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# AI Ethics among University Students: The Role of Gender, Literacy, and Risk Perception

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## Abstract

The rapid development of artificial intelligence (AI) technology has brought significant changes to higher education, particularly in how students' access and complete academic assignments. However, the unethical use of AI, coupled with a lack of literacy and understanding of the risks of its use, raises concerns about negative impacts, such as plagiarism, information manipulation, and the loss of in-depth learning. This study aims to analyze the influence of gender, AI literacy, and risk perception on students' ethical attitudes regarding the use of AI in higher education. This study employed a quantitative approach with a sampling technique using the Slovin formula. A sample of 120 Accounting Education students from UNNES, Class of 2022, was obtained. Data analysis used multiple linear regression with SPSS version 26 software. The results show that gender, AI literacy, and risk perception partially have a positive and significant effect on students' ethical attitudes regarding AI use, and simultaneously, gender, AI literacy, and risk perception significantly influence students' ethical attitudes regarding AI use.

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## Keywords

Gender, AI Literacy, Risk Perception, AI Ethics

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## INTRODUCTION

The rapid development of digital technology has had a significant impact on various aspects of human life, including higher education. One prominent technological innovation is artificial intelligence, which is now increasingly accessible and utilized by students to support academic activities. Ideally, AI is used as a tool to improve the effectiveness of the learning process, broaden horizons, and foster critical and analytical thinking skills. Appropriate and judicious use of AI has the potential to optimally support the achievement of educational goals.

However, the reality in higher education environments shows that the use of AI has not been fully implemented responsibly. Many students use this technology solely for instant results, without undergoing a process of in-depth understanding. AI is often used to compose essays, summarize readings, and even automatically solve course problems, which can ultimately hinder the process of internalizing knowledge. Although AI is increasingly integrated into academic life, understanding of the ethics of its use and the potential risks of its misuse remains relatively low among students.

The use of AI raises new challenges regarding the ethics of AI use, such as the increased potential for plagiarism, information manipulation, and dependence on technology whose risks are not yet fully understood. (Gandasari et al., 2024). Students' low awareness of the limits of digital ethics and the lack of clear guidelines or regulations from educational institutions further exacerbate this situation. Amidst this rapid digital transformation, students have a strategic role as agents of change, not only as early adopters of technology but also as drivers of digital ethics in the future (Firda Laila Syahda et al., 2024). Therefore, the formation of ethical character from

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college is very important to prevent the misuse of technology, especially AI, which is increasingly autonomous and influences important decisions.

Gender differences influence students' ethical attitudes toward the use of AI in higher education. Research finds that men are more confident in using AI, while women are more cautious and concerned about its ethical implications. Women tend to have higher ethical awareness and consider the ethical risks of AI more deeply. Stöhr et al., (2024) dan Wang et al., (2025). Asiksoy (2024) explained that female students tend to consider ethical values more in the use of AI technology compared to male students.

Building ethical character among students is becoming increasingly important in the digital age, especially given the risks of increasingly complex technology misuse. One strategic approach to addressing this challenge is through increasing artificial intelligence literacy. AI literacy encompasses not only an understanding of how AI technology works and is used, but also the ability to recognize the presence of AI and weigh the ethical aspects of its use. Research shows that high levels of AI literacy correlate with positive attitudes toward AI and increased self-control in using technology (Carolus et al., 2023). In addition, students who have an ethical understanding of AI tend to be more critical in assessing the social impact of the technology. (Qian et al., 2024). Therefore, the integration of AI literacy in higher education is a crucial step in shaping students' ethical behavior in the digital space (Schauer et al., 2025).

The increasing use of AI among college students has raised concerns about ethical risks. Students are now considering not only the benefits but also the risks, such as algorithmic bias and privacy violations. Risk perceptions include concerns about privacy, data security, and ethical use. Huo et al., (2023) found that anxiety due to perceived risk can hinder AI acceptance. Kaya et al., (2024) states that risk perception influences attitudes towards AI. Guo et al., (2024) also explained that ethical risk perceptions toward AI are influenced by cultural values and generational differences, with findings that groups with collectivist and long-term orientations exhibit higher levels of ethical concerns. Furthermore, Click or tap here to enter text. confirms that ethical risk perceptions increase ethical anxiety and decrease ethical attitudes toward AI.

