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Expanding a Study on Users' Perception and Attitudes Toward Artificial Intelligence in Computational Systems

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Abstract: *Background:* Artificial Intelligence (AI) systems are increasingly embedded in various aspects of daily life, raising critical concerns about their societal impacts, ethical implications, and users' perceptions. Understanding how users perceive and interact with these systems is essential for the development of technologies that are not only technically efficient but also socially responsible and inclusive. *Purpose:* This study investigates users' attitudes toward AI through the application of the Attitude Towards Artificial Intelligence (ATAI) scale, complemented by socio-demographic profiling and open-ended questions. By analyzing the perceptions of a diverse group of participants across multiple professional fields, the research seeks to identify patterns of trust, concern, and familiarity with AI systems. The findings offer evidence-based insights into how these attitudes vary according to users' backgrounds, supporting the development of strategies for the ethical and inclusive adoption of AI. *Methods:* This article expands upon a previous study by broadening the participant sample and deepening the analysis, contributing to the broader discourse. A total of 136 participants, divided into four distinct groups, were interviewed using a mixed-methods approach. Quantitative data from the ATAI scale were complemented by qualitative insights from open-ended discussions. *Results:* The findings revealed a widespread reliance on and recognition of the importance of computer systems. Participants consistently emphasized the need for ethical governance and inclusive practices in AI, voicing concerns over biases and the potential to exacerbate inequalities. *Conclusion:* The study underscores the necessity of ethical and responsible AI adoption in Brazil. It identifies strategies to harness AI for promoting inclusion and equity, advocating for governance frameworks that mitigate risks and address societal disparities.

Keywords: Artificial Intelligence, User Perception, ATAI Scale, Responsible AI Governance

1 Introduction

Artificial Intelligence (AI) is a highly disruptive technology that is rapidly evolving and profoundly impacting society. Authors such as Russell [2019] emphasize that AI is reshaping medicine, education, and industry practices, driving innovations while introducing new challenges. This technological evolution promises efficiency and progress but also raises complex questions about ethics, skills development, and societal impact.

UNESCO highlights AI's ethical and social implications and underscores the need for a comprehensive and informed approach to its development and implementation [Miao and Holmes, 2023]. AI is not merely a technological phenomenon but an interdisciplinary challenge requiring broad and diverse understanding. Regarding the Brazilian perspective on this trend, the Brazilian Academy of Sciences released an analysis of AI's global applications and uses, offering a comprehensive report resulting from the efforts of researchers across multiple disciplines with recommendations for advancing AI in Brazil [ABC, 2023]. Understanding how professionals from different fields perceive and adapt to this disruptive technology is crucial—not only for the effective use of AI in their respective domains but also for ensuring its ethical and responsible deployment.

Moreover, the rapid integration of AI into various sectors contrasts sharply with the notable gap in users' understanding and perception of this technology. Studies such as Cowgill and Tucker [2020] reveal that while AI is increasingly implemented in fields like finance, healthcare, and education, many users remain uncertain about its capabilities and ethical implications. This disconnect hinders AI's practical and ethical adoption and limits its innovative potential. Kaplan and Haenlein [2019] further discuss these barriers to AI implementation, highlighting the challenges organizations face in leveraging this technology effectively.

Davenport [2018] suggests that a lack of familiarity with AI may lead to poorly informed decisions and either overconfidence or underestimation of its capabilities. Consequently, exploring and understanding how professionals from diverse fields perceive and adapt to this significant technological shift is essential. Insights into their perceptions, concerns, and training needs can inform the development of more effective and responsible AI implementation strategies, align-

ing technological innovations with human and organizational priorities. Furthermore, this understanding is vital for guiding policymakers in making well-informed decisions.

Building on these considerations, our research investigates users' perceptions of AI systems across various professional fields. Using the Attitude Towards Artificial Intelligence (ATAI) scale [Sindermann *et al*., 2021], we capture participants' impressions, levels of trust, and concerns regarding AI technologies. Based on the findings, we discuss potential pathways and measures for the effective, ethical, and inclusive adoption of AI in Brazil. These measures aim to promote equity and inclusion while mitigating the risks of exacerbating inequalities.

