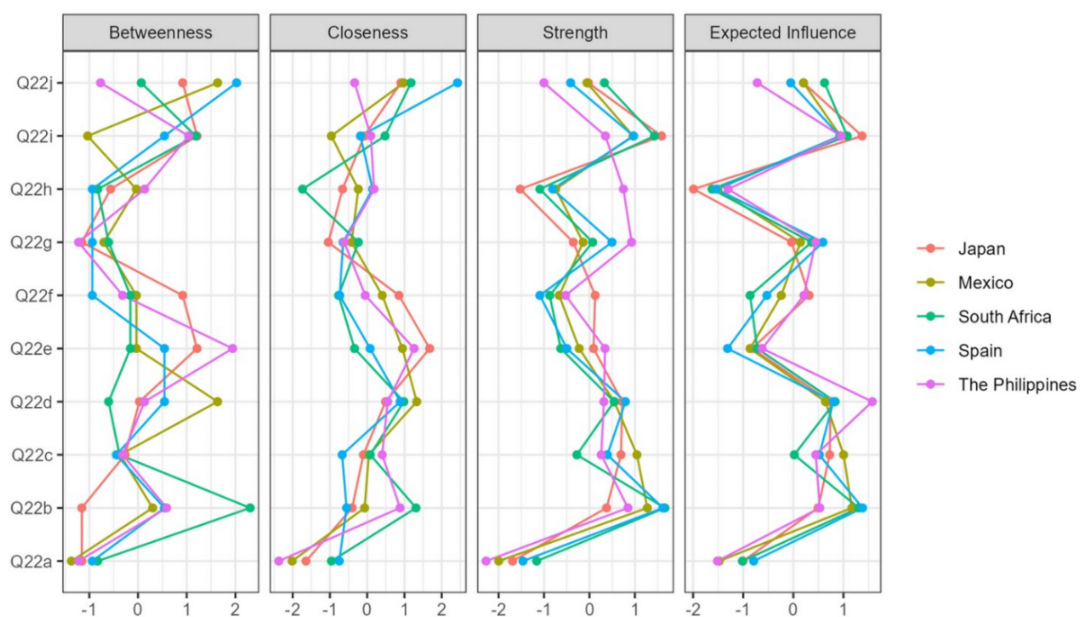


Figure 5: Centrality analysis by country.

4. Discussion

The comparative analysis of perceptions regarding the need for regulation and ethical concerns reveals that although conceptually related, both dimensions are evaluated differently by students. Figure 1 shows that the Philippines and Spain lean more toward regulation, while Japan shows less agreement, evidencing how institutional context shapes acceptance of regulatory frameworks. This finding aligns with [10], who argue that attitudes toward AI regulation vary significantly across regions. Similarly, some authors [55] emphasize that factors such as institutional trust and social norms influence the willingness to accept regulations. Some authors [13] add that in certain countries, a stronger critical stance toward AI emerges from prior experiences in educational and technological contexts. Thus, evidence confirms that regulation is not perceived as a homogeneous imposition but rather as a reflection of the interaction between cultural values and institutional priorities.

Internal variability in opinions is more evident when comparing standard deviations by country (Figure 2), showing that ethical concerns generate more dispersion than regulatory perceptions. Mexico and Spain exhibit marked divisions regarding plagiarism and the replacement of formal education, while the Philippines demonstrates greater consensus on certain specific risks. This pattern relates to Wach et al. [45] who note that the absence of uniform criteria results in conflicting positions on AI's ethical risks. Additionally, Chawla et al. [46] argue that prior experience and training shape the way students

assess such risks, and Cheng and Lee [48] confirm that formal instruction in technological ethics can reduce these gaps. Thus, the findings suggest that internal divergences reflect not only differences of opinion but also inequalities in ethical and digital training among students.

The weak statistical association between the need for regulation and ethical concerns (Figure 3) indicates that supporting regulatory frameworks does not necessarily imply sharing an ethical judgment on the risks of ChatGPT use. This phenomenon aligns with Espartinez [49] who notes that support for regulation may be more linked to institutional acceptance than to personal ethical convictions. Likewise, Stahl and Eke [47] stress that ethical perception is shaped by contextual factors, not merely by exposure to formal norms. Casal and Kessler [40] add that the lack of alignment between regulatory criteria and ethical values creates tensions in policy implementation. Thus, regulation and ethics operate as independent constructs, requiring differentiated strategies for their development in higher education settings.

Moreover, the country-level correlation graphs shown in Figure 4 demonstrate that ethical concern networks present different structures and thematic axes in each context. Japan and South Africa prioritize academic integrity (unethical behavior, cheating, and plagiarism), while Mexico strongly connects plagiarism with the loss of cognitive autonomy. In contrast, the Philippines displays a denser and more diversified network that integrates academic, social, and cognitive risks but also includes contradictory perceptions. This finding coincides with Alghazo et al. [8], who show that ethical concerns are structured around thematic cores that vary according to academic culture. Zeb et al. [30] highlight the importance of fostering comprehensive ethical knowledge that links academic and social implications, and Nam and Bai (2023) emphasize that critical dialogue on AI ethics can broaden and diversify interpretive frameworks. Thus, the configuration of these networks confirms that ethics is not constructed linearly but through complex interactions between values and experiences.

