The Influence of Ethical Perception and Digital Literacy on Attitudes and the Impact of Deepfakes on Academic Data Manipulation

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Abstract. This study investigates the influence of perceived ethics and digital literacy on attitudes towards deepfake technology and its implications for academic data manipulation. Digital literacy is defined as the ability to critically access, analyze, evaluate and create digital information, which is important in navigating the challenges posed by manipulative technologies such as deepfake. This research highlights that attitudes towards such technologies are shaped by perceived usefulness and moral considerations, suggesting a complex relationship between digital skills and ethical behavior. Furthermore, the research emphasizes the importance of cognitive load management in digital literacy, as individuals must balance their cognitive resources when engaging with digital content. By applying the Technology Acceptance Model, the research explains how beliefs about the consequences of technology influence users' attitudes and behaviors, which ultimately affect academic integrity. The findings underscore the need for improved digital literacy education that incorporates ethical considerations to mitigate the risks associated with deepfake technology in academic settings.

Keywords: Perceived Ethics, Digital Literacy, Attitude towards Manipulative Technology, Academic Data Manipulation, College Students.

Introduction

Advances in artificial intelligence (AI) have given rise to various disruptive technologies, one of which is deepfake. This technology utilises algorithms such as Generative Adversarial Networks (GAN) to produce highly realistic synthetic content. Although initially applied in the entertainment and creative industries, deepfake has now entered sensitive domains such as academia. The ability of this technology to manipulate text, images, and data presents serious ethical implications-especially in educational settings where integrity and authenticity are crucial. In the context of higher education, deepfakes can be misused to falsify academic content, including survey data, research results, or even entire written assignments. This phenomenon is a direct threat to academic integrity. Students, faced with time constraints or academic pressure, may be tempted to use the technology to present falsified work as legitimate. This challenge is compounded by the lack of institutional policies and ethical literacy among students regarding the acceptable use of AI-powered tools.

Previous research has explored various forms of academic dishonesty and the factors that contribute to unethical behaviour, such as pressure to perform (McCabe et al., 2001) and lack of digital ethics education (Ribble, 2011). Recent research has also addressed the intersection of AI and ethics in academic practice, but little has specifically focused on how university students perceive the ethical boundaries of deepfake use in academic tasks. In addition, limited attention has been paid to how digital literacy interacts with ethical perceptions in shaping students' attitudes and behaviours regarding manipulative technologies.

This study aims to investigate students' ethical perceptions of using deepfake technology in an academic setting, as well as the role of digital literacy in influencing attitudes and potential manipulation of academic data. By identifying key psychological and behavioural factors, this study intends to contribute to a more comprehensive understanding of how emerging technologies intersect with ethical decision-making in higher

education. In addition, this study highlights the need for educational institutions to formulate clearer policies and strengthen students' awareness of responsible digital practices.

Literatur Review

Ethical Perception

Ethical perception refers to how individuals interpret moral values in a given situation, which is often influenced by cognitive and contextual factors (Bandura, 2016; Sonenshein, 2007). According to (Rogers & Breakey, 2023), this construct consists of four psychological components. Moral sensitivity reflects the ability to recognise ethical issues and anticipate the consequences on others. Moral judgement involves the capacity to evaluate and decide on ethically appropriate actions. Moral motivation emphasises an internal commitment to prioritise moral values over self-interest. Finally, moral character represents the perseverance to maintain ethical behaviour even under pressure or temptation. Ethical perceptions play an important role in how students assess the morality of using technologies such as deepfakes, especially in academic contexts where decision-making often involves ethical ambiguity (Reed, 2024).

Digital Literacy

Digital literacy is not limited to the technical ability to operate digital tools. It encompasses the cognitive, emotional, and ethical competencies required to critically navigate the digital environment (Buckingham, 2007; Singh & Singh, 2022). (Potter, 2022; Wheeler, 2012) identified several key components relevant to digital integrity. Managing digital identity refers to a person's awareness of how they are represented across online platforms and the ability to adjust their behaviour accordingly. Maintaining privacy includes the ability to protect personal data and understanding digital security risks. Filtering and selecting content refers to the critical evaluation of online information and the ability to distinguish reliable sources from misleading ones. Students with high digital literacy are generally better equipped to evaluate manipulative technologies and their potential risks in an academic context.

Attitude Toward Manipulative Technology

Attitudes are shaped by beliefs about the outcomes of a behaviour, including perceived benefits and ethical issues (Bosnjak et al., 2020). According to (Zuboff, 2019), this construct can be seen through three indicators. Awareness of data exploitation refers to students' understanding that personal information shared online can be collected and used without consent. Concern for privacy reflects their sensitivity to the risk of data misuse or unauthorised access. Resistance to behavioural manipulation indicates a critical stance in rejecting technologies designed to subtly influence decisions or behaviour. While the Technology Acceptance Model (Davis, 1989) highlights the importance of perceived usefulness and ease of use, affective computing also emphasises emotional response as a factor in shaping attitudes (Gratch, 2021). This perspective helps explain college students' mixed feelings towards deepfake technology-seeing its usefulness, but also questioning its ethical implications.