This article presents an expanded version of the research initially developed and presented at the Workshop on the Implications of Computing in Society (WICS), held during the XLIV Congress of the Brazilian Computer Science Society [Carvalho *et al*., 2024]. By broadening the analyzed sample and deepening the methodological approach, we aim to provide more robust insights into how different segments of the population perceive and engage with AI.

The objective of this study is to advance the understanding of how users from varied backgrounds perceive and relate to AI in computational systems — especially in scenarios where such technologies are embedded in daily life but remain largely opaque to the general public. By exploring these perceptions through both quantitative and qualitative data, the study identifies patterns, attitudes, and concerns that reflect broader sociotechnical dynamics, contributing to discussions on human-centered and socially responsible AI.

This article makes five key contributions:

- *Expanded Sample Analysis*: We extend the original dataset by incorporating a more diverse set of participants, allowing for a broader examination of AI perception across age groups, educational backgrounds, and professional fields, while also acknowledging the geographic concentration of the sample.
- *Quantitative and Qualitative Insights*: We employ both quantitative instruments (i.e., ATAI scale and sociodemographic profiling) and qualitative analysis (i.e., open-ended responses) to provide a multifaceted view of users' perceptions, beliefs, and concerns regarding AI systems.
- *Methodological Transparency and Reproducibility*: The study provides a replicable methodological approach, including survey instruments, data analysis procedures, and open-access anonymized data, supporting transparency and reproducibility.
- *Identification of Sociotechnical Factors*: The analysis reveals how perceptions of AI are influenced by sociotechnical variables, such as education level, professional experience with technology, and exposure to specific AI applications—highlighting both trust and skepticism in different user groups.
- *Implications for Design and Policy*: The findings offer evidence-based insights that can inform the design of AI systems and support the formulation of public policies and educational strategies that promote digital literacy and responsible AI use.

The structure of this paper is organized as follows: In Section 2, we delineate the methodology employed in this research. In Section 3 we present the results and summarize the responses garnered from the survey. In Section 4 we engage in a comprehensive discussion on the findings derived from the survey in Section 3. To conclude, we present the final considerations of our study in Section 5.

2 Methodology

This descriptive and exploratory study aims to assess and describe users' perceptions and attitudes toward AI in computational systems, as well as to examine the relationship between AI knowledge and professional practices. A quantitative approach was adopted, employing a questionnaire for data collection and consolidated statistical methods for analysis. The methodological design seeks to provide a comprehensive understanding of how AI is perceived across various professional contexts, while maintaining adherence to the ethical standards of scientific research.

The target population comprises participants from diverse fields, including healthcare, education, technology, and business. A stratified sampling approach was employed to ensure representativeness using convenience sampling within each stratum of interest. This technique, commonly applied in exploratory studies, is suitable when high precision is not required [Gil, 2008]. Convenience sampling involves selecting the most accessible, cooperative, and easily measured subjects, and it can be used in focus groups, preliminary test questionnaires, or pilot studies to generate insights or hypotheses [Malhotra, 2012].

Individual interviews were conducted in person mostly at participants workplace to collect their opinions, ensuring anonymity and aligning with best practices in research ethics. The collected data were consolidated into four groups for analysis, further reinforcing participant anonymity. The study design was reviewed and approved by an Ethics Committee from Plataforma Brasil (`https://plataformabrasil.saude.gov.br/`), documented under Certificate of Presentation for Ethical Consideration (CAAE) number 77418524.0.0000.5151.

The data collection questionnaire was based on existing models, scales, and tools designed to assess AI-related perceptions and attitudes. Notably, the ATAI scale [Sindermann *et al*., 2021] was used in a translated version adapted into Portuguese via Google Translate®, with necessary adjustments made to ensure clarity and accuracy (Table 1). The ATAI scale comprises five 11-point Likert-type items ranging from 0 ("strongly disagree") to 10 ("strongly agree").