This study aims to analyze the influence of gender, AI literacy, and risk perception on ethical attitudes toward AI use among university students. The results are expected to contribute to the development of more adaptive, inclusive, and ethical educational policies in the era of digital transformation. This research contributes to filling the literature gap regarding factors influencing ethical attitudes toward AI use. Theoretically, this study expands the application of the ethical behavior approach by considering individual variables such as gender, AI literacy, and risk perception in the context of cutting-edge technology. Practically, the findings of this study are expected to provide input for educational institutions and policymakers in designing digital literacy and technology ethics strategies that are more responsive to student needs and characteristics.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### Gender's Effect on Ethical Attitudes in AI Use

Gender plays a significant role in influencing how a person interacts with technology, including artificial intelligence (AI). Social Role Theory from Eagly *et al.* (2016) states that behavioral differences between men and women arise from social expectations attached to each gender role. Women tend to be more cautious and sensitive to ethical considerations when interacting with technology than men. This is supported by research Wei *et al.*, (2024) which found that perceptions of ethics in the use of AI are influenced by demographic characteristics, including gender, with women being more sensitive to emerging ethical issues. Research by Asiksoy, (2024) and Møgelvang *et al.*, (2024) This also reinforces previous findings that female students expressed higher ethical concerns about the use of AI, while male students were more active users of AI technology. This reinforces the idea that gender is a significant variable influencing individuals' ethical attitudes toward the use of AI, particularly in higher education settings.

**H1: Gender has a positive influence on ethical attitudes towards the use of AI**

## AI Literacy Regarding Ethical Attitudes in AI Use

AI literacy is seen as a crucial factor in shaping individuals' ethical attitudes toward the use of AI technology. AI literacy encompasses a basic understanding of how AI works, its limitations, and the social and ethical impacts of its use. Individuals with high levels of AI literacy tend to be more aware of the ethical implications of this technology, such as privacy issues, algorithmic bias, and responsible use (Long & Magerko, 2020). In addition, they are also better able to recognize the potential risks and negative social impacts of unethical AI applications, thus encouraging more responsible behavior. Research by Zhang *et al.* (2021) found that increased public understanding of AI was significantly associated with increased critical and ethical attitudes toward AI use, particularly in the context of automated decision-making and personal data protection. Furthermore, similar research conducted by Kasinidou *et al.* (2025) and Kajiwaru & Kawabata (2024) also found similar results, where AI literacy influences ethical attitudes towards AI use.

**H2: AI literacy has a positive influence on ethical attitudes towards AI use.**

## Risk Perceptions Regarding Ethical Attitudes in AI Use

Risk perception refers to a person's view of the potential harm or threat that could arise from the use of AI, including concerns about data privacy, information security, and ethical violations. Research by (Huo *et al.*, 2023) found that ethical concerns arising from perceived risks can hinder the acceptance of AI by users. Research by Kaya *et al.* (2024) also shows that risk perception has a significant influence on individual attitudes towards the use of AI technology. Study by Moon (2024) found that risk perceptions such as concerns about fake news, bias, and privacy can influence users' attitudes toward generative AI technology. Similarly, the study Zhu *et al.* (2024) which also confirmed that ethical risk perception increases ethical anxiety and decreases students' ethical attitudes in using AI.

**H3: Risk perception has a positive influence on ethical attitudes toward AI use.**

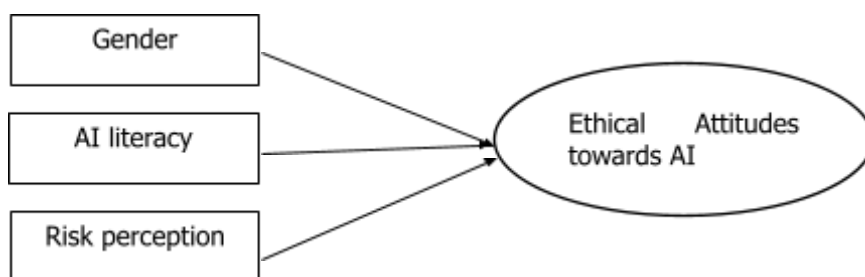


Figure 1. Research Framework

## METHOD

This study uses a quantitative causality approach to analyze the influence of gender, AI literacy, and risk perception on ethical attitudes toward AI use. Data were collected through a questionnaire distributed via Google Forms and processed using multiple linear regression analysis using SPSS software. The population used in this study was all 171 students of the UNNES Accounting Education study program, with a sample size of 120 respondents using the Slovin formula.