Academic Data Manipulation

Academic data manipulation refers to dishonest practices in academic settings that involve misuse of data. (Martison et al., 2005) categorizes it into three main behaviors. Fabrication involves creating data or results that were never obtained. Falsification refers to modifying data to support desired results or misleading conclusions. Meanwhile, data plagiarism occurs when students use the data or academic work of others without proper acknowledgment, often to meet deadlines or academic expectations. These actions undermine academic integrity and are influenced by internal factors, such as self-control (Burt, 2025), and external pressures such as deadlines or academic competition. The presence of manipulative behaviors may act as a mediator between ethical perceptions and attitudes towards technology.

Relationships Among Variables

Several studies confirm that ethical perceptions influence attitudes toward manipulative technologies and academic behavior (Leliana et al., n.d.; Treviño & Nelson, 2014). Digital literacy is also associated with critical responses to digital content and ethical decision-making (Latip et al., 2022; Muhammadiyah Mataram et al., n.d.). Research shows that ethical perception and digital literacy are negatively correlated with academic data manipulation (Macfarlane et al., 2014; McCabe et al., 2001; Ribble, 2011). In addition, academic misconduct

may shape students' tolerance for manipulative technologies, acting as a mediator in the relationship between ethical or digital competencies and attitudes.

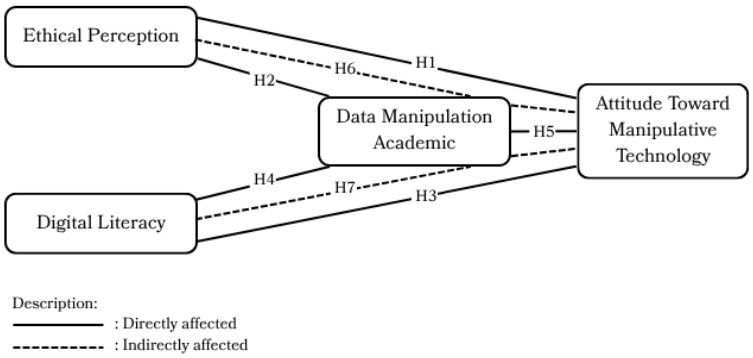
Research Framework and Hypothesis

Based on the reviewed literature, this study proposes a research model that examines the influence of ethical perception and digital literacy on students' attitudes toward manipulative technology, mediated by academic data manipulation. The conceptual framework is illustrated in Figure 1.

Figure 1. Research model

The following hypotheses are proposed:

H1: Ethical perception has a significant effect on attitudes toward manipulative technology.
H2: Digital literacy has a significant effect on attitudes toward manipulative technology.
H3: Ethical perception influences academic data manipulation.



H4: Digital literacy influences academic data manipulation.
H5: Academic data manipulation affects attitudes toward manipulative technology.
H6: Academic data manipulation mediates the effect of ethical perception on attitudes.
H7: Academic data manipulation mediates the effect of digital literacy on attitudes.

Methods

This study uses a quantitative associative approach to examine the influence of ethical perceptions and digital literacy on university students' attitudes towards deepfake technology, with academic data manipulation as a potential mediator. A conceptual model was built to test direct and indirect effects, assuming that ethical and digital competencies can influence behavioural outcomes through intervening variables. Data were collected from 100 university students in Jakarta, selected through purposive sampling, targeting students in their fourth semester or higher as they were assumed to have been exposed to academic tasks and digital tools. The sample size met the minimum criteria for structural equation modelling to ensure statistical power of the analysis.

An online questionnaire was used as the main data collection instrument, which consisted of four measured constructs: ethical perceptions, digital literacy, academic data manipulation, and attitudes towards manipulative technologies. Each construct was measured using multiple items on a five-point Likert scale, ranging from strongly disagree to strongly agree. Ethical perception was assessed through four indicators: moral sensitivity, moral judgment, moral motivation, and moral character (Rogers & Breakey, 2023). Digital literacy was measured by indicators such as managing digital identity, maintaining privacy, and filtering content (Wheeler, 2012) . Attitudes toward manipulative technology were evaluated through aspects such as data exploitation awareness, privacy concern, and resistance to manipulation (Zuboff, 2019), while academic data manipulation was assessed using indicators of fabrication, falsification, and data plagiarism (Martison et al., 2005).

Instrument validity was confirmed through outer loading values > 0.70, while Cronbach's alpha and composite reliability scores exceeded 0.80, indicating strong internal consistency. The Average Variance Extracted (AVE) for each variable surpassed the 0.50 threshold, confirming convergent validity.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4. This method was chosen due to its ability to handle complex models with multiple relationships and mediating variables, especially in studies with relatively small sample sizes and non-normal data distribution.

Result and Discussion

The results of the descriptive analysis show that the majority of respondents tend to have high levels of ethical perception (M = 4.43; SD = 0.63) and digital literacy (M = 4.37; SD = 0.65), indicating that students are generally aware of ethical considerations and have adequate digital competence. Their attitude towards manipulative technologies such as deepfake was also high (M = 4.27; SD = 0.78), indicating a cautious attitude towards unethical use. Interestingly, academic data manipulation scored at a moderate level (M = 3.17; SD = 1.42), with a relatively high standard deviation, implying that although some students strongly avoid manipulation, others may still do so under certain pressures. The details are presented in Tabel 1.