On the ATAI scale, scores of 0 to 4 indicate disagreement, 6 to 10 indicate agreement, and 5 represent a neutral stance. In order to standardize the scale in the analysis, values were adjusted by subtracting the central point (5) from the original score, and the result was divided by 2, yielding a range of -2.5 to 2.5, as suggested by Gelman and Hill [2007]. Adjusting the scale to this range facilitates the interpretation of coefficients in statistical models by providing a symmetric and standardized range, enhancing comparability across variables. The analysis of this scale was conducted in two

Table 1. ATAI scale statements in English and Portuguese language

English
01. I fear artificial intelligence.
02. I trust artificial intelligence.
03. Artificial intelligence will destroy humankind.
04. Artificial intelligence will benefit humankind.
05. Artificial intelligence will cause many job losses.
Portuguese
01. Tenho medo da inteligência artificial.
02. Confio na inteligência artificial.
03. A inteligência artificial destruirá a humanidade.
04. A inteligência artificial beneficiará a humanidade.
05. A inteligência artificial causará muitas perdas de empregos.

stages: (1) indicator construction and (2) analysis of data derived from the indicator.

The ATAI scale serves as an indicator of Attitude Toward AI. Hair [2009] emphasize that constructing indicators requires assessing dimensionality and reliability. Dimensionality ensures that the items exclusively measure the intended indicator, evaluated using the Kaiser-Meyer-Olkin (KMO) criterion, with a value above 0.50 considered acceptable Nunes *et al*. [2020]. Reliability determines the consistency of the items in measuring the indicator, assessed using Cronbach's Alpha (AC), with a value above 0.40 deemed reasonable [Landis and Koch, 1977].

After constructing the indicator, data analysis follows. It includes calculating the Mean, Standard Deviation, and 95% Confidence Interval. The Mean represents the average response to the indicator's items, while the Standard Deviation reflects the data's dispersion around the Mean. The Confidence Interval indicates that the Mean value falls within this range with 95% certainty [Hair, 2009].

3 Results

This study expands the former research [Carvalho *et al*., 2024] by interviewing additionally 60 participants in November 2024 in the region of São João del-Rei, Minas Gerais, Brazil. Thus, the analyzed sample comprises 136 interviews, following the convenience sampling method. The results were subsequently consolidated into four groups: Healthcare, Education, Software Development, and Others. Each respondent was asked about their professional occupation or organizational domain, enabling the aforementioned grouping based on their respective sectors. The sample profile of the respondents is summarized in Table 2, aligning with the study's goal of addressing perceptions and attitudes toward AI in various professional contexts.

Participants were also asked: "*Would you like to mention any relevant AI you have interacted with?*" The majority of responses, 62 (46%), indicated no specific AI, while OpenAI's ChatGPT was the most frequently mentioned, cited by 38 participants (28%).

Following this, the construction of the indicator was performed for subsequent data analysis, as outlined in the methodological procedures. The ATAI scale was standardized to range from -2.5 to 2.5, as recommended by Gelman and Hill [2007]. The Kaiser-Meyer-Olkin (K.M.O.) criterion, requiring a value above 0.50 [Nunes *et al*., 2020], and Cronbach's Alpha (A.C.), with a threshold of 0.40 for reliability [Landis and Koch, 1977], were applied to ensure dimensionality and reliability, respectively.

As shown in Table 3, the K.M.O. values exceeded 0.50 across all analyzed groups. However, Cronbach's Alpha was below 0.40 in the Health sector (0.29). [Field, 2009, p. 595] noted that "[...] *as the number of items [statements] in the scale increases, the α value will also increase. Thus, it is possible to achieve a high α value due to the number of items, not because the scale is reliable!*"

This assertion by Field [2009] is supported by Stadler *et al*. [2021], who argue that a good Alpha is not always deterministic due to measurement conflicts. This necessitates actions such as maintaining variables (responses) within the indicators, as seen in Berlato [2019], or removing them, as in Vasconcellos [2016]. In this study, participant responses were considered pivotal, justifying the decision to maintain variables, following the approach of Berlato [2019].

Data analysis proceeded using the mean of variables (responses) for each statement, the standard deviation to assess data dispersion, and a 95% confidence interval to determine whether the mean fell within this range Hair [2009].

Regarding attitudes toward AI, Table 3 consolidates the stratified results by group, and for all 136 participants who completed the survey — one declined to answer this section.

The overall mean of -0.54 on the standardized scale reflects a low perception of fear toward AI (Statement 01) across all sectors. This low fear perception contributes to moderate trust in AI (Statement 02), with an overall mean of -0.11 and a sector-specific high of 0.77 in Software Development, likely due to closer familiarity with the technology. Nonetheless, the lowest overall mean, -0.67 (Statement 03), relates to the perception that AI will destroy humanity. This aligns with earlier statements, demonstrating consistency in the responses.