The variables used in this study include gender, AI literacy, and risk perception as independent variables, and ethical attitudes toward AI use as the dependent variable. To provide a detailed explanation of each variable, indicators based on relevant references are used. Ethical attitudes toward AI use are an individual's tendency to assess, respond to, and act on the use of artificial intelligence (AI) technology based on moral values, social norms, and applicable ethical principles. Ethical attitudes toward AI use are measured by indicators such as

awareness of the role and benefits of AI, commitment to using AI for good, the importance of AI literacy and knowledge, and support for AI integration in the workplace (Katsantonis & Katsantonis, 2024).

Gender refers to the social identities and roles associated with a person's biological sex (male or female), including how they think, behave, and interact within specific social and cultural contexts. Gender is measured based on the respondent's biological identity (male or female), which several previous studies have shown to differ in ethical decision-making. Gender is measured using a dummy variable, where men are assigned a score of 0 and women a score of 1 (Katsantonis & Katsantonis, 2024). AI literacy is an individual's ability to understand the basics of how artificial intelligence works, assess its impact on personal and social life, and use AI technology wisely and responsibly. AI literacy variables include indicators of basic understanding of AI, the ability to identify interactions with AI, critical analysis of AI, and sensitivity to the ethical aspects of AI use (Carolus *et al.*, 2023). Risk perception is an individual's perception of the potential threats or harms that may arise from the use of AI, both to themselves and to society. The risk perception variable is measured through awareness of the potential dangers of AI, concerns about ethical violations by AI products, and views on the uncertainty and uncontrollable risks of AI (Zhu *et al.*, 2024).

Data collection was conducted through an online questionnaire distributed through social media. The questionnaire consisted of two main sections: respondent identity, which included age, gender, and educational background, and closed-ended statements measuring AI literacy levels, risk perceptions, and ethical attitudes toward AI using a Likert scale of 1–5 (strongly disagree to strongly agree).

### Data Analysis Techniques

The data analysis technique in this study used multiple linear regression with the aid of SPSS version 26 software. Prior to the main analysis, instrument validity and reliability were tested, as well as classical assumptions such as normality, multicollinearity, and heteroscedasticity to ensure the regression model was suitable for use. Multiple linear regression was used to examine the influence of the independent variables of gender, AI literacy, and risk perception on ethical attitudes toward AI use, which served as the dependent variable. This analysis aimed to determine the contribution of each independent variable and test the research hypotheses.

## RESULTS AND DISCUSSION

### RESULTS

Validity testing was conducted using the Pearson product-moment correlation between each item's score and the total score. An item is considered valid if the significance value (*p*-value) is less than 0.05 and the correlation coefficient is positive.

**Table 1. Validity Test**

Variable	Code	Corelation	<i>p-value</i>	Result
Ethical Attitudes towards AI	Y.1	0,528	0,000	Valid
	Y.2	0,577	0,000	Valid
	Y.3	0,480	0,000	Valid
	Y.4	0,532	0,000	Valid
	Y.5	0,389	0,000	Valid
	Y.6	0,591	0,000	Valid
	Y.7	0,574	0,000	Valid
	Y.8	0,563	0,000	Valid
	Y.9	0,528	0,000	Valid

AI literacy	Y.10	0,577	0,000	Valid
	X2.1	0,644	0,000	Valid
	X2.2	0,659	0,000	Valid
	X2.3	0,760	0,000	Valid
	X2.4	0,786	0,000	Valid
	X2.5	0,733	0,000	Valid
	X2.6	0,734	0,000	Valid
	X2.7	0,721	0,000	Valid
	X2.8	0,757	0,000	Valid
	X2.9	0,783	0,000	Valid
Risk perception	X2.10	0,599	0,000	Valid
	X3.1	0,784	0,000	Valid
	X3.2	0,763	0,000	Valid
	X3.3	0,715	0,000	Valid

Based on the table above, all the instruments that make up the variables have a correlation value of more than 0.3 and a p-value of less than 0.05, so it can be concluded that all the instruments are valid.

Next, the results of the reliability test on the variables of ethical attitudes toward AI use, AI literacy, and risk perception can be seen in the table above. A variable is considered reliable if it has a Cronbach's Alpha value greater than 0.6. It can be seen that all three variables have Cronbach's Alpha values greater than 0.6, thus concluding that the variables of ethical attitudes toward AI use, AI literacy, and risk perception are reliable.

**Table 2. Reliability Test**

Variabel	Nilai Cronbach's Alpha	Keterangan
Ethical Attitudes towards AI	0,638	Reliabel
AI literacy	0,895	Reliabel
Risk perception	0,676	Reliabel

The normality test is used to ensure that the residual data in the regression model is normally distributed. This study uses the Kolmogorov-Smirnov test because it is suitable for large data sets and aligns with a quantitative approach. The test results indicate a normal distribution if the significance value (p-value) is  $>0.05$ . This is essential to meet the basic assumptions of regression.

