Shifting Ethical Concerns about Generative AI among First-Year University Students: A Comparative Text Analysis from 2024 and 2025

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Abstract: As generative AI becomes embedded in education, understanding students' ethical concerns is essential for developing responsive AI literacy programs. This study analyzes free-text responses from first-year university students in Japan in 2024 and 2025, focusing on negative impressions of generative AI. A coding framework of nine ethical categories was developed based on international and national guidelines, and responses were analyzed using KH Coder. Notably, concerns about employment decreased significantly in 2025, while worries about privacy, misuse, and copyright persisted. Abstract principles such as fairness or accountability were rarely mentioned. These results underscore the importance of supporting students in articulating foundational ethical concepts. Future work will investigate the relationship between students' ethical perceptions and their actual engagement with AI tools in learning environments.

Keywords: Generative AI, AI Trustworthiness, AI Ethics Education, University Students, Text Mining, AI Literacy

1. Introduction & Research Objective

As generative AI becomes increasingly integrated into educational settings, understanding how students perceive its ethical implications is critical for designing effective AI literacy programs. This study analyzes free-text survey responses from first-year students at Hiroshima University, one of Japan's national comprehensive universities, spanning two academic years (2024 and 2025), to examine how their concerns about generative AI may have evolved.

2. Methods

Participants were first-year students from four faculties at Hiroshima University enrolled in 2024 and 2025. As part of a mandatory data science literacy course, they provided open-ended responses regarding their concerns and anxieties about generative AI.

We used KH Coder, a quantitative text analysis tool, to extract key terms via frequency and co-occurrence analysis. Based on these results and prior literature, we developed nine ethical categories (Table 1), informed by Australia's AI Ethics Principles (Sanderson et al., 2023) and Japan's Human-Centric AI Principles (Cabinet Office, 2021). While interrater reliability was not calculated, coding validity was reviewed collaboratively.

Table 1. Frequency of Ethical Category Mentions by Sentiment

Categories	AY24 (n=396)	AY25 (n=315)	χ^2	p-value
Privacy and Surveillance	27	31	1.76	0.19
Fairness and Bias	0	0	-	-
Accountability and Transparency	4	4	0.00	1.0
Responsibility	8	13	2.31	0.15
Human Agency and Impact	57	38	0.63	0.43
Employment and Economic Concerns	84	33	13.94	< .001
Safety and Misuse	69	69	1.97	0.16
Autonomy and Choice	7	8	0.20	0.65
Copyright and Intellectual Property	61	46	0.04	0.84

3. Result & Discussion

The analysis revealed notable shifts and consistencies in students' ethical concerns between the 2024 and 2025 cohorts. Concerns about employment and economic impact decreased significantly, from 21.2% in 2024 to 10.5% in 2025, suggesting a potential normalization of generative AI. In contrast, concerns about privacy, safety, and copyright remained consistently prevalent, indicating that students continue to focus on concrete, personal risks.

Abstract principles, such as fairness, transparency, and autonomy, were rarely mentioned across both years, echoing prior findings that these concepts may be unfamiliar or difficult to express without structured instruction. Additionally, approximately 20% of responses did not fit the predefined categories, often reflecting general anxiety or a lack of knowledge about AI itself.

These findings suggest that early AI ethics education should not only address personal risks but also explicitly introduce abstract ethical principles to support deeper reflection and understanding.

Acknowledgments

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