According to Kaplan and Haenlein [2019], a favorable perception of AI contributes to overcoming barriers to its effective implementation in organizations. In this regard, low levels of fear, moderate trust, and the belief that AI will not lead to humanity's destruction are favorable indicators.

The overall mean of 0.97 indicates that respondents believe AI will benefit humanity (Statement 04). Although Cowgill and Tucker [2020] note that many users remain uncertain about AI's capabilities, the perception of its benefits is notably high. Respondents not only believe AI will not destroy humanity but also perceive it as beneficial, which supports its adoption [Kaplan and Haenlein, 2019].

However, as Davenport [2018] cautions, unfamiliarity with AI can lead to either overconfidence or underestimation of its capabilities. While overconfidence is evident in the responses, underestimation is less so.

This is reflected in the high perception—overall mean of 0.98—of job loss due to AI. Thus, it is plausible to infer that AI is not underestimated; rather, its potential impact on employability is acknowledged. The means for each ATAI scale statement (Table 4) are also depicted in Figure 1.

Table 2. Sample Profile of Respondents.

Area	Domain	Occupation	N	Σ N	T %
Healthcare	Veterinary Clinic	Secretary (2)	2	27	20%
	Pharmacy	Sales Clerk (3), Cashier (1), Supervisor (1)	5		
	Hospital	Nurse (1), Nurse Practitioner (1), Manager (1), Doctor (1)	4		
	Dentistry	Dentist (1)	1		
	Pet Shop	Attendant (1), Administrative Partner (1), Salesperson (1)	3		
	Academia	Medical Student (1), Nurse (1), Doctor (1), Resident Doctor (2), Psychiatrist (1), Nursing Tech (1)	7		
	Medical Startup	CEO (2), CMO (1), Marketing Professional (2)	5		
Education	Educational Institution	Department Head (1)	1	29	21%
		Computer Science Student (6), General Student (4)	10		
		Computer Science Professor (1), Professor (2), Professor (4)	7		
		Administrative Education Technician (10)	10		
		Security Guard (1)	1		
Software Development	Technology	Infrastructure Analyst (1)	1	15	11%
		Data Scientist (2)	2		
		Software Developer (6)	6		
		Software Engineer (2)	2		
		Intern (2)	2		
		Team Tech Lead (2)	2		
Others	Artist	Artist (1), Plastic Artist (1)	2	65	48%
	Digital Artist	Artist (1), Graphic Designer/Digital Illustrator (3)	4		
	Bars and Restaurants	Waiter (1), Manager (1)	2		
	Electronics and IT Company	Legal Advisor (1), Mobile Phone Salesperson (1)	2		
	Food and Bakery Company	Security Guard (1)	1		
	Engineering	Architect (1), Engineer (1), Environmental Engineer (1), Civil Engineer (1), Industrial Manager (1)	5		
	Legal Sector	Lawyer (1)	1		
	Financial Markets	Junior Control Analyst (1)	1		
	Bus Terminal	Ticket Booth Attendant (5)	5		
	Miscellaneous	Others (42)	42		
			136	136	100%

N: Quantity; Σ N: Total Quantity; T %: Total Percentage.

Table 3. Construction of the ATAI Scale Indicator: Dimensionality and Reliability Assessment Using Kaiser-Meyer-Olkin (KMO) and Cronbach's Alpha (CA)

	N	AC	KMO
Healthcare	27	0.29	0.74
Education	29	0.48	0.82
Software Dev.	15	0.62	0.78
Others	65	0.54	0.74
All	136	0.48	0.84