**Table 3. Normality Test**

Uji Kolmogorov-Smirnov			Uji Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
0,059	121	0,200	0,984	121	0,157

The results of normality tests using the Kolmogorov-Smirnov and Shapiro-Wilk tests yielded significance values of 0.200 and 0.157, respectively, which are greater than 0.05. Therefore, it can be concluded that the residuals of the multiple linear regression model used follow a normal distribution, meaning the assumption of normality is met. The multicollinearity test is used to identify relationships or correlations between independent variables in the regression model. Variables are considered to meet the assumption if their VIF values are less than 5.

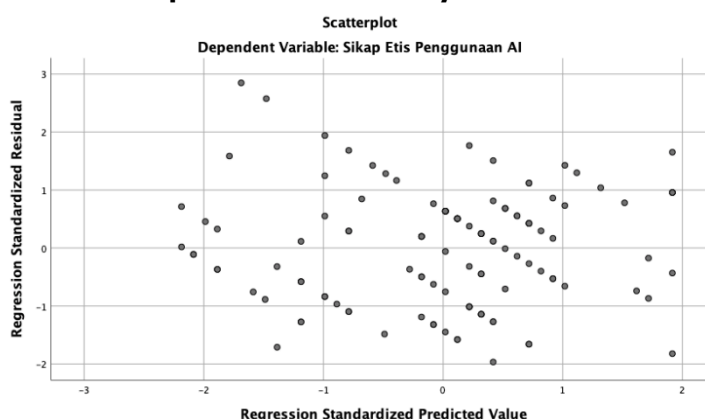
**Table 4. Multicollinearity Test**

Variable	Tolerance	VIF
Gender	0,797	1,255
AI literacy	0,763	1,310
Risk perception	0,726	1,377

(Sumber: Data diolah dengan SPSS.26, 2025)

The multicollinearity test results showed that the three independent variables used had VIF values  $< 5$ , thus concluding that no multicollinearity was found in the model, or that the multicollinearity assumption was met. The heteroscedasticity test was used to determine whether there was inequality in the variances of the residuals in the regression model. This study used the Scatter Plot test to detect symptoms of heteroscedasticity.

**Graph1. Heteroskedasity Scatter Plot**



The graph above is a scatterplot of predicted values with squared errors. The graph shows no fan-like or funnel-like patterns, thus concluding that there is no heteroscedasticity in the model.

### Multiple Linear Regression

Regression with one dependent variable and more independent variables.

**Table 5. Multiple Linear Regression Analysis**

	Coef.	Std. Error	t	Sig.
Constant	17,598	1,284	13,710	0,000
Gender	2,065	0,329	6,274	0,000
AI literacy	0,186	0,035	5,314	0,000
Risk perception	0,372	0,084	4,404	0,000

- a. Dependent variable: Ethical Attitudes towards AI

The results of the multiple linear regression modeling shown in the table above provide several important conclusions. First, the Gender variable significantly influences ethical attitudes toward AI use, with a significance value of 0.000 ( $<0.05$ ), thus concluding that women tend to have higher ethical attitudes toward AI use than men. Second, the AI Literacy variable also significantly influences ethical attitudes toward AI use, with a significance value of 0.000 ( $<0.05$ ), with a coefficient value of 0.186 indicating that each increase in AI literacy will increase ethical attitudes toward AI use by 0.186. Third, the Risk Perception variable significantly influences ethical attitudes toward AI use, with a significance value of 0.000 ( $<0.05$ ), and a coefficient value of 0.372 indicating that each increase in risk perception will increase ethical attitudes toward AI use by 0.372. Thus, all three variables are proven to contribute significantly to ethical attitudes toward AI use.

The partial test is used to measure the magnitude of the partial effect of the independent variables on the dependent variable individually.