Tabel 1: Descriptive Statistic

Variable	N	Min	Max	Mean	Std. Dev
X1	100	2.75	5.00	4.43	0.63
X2	100	2.25	5.00	4.37	0.65
Y	100	1.25	5.00	4.27	0.78
Z	100	1.00	5.00	3.17	1.42

To ensure the reliability and validity of the instruments, all indicators were tested using PLS-SEM. The outer loading values exceeded 0.70, which confirmed convergent validity. Cronbach's alpha and composite reliability values for all constructs were above 0.80, and AVE values also met the 0.50 threshold. These results indicate that the measurement model is valid and reliable. The summary is shown in Tabel 2.

Tabel 2: Construct Reliability and Validity

Variable	Cronbach's Alpha	Composite Reliability	AVE
Ethical Perception	0.885	0.920	0.742
Digital Literacy	0.852	0.899	0.689
Attitude	0.896	0.916	0.732
Data Manipulation	0.900	0.929	0.765

However, the analysis of the structural model indicated that the majority of the proposed relationships lacked statistical significance. Ethical perception (X1) had no substantial impact on students' attitudes towards deepfake technology (β = -0.049; p = 0.728), and a similar outcome was found for digital literacy (X2 → Y: β = -0.116; p = 0.455). Additionally, academic data manipulation did not significantly affect students' attitudes (Z → Y: β = 0.050; p = 0.670), implying that while students might recognize manipulation, it does not necessarily influence their overall perspective on technology.

The sole significant relationship identified was between ethical perception and academic data manipulation (X1 → Z: β = 0.253; p = 0.005), suggesting that students who possess greater ethical awareness are less inclined to manipulate academic data. This result aligns with moral development theories (Bandura, 2016; Reed, 2024), highlighting the role of moral cognition in ethical decision-making. Nonetheless, this influence did not translate to shaping attitudes towards the use of technology itself.

The other pathways, including the indirect effects (X1 → Z → Y and X2 → Z → Y), were also found to be insignificant, as demonstrated in Tabel 3.

Tabel 3: Hypothesis Testing Results

Hypothesis	Path	β	T-Value	P-Value	Result
H1	X1 → Y	-0.049	0.348	0.728	Not supported
H2	X2 → Y	-0.116	0.748	0.455	Not supported
H3	X1 → Z	0.253	2.309	0.005	**Supported**
H4	X2 → Z	0.120	1.054	0.292	Not supported
H5	Z → Y	0.050	0.427	0.670	Not supported
H6 (Mediation)	X1 → Z → Y	0.013	0.387	0.699	Not supported
H7 (Mediation)	X2 → Z → Y	0.006	0.288	0.774	Not supported

The results reveal a gap between students' ethical principles and their perspectives on technology. Even individuals with considerable ethical understanding or digital proficiency may hold neutral or even favorable opinions regarding deepfake tools, potentially considering them neutral devices rather than fundamentally unethical. This underscores the intricate nature of student reasoning, where ethical considerations do not consistently correspond with emotional or practical assessments. Furthermore, the absence of notable impacts from digital literacy may imply that cognitive ability alone does not suffice to influence moral behavior, reflecting Selwyn's warnings about the limitations of digital empowerment lacking a solid ethical foundation (Uğur, 2020).

One possible reason for the weak relationship between ethics and attitudes is that students may not view deepfake as an inherently unethical tool, but instead as a neutral technology whose moral implications are contingent on how it is utilized. Moreover, the pervasive exposure to digital manipulation in entertainment and social media may have dulled students' sensitivity, leading to greater acceptance of similar practices in academic settings. This normalization of digital deception could diminish the perceived severity of employing deepfake, even among those who are ethically conscious.

In summary, while ethical perception does contribute to limiting academic data manipulation, its impact seems constrained regarding the formation of broader technological attitudes—indicating the necessity for comprehensive digital ethics education that transcends mere awareness and skills.

Conclusion

This research explored how ethical perception and digital literacy impact students' attitudes towards deepfake technology, with academic data manipulation acting as a mediating factor. The results indicated that ethical perception notably diminishes students' inclinations to manipulate academic data, emphasizing the importance of internal moral consciousness in fostering ethical academic conduct. Nevertheless, neither ethical perception nor digital literacy exhibited a notable direct or indirect influence on students' attitudes toward manipulative technologies.

These findings imply that although students may have ethical awareness and digital skills, these elements alone might not significantly sway their views on the ethical ramifications of emerging technologies such as deepfake. This disparity highlights the necessity for thorough digital ethics education that not only develops technical abilities but also fortifies ethical reasoning and moral coherence in decision-making.

Future investigations could broaden the scope by examining additional factors such as peer influence, institutional culture, or familiarity with technology to gain a deeper understanding of the complexities surrounding students' engagement with manipulative digital tools.

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