4 Discussion

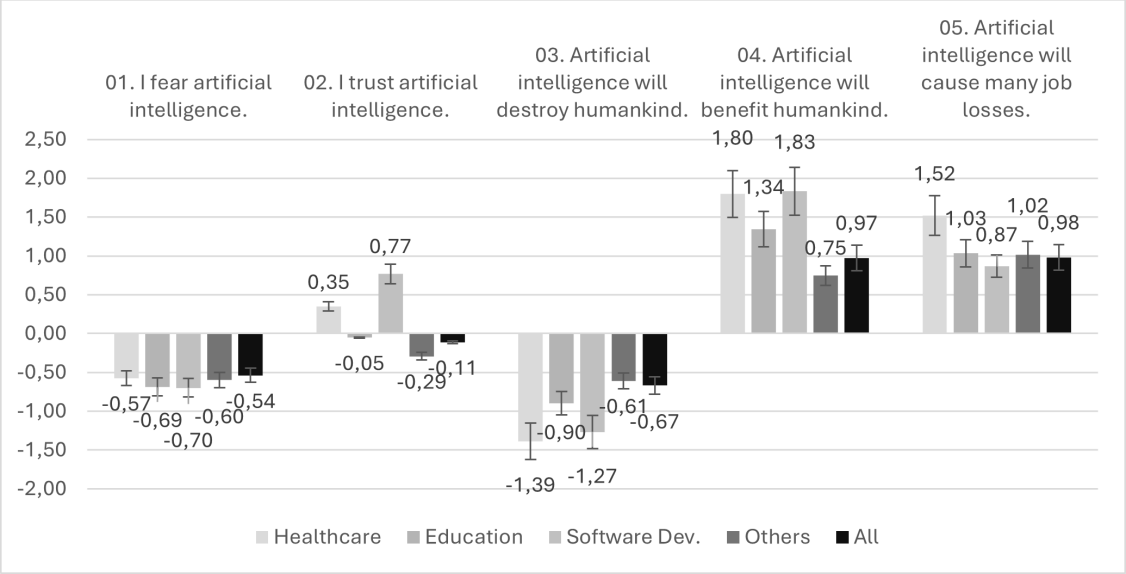
Artificial intelligence (AI) and automation, through computational systems, are driving changes in the professional landscape, making it essential to develop skills for life and work in the AI era. The results presented in this study highlight that computational systems hold significant relevance for most respondents. However, despite AI already being an integral part of everyday life—rarely a day passes without interacting with it, whether through social media, search tools (e.g., Google Search®), or streaming platforms for movies or music (e.g., Netflix® or Spotify®) — most people remain

Table 4. Participants' Agreement, Stratified by Groups, Regarding the Statements on the ATAI Scale.

ATAI Statements	Healthcare (N. 27)	Education (N. 29)	Software Dev. (N. 15)	Others (N. 65)	All (N. 136)
01. I fear artificial intelligence.	-0,57±1,79 [0,38-2,16]	-0,69±1,56 [0,36-1,92]	-0,70±1,65 [0,51-2,15]	-0,60±1,73 [0,24-1,98]	-0,54±1,72 [0,23-1,94]
02. I trust artificial intelligence.	0,35±1,37 [0,38-1,75]	-0,05±1,32 [0,36-1,68]	0,77±0,88 [0,51-1,39]	-0,29±1,42 [0,24-1,67]	-0,11±1,43 [0,23-1,66]
03. Artificial intelligence will destroy humankind.	-1,39±1,48 [0,38-1,85]	-0,90±1,50 [0,36-1,86]	-1,27±1,51 [0,51-2,02]	-0,61±1,79 [0,24-2,04]	-0,67±1,77 [0,23-2,00]
04. Artificial intelligence will benefit humankind.	1,80±0,82 [0,38-1,20]	1,34±1,08 [0,36-1,44]	1,83±0,65 [0,51-1,15]	0,75±1,35 [0,24-1,60]	0,97±1,35 [0,23-1,58]
05. Artificial intelligence will cause many job losses.	1,52±1,40 [0,38-1,78]	1,03±1,20 [0,36-1,57]	0,87±1,38 [0,51-1,89]	1,02±1,60 [0,24-1,84]	0,98±1,59 [0,23-1,81]

Results notation: Mean ± Standard Deviation [95% Confidence Interval]

Figure 1. Mean Agreement of Participants, Stratified by Groups, Regarding the Statements on the ATAI Scale.



unaware of such interactions.

This observation leads to reflection on the responses to the survey question: "*Would you like to mention any relevant AI you have interacted with?*" While among the 136 participants, 62 (46%) indicated no specific AI, OpenAI's ChatGPT® was mentioned in 38 responses (28%). At the same time, the responses indicated that most individuals are not afraid of AI and even exhibit a certain degree of trust in this technology.