The centrality analysis (Figure 5) shows that perceptions regarding the substitution of active learning and social isolation occupy key positions in the articulation of other ethical concerns. These items function as connecting points between academic, social, and cognitive risks, granting them a structural role in the overall ethical judgment. As noted by Acosta-Enriquez et al. [29] the loss of autonomy in learning constitutes a cross-cutting threat to higher education. Kim [35] warns that such cognitive dependence may impoverish critical skills such as argumentation and academic writing, while Avello-Sáez and Estrada-Palavecino [36] point out that the immediate feedback provided by AI can generate a false sense of competence. Therefore, this finding highlights the need for pedagogical interventions that prioritize cognitive autonomy and the strengthening of transversal skills in the use of AI tools.

Regarding perceptions of regulation for the ethical use of ChatGPT in higher education, results indicate that frameworks should be built around guidelines addressing international, governmental, institutional, and workplace levels, ensuring coherence and applicability across contexts. Regulation should be based on clear principles to prevent risks associated with academic cheating and plagiarism, ensuring that the tool serves as support rather than as a substitute for intellectual effort [31, 32]. Regulation must also consider cultural differences and institutional trust that condition acceptance of such norms [11, 12]. It is also essential to accompany policies with supervision processes and periodic updates, considering the rapid evolution of AI [5, 18].

As for ethical training, results suggest that curricula should incorporate reflection on the implications of reduced human interaction, replacement of formal education, and loss of active learning. Evidence shows that when students receive formal instruction in technological ethics, their critical judgment about AI improves [48, 59]. Such training must be accompanied by dialogue spaces to strengthen understanding of academic integrity and the boundaries of ChatGPT use [40, 52]. Moreover, emphasis should be placed on developing transversal skills such as argumentation and independent problem-solving to counteract the risks of cognitive dependence [30, 29].

Based on students' perceptions, cooperation should be promoted among international organizations, governments, and universities to unify regulatory criteria that ensure ethical and safe use of ChatGPT. This collaboration would enable the development of shared guidelines for information validation and prevention of malpractice such as plagiarism or full delegation of academic work to AI [45, 46]. It is also crucial to implement awareness campaigns that communicate to the university community the

rights, responsibilities, and ethical consequences of ChatGPT use [47, 39].

5. Conclusion

The findings of this study provide comparative evidence on how university students from different countries and continents perceive the need for regulation and ethical dilemmas surrounding ChatGPT use. The analysis of the most significant items revealed that regulation and ethical concerns—academic cheating, plagiarism, reduced human interaction, replacement of formal education, and loss of active learning—constitute independent dimensions in students’ assessments. This contribution expands existing knowledge by demonstrating that support for regulation does not necessarily imply a critical ethical judgment, suggesting that institutional policies and ethical training should be addressed as complementary axes rather than interchangeable elements.

In terms of impact, this research contributes to the development of a reference framework to guide universities, regulatory bodies, and educational policymakers in designing guidelines for the ethical and responsible use of generative AI. By offering a detailed analysis of the dispersion of perceptions and the networks of ethical concerns in each country, the study provides concrete input for designing regulation and training strategies tailored to differentiated realities. This approach not only addresses the most relevant risks but also enhances the use of ChatGPT as an innovative tool that complements, rather than replaces, meaningful learning processes.

Furthermore, results show that ethics in ChatGPT use is not built homogeneously but emerges from diverse experiences, institutional contexts, and levels of digital literacy. Identifying central nodes in the network of concerns—such as loss of cognitive autonomy and social isolation—opens the door to targeted interventions that strengthen transversal skills and foster solid ethical criteria. In this way, the study highlights that regulation alone is insufficient if not accompanied by pedagogical and training strategies that promote conscious, critical, and autonomous use of AI.

However, the research presents limitations that must be considered when interpreting results. The sample, although geographically diverse, was limited to five countries, restricting the generalizability of findings at the global level. Additionally, the quantitative and cross-sectional approach prevents establishing causal relationships or capturing in depth the motivations and subjective experiences underlying student perceptions. Future research could expand the number of countries and contexts analyzed, and longitudinal studies would be valuable to observe how perceptions evolve as ChatGPT and similar tools become more integrated into higher education. Finally, it is recommended to explore the impact of ethical training and AI literacy programs on student perceptions and behaviors, evaluating whether such interventions reduce associated risks and strengthen innovative, ethical, and sustainable uses of generative artificial intelligence.

Declaration on Generative AI

A generative AI tool ChatGPT was used solely for linguistic assistance/style editing and coherence checking; the authors manually validated all content and are responsible for the final version. No data or analyses were generated using AI.

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