**Table 6. Hypothesis testing**

Variable	Coef.	Std. Error	t-hitung	t-tabel	Sig.	Result
Constant	17,598	1,284	13,710	1,980	0,000	Accepted
Gender	2,065	0,329	6,274	1,980	0,000	Accepted
AI literacy	0,186	0,035	5,314	1,980	0,000	Accepted
Risk perception	0,372	0,084	4,404	1,980	0,000	Accepted

By using a significance value of 0.05 and a t-table value of 1.980 (with degrees of freedom  $df = n - k - 1 = 120 - 3 - 1 = 116$  at a significance level of 5%), it can be explained that the hypothesis is accepted for each independent variable in this study. First, the testing of the Gender variable (X1) on the Ethical Attitude of AI Use (Y) shows a t-count value of 6.274 which is greater than the t-table of 1.980, and a significance value of 0.000 which is less than 0.05, so that the Gender variable has a significant effect on the Y variable. Second, the testing of the AI Literacy variable (X2) on the Ethical Attitude of AI Use (Y) produces a t-count value of 5.314 which is also greater than the t-table of 1.980, with a significance value of  $0.000 < 0.05$ , so that the AI Literacy variable has a significant effect on the Y variable. Third, the testing of the Risk Perception variable (X3) on the Ethical Attitude of AI Use (Y) obtains a t-count value of 4.404 which is greater than the t-table of 1.980, with a significance value of  $0.000 < 0.05$ , so that the Risk Perception variable has a significant effect on the Y variable. Thus, the three independent variables have a significant effect on the Attitude Ethical Use of AI.

## DISCUSSION

Based on statistical testing results, there is empirical evidence that gender influences ethical attitudes toward AI. This finding aligns with the social role theory developed by Eagly *et al.* (2016) which states that gender differences in behavior and attitudes are influenced by the social norms and expectations inherent in each gender. In the context of AI ethics, this research makes an important contribution by highlighting how gender differences can influence how individuals perceive and respond to ethical issues in the use of AI technology.

Previous research also shows that women tend to have higher ethical sensitivity than men, especially in the context of decision-making that impacts the wider community (Wei *et al.*, 2024). The results of this study support these findings, as women tend to be more cautious and consider the ethical implications of AI use. Conversely, men tend to focus more on efficiency and technological innovation, although they do not neglect ethical aspects. Thus, this study strengthens the argument that gender is an important factor to consider in developing AI ethics policies in educational and organizational settings.

Empirical results indicate that AI literacy significantly influences ethical attitudes toward AI. AI literacy is defined as an individual's understanding, knowledge, and ability to use and critically evaluate AI technology (Long & Magerko, 2020). This finding is in line with the theory

of technological literacy which states that the higher the level of literacy of a society regarding a technology, the greater its ability to identify potential risks and benefits and make ethical decisions (Zhang *et al.*, 2021).

This study demonstrates that individuals with higher levels of AI literacy tend to have better ethical attitudes when dealing with AI-related issues. They are able to recognize the potential dangers, biases, and social impacts of AI use, thus being more cautious in utilizing it. Conversely, individuals with lower AI literacy tend to have a poor understanding of ethical implications and are more likely to fall into the trap of using AI without considering its impact. These results are consistent with previous research emphasizing the importance of education and increasing AI literacy to shape ethical behavior in the use of technology (Kajiwara & Kawabata, 2024).

Therefore, increasing AI literacy among students and the wider public is a key strategy in building an ethical and responsible AI ecosystem. Based on the analysis, risk perception has been shown to influence ethical attitudes toward AI. This finding supports the theory of planned behavior (Ajzen, 1991), which states that risk perception can influence individual intentions and behavior in making decisions, including in the context of technology ethics (Arshad *et al.*, 2021).

This study shows that the higher an individual's perceived risk toward AI use, the more likely they are to behave ethically and cautiously. Individuals with high-risk perceptions are more likely to consider security, privacy, and social impact before using or supporting AI implementation. Conversely, individuals with low-risk perceptions tend to be more permissive and less concerned with ethical aspects. These results align with previous research that confirms that risk perception can be a driving factor in ethical behavior, particularly in the use of new technologies (Kaya *et al.*, 2024). Therefore, it is important for educational institutions and organizations to raise awareness of the potential risks of AI to encourage ethical attitudes among users.

## CONCLUSION

Based on the discussion above, it can be concluded that partially, gender, AI literacy, and risk perception have a positive and significant effect on students' ethical attitudes toward AI use. Simultaneously, all three variables together show a significant effect. These findings have practical implications for educational institutions, including integrating AI literacy and digital ethics education into their curriculum to foster stronger ethical attitudes in students. Theoretically, the results of this study strengthen the model of ethical behavior in the context of technology by emphasizing the importance of individual factors such as gender and risk perception. Therefore, it is recommended that students continue to improve their understanding of AI ethics, educational institutions strengthen their digital literacy programs, and future research develop a more comprehensive model by adding other variables such as social norms or personal moral values

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