The lack of awareness regarding frequent contact with AI in daily life increases ethical risks, such as those highlighted in prior research [Carvalho *et al*., 2024]. These risks include AI being used to incite hatred against minorities, influence election outcomes [Helbing and Pournaras, 2015; Cavaliere and Romeo, 2022], exploit psychological vulnerabilities, and guide decision-making [Sartori and Theodorou, 2022]. Such issues have led to intense social polarization, threats to democratic principles [Manheim and Kaplan, 2018; Helbing, 2019], and violations of human rights [Mantelero, 2022].

The growing automation driven by AI also presents significant challenges, particularly in Latin America (LA), where job displacement is a major concern. According to research conducted by OECD, 27% of jobs are in occupations at high-risk of automation [Lane *et al*., 2023]. In Brazil, approximately 30 million jobs are at risk by 2026 and over half of all jobs in Brazilian municipalities threatened by 2040 [OECD et al., 2022]. Responses to statement 04 in the survey reveal that this concern is widespread among respondents, regardless of their professional sector.

In light of AI's rapid diffusion and its ethical impacts, as well as its effects on labor and the need for qualified personnel, UNESCO [2019] emphasizes the importance of developing values and skills for life and work in this context. The 2019 Beijing Consensus recognizes the emergence of a set of AI literacy competencies necessary for effective human-machine collaboration and recommends institutional measures to improve AI literacy across all societal layers UNESCO [2019].

Regarding broader assessments of the perception of AI, it is worth noting the study by Albarrán Lozano *et al*. [2021],

based on survey data collected in 2018 from 6,308 participants in Spain. The objective was to estimate attitudes toward robots and AI and identify potential determinants. Among the main findings, the study showed that men demonstrated greater interest in technological developments than women, and that individuals tended to have more negative attitudes toward AI when they lacked interest in scientific discoveries and technological progress, or when AI and robots were perceived as not being useful in their work context.

Gender-based differences were also observed in a more recent study by Asiksoy [2024], which examined university students' attitudes toward AI ethics. The results revealed significant gender disparities in dimensions such as fairness and privacy, with female students scoring higher than male students. Interview data further indicated that female participants emphasized legal compliance and data protection, while male students focused more on the privacy of financial information. Moreover, students from educational science disciplines highlighted the importance of user-friendly language and effective feedback mechanisms in discussions of transparency. Importantly, the study underscored the need to incorporate AI ethics into the engineering curriculum, reinforcing the idea that educational background and gender both influence perceptions of and expectations toward AI.

Equipping the population with AI-related skills can enhance employability and prepare individuals for the evolving demands of the labor market. Additionally, promoting initiatives to expand AI education to underrepresented groups is crucial for fostering diversity in the workforce. The importance of AI education and critical thinking for this era is also emphasized in other UNESCO documents [Holmes, 2021], [Miao and Holmes, 2021]. Similarly, the Brazilian Academy of Sciences [ABC, 2023] highlights the gap in AI literacy and education within civil society as a fundamental action to prepare the national system for AI in the long term.

Administratively, the Brazilian AI Strategy (EBIA) aims to encourage the government to promote research, innovation, and the development of AI-based solutions, ensuring their reliable and ethical deployment. In practice, EBIA is divided into six main objectives: education; workforce training and development; research and innovation; applications in productive sectors; public administration; and public safety. However, despite these strategic pillars, EBIA has been criticized for its lack of concrete policies and actionable clarity. This gap in practical directions is promised to be addressed on the 2024-2028 Brazilian National Plan for Artificial Intelligence (PBIA) [Brazil, 2024]. Since then, in the administrative sphere, EBIA have been regulated by PBIA, proposing to drive the Brazilian government to stimulate research, innovation and development of AI solutions in accordance with multiple considerations, including the assurance of reliable and ethical development and usage.

In summary, EBIA does not include instrumental actions [Filgueiras and Junquilho, 2023]. For example, in the Education pillar, digital literacy programs are broadly advocated across all areas and levels of education, regardless of their natural specificity. In practice, AI literacy has not been adequately introduced, as no defined strategy for its implementation exists in Brazil — a necessity underscored by the perceptions observed in this study.

Lastly, despite the contributions of this study, several limitations must be acknowledged. While the expanded sample increases participant diversity compared to the initial version, it remains limited in size and may not fully represent the broader Brazilian population. The use of non-probabilistic sampling and voluntary participation introduces potential self-selection bias, as individuals with greater interest in artificial intelligence or digital technologies may have been more motivated to respond. Furthermore, although the ATAI scale offers a validated and structured framework for assessing attitudes toward AI, cultural and contextual differences may influence how participants interpret and respond to its items. The cross-sectional nature of the study also limits our ability to capture evolving perceptions over time or in reaction to specific societal or technological developments. Although open-ended responses were used to complement quantitative findings, future research could benefit from more in-depth qualitative approaches, such as interviews or focus groups, to uncover the underlying motivations and concerns shaping participants' views.

Beyond methodological limitations, the validity of our findings is also affected by the nature of self-reported data. As Fietta *et al*. [2022] emphasize, there may be a dissociation between users' explicit attitudes and their implicit responses or actual behaviors toward AI. Participants may report favorable or neutral views in surveys, yet behave differently when interacting with AI systems in real-world contexts—sometimes expressing hesitation, resistance, or mistrust that is not fully captured through standardized instruments. This discrepancy points to a potential bias in studies relying solely on explicit measures such as the ATAI scale. Moreover, social desirability effects may lead respondents to underreport critical or negative perceptions, particularly when discussing emerging technologies associated with progress or professional relevance. To address these issues and strengthen the robustness of future studies, it is essential to triangulate methods by incorporating behavioral observations, experimental designs, or implicit measures alongside self-reports.

5 Conclusion

This research was guided by the aim of capturing participants' impressions and attitudes toward AI using the ATAI scale. The driving force behind this study is the growing use of AI in everyday life — whether consciously or unconsciously — which raises complex issues related to skills, ethics, and social impact.

While respondents in this study generally perceive AI positively, concerns about job loss due to its use are also expressed. In this context, although respondents' fear and trust in this technology tend to balance each other, its social impacts—such as employment displacement—highlight the need for deeper reflection on its benefits to humanity, which are perceived by the respondents as positive.

Upon brief reflection, unemployment leads to societal problems, and when extended to the national or global level, it takes on a "humanitarian" tone, in the sense of affecting society as a whole. Therefore, its impacts tend to be harmful. Perhaps the unconscious use of this technology obscures its

effects; however, critical reflection on these impacts is necessary, particularly in social and ethical domains.

Drawing on the diverse perspectives of participants from multiple professional fields, this research aims not only to report public perceptions but also to stimulate continued inquiry into the human-centered implications of AI. Several directions for future research are proposed.

Future research should aim to expand the geographic and demographic diversity of the sample to improve generalizability and deepen insights into how regional, socioeconomic, and cultural contexts influence users' perceptions of AI. Comparative studies across different regions of Brazil, or even across Latin America, could reveal important patterns related to technological access, education, and media exposure.

In addition, longitudinal studies are needed to examine how perceptions and attitudes toward AI evolve over time, particularly in light of the rapid integration of AI into everyday applications. Monitoring changes in public sentiment as technologies mature or as policies and regulations are implemented would enrich our understanding of the sociotechnical dynamics at play.

There is also an opportunity to refine and validate adapted scales such as the ATAI in the Brazilian context. Developing culturally sensitive instruments and testing them across diverse populations will contribute to more accurate assessments of public opinion and facilitate cross-cultural comparisons.

Finally, future work may explore intervention-based research, including educational initiatives and awareness campaigns focused on AI literacy. Such efforts could assess whether exposure to targeted information or critical discussion influences participants' trust, concerns, or readiness to engage with AI systems. These studies would help inform the development of ethical, inclusive, and user-aligned AI policies and practices in Brazil and similar contexts.

Declarations

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Competing interests

The authors declare that they have no competing interests related to the research or publication of this work. Any potential conflicts of interest have been disclosed and are not relevant to the findings presented in this study.

Availability of data and materials

The questionnaire and dataset generated and analyzed during the current study are provided as supplementary material.

Citation Diversity Statement

In compiling the references for this work, we have sought to include diverse perspectives and contributions from a broad range of authors, ensuring representation across different genders, geographic regions, and career stages. While we recognize the limitations of our analysis and database coverage, we are committed to minimizing citation bias and promoting equity in academic discourse. We encourage the academic community to continue engaging with and amplifying underrepresented voices in research.

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