The Ethical Responsibilities of Researchers in Light of the Technological Advancement and Artificial Intelligence Methods: A Case Study of Management Ph.D. Researchers at Midocean University

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Abstract

This study aimed to assess the integration, ethical considerations, and governance of artificial intelligence (AI) within the PhD programs at Midocean University. It specifically sought to understand PhD researchers' perceptions and attitudes towards AI and identify areas for enhancement in AI-related policies and educational initiatives. A descriptive analytical approach was adopted, utilizing an electronic questionnaire distributed to 105 PhD researchers, with 54 completing the survey. The questionnaire was designed to measure various aspects of AI usage, ethical concerns, and governance practices. Statistical analysis was conducted to evaluate the relationships between AI awareness, ethical application, and governance perceptions. The findings revealed diverse perceptions of AI among researchers, indicating both opportunities and challenges in AI integration. The statistical analysis confirmed significant correlations between AI awareness and positive perceptions of ethical AI usage. However, the response rate and sample size posed limitations on the generalizability of the results. The study highlights the need for Midocean University to strengthen its AI governance frameworks and expand ethical guidelines to keep pace with technological advancements. Recommendations include enhancing AI-related educational programs, updating AI policies regularly, and promoting interdisciplinary research to foster an informed and ethically aware research community.

Keywords: Artificial Intelligence, PhD Research, AI Ethics, AI Governance, Midocean University, Policy Development.

1. Introduction

The rapid integration of Artificial Intelligence (AI) across various sectors has prompted significant academic interest, particularly concerning the ethical implications and governance of

AI technologies. As AI systems become increasingly prevalent in research environments, understanding how these technologies are perceived and managed within academic settings is crucial (Floridi & Cowls, 2019). This study focuses on Midocean University, examining the integration, ethical considerations, and governance of AI within its PhD programs. It aims to capture the nuanced perspectives of PhD researchers regarding AI, offering insights that could guide policy and educational program enhancements. Recent studies highlight the complexity of AI ethics and the necessity for robust governance frameworks that adapt to ongoing technological advancements (European Commission's High-Level Expert Group on Artificial Intelligence, 2019). Additionally, the literature indicates a growing need for AI-specific education and training among researchers to foster an informed use of these technologies (Kammer, 2023). However, despite the extensive discourse, there is a notable lack of targeted research focusing on individual academic institutions like Midocean University. This gap underscores the need for institution-specific studies that can provide detailed, actionable insights into the local integration and regulation of AI. Numerous AI principles and ethical frameworks have been suggested to tackle these concerns, with an increasing agreement on eight main thematic patterns: confidentiality, answerability, safety and security, openness and comprehensibility, impartiality and absence of discrimination, human management of technology, professional duty, and the promotion of human principles as (Hastuti and Syafruddin ,2023) mentioned, citing a study by (Fjeld et al ,2020). Despite the growing consensus, there are still noticeable variations in how these principles are understood and put into practice across different sectors and organizations. Policymakers, advocates, scholars, and others striving to maximize the benefits and minimize the drawbacks of AI must build upon existing endeavors and drive the global discourse on the future of AI toward a consensus (Fjeld et al ,2020). In conclusion, the ethical aspects of AI require a careful balance between technological progress and human principles. As AI becomes more integrated into society, it is crucial to address ethical considerations and promote responsible development. Researchers play a vital role in the ethical conduct of research, and understanding their perspectives can help develop a unified and impactful research culture. The proliferation of AI has raised concerns across various domains, with growing apprehension about its potential implications for human existence and the future. This study aims to examine the reasons behind the fear of AI and its association with the ethical principles that need to be upheld in scientific research to mitigate the development of AI phobia.

Research Problem

The rapid integration of Artificial Intelligence (AI) into academic research has introduced a multitude of ethical conundrums that current frameworks and guidelines do not adequately address. As AI technologies continue to advance, they introduce novel challenges that compel researchers to reevaluate their ethical obligations. The primary research problem examined in this study is to comprehend and elucidate these ethical responsibilities within the context of technological progress in AI.

The research intends to address several critical concerns:

Understanding Ethical Responsibilities:

Researchers must consider their ethical responsibilities when using advanced AI technologies. As AI systems become more complex, it is crucial to define the scope of these responsibilities.

Evolving Ethical Standards:

The rapid development of AI technologies necessitates the evolution of ethical standards to address issues like transparency, accountability, and fairness.

Impact of Technological Advancements:

The implications of new AI technologies on ethical research practices need to be carefully evaluated. Specifically, the impact on traditional ethical considerations, such as consent and privacy, must be assessed.

Institutional Support and Governance:

Institutions play a crucial role in supporting ethical AI research by providing adequate support systems and governance structures that foster an ethical research environment.

Training and Awareness:

Researchers may not be adequately trained to understand and manage the ethical implications of AI. This highlights the need for initiatives to educate researchers and provide them with the necessary knowledge and skills. This research endeavors to offer a thorough comprehension of the moral obligations associated with the utilization of artificial intelligence in academic investigations. The objective is to contribute to the continuing discourse on ethical research methodologies in the era of artificial intelligence and to propose tangible recommendations that will enable researchers and institutions to navigate these challenges proficiently.

The Research Questions:

The Main Question:

-What are the ethical responsibilities of researchers in light of technological advancement and artificial intelligence methods?

Sub-questions are:

1.Transparency and Explainability: Why is transparency and explainability important when using AI methods, and how can researchers achieve it?

2.Data Privacy and Security: How can researchers ensure the protection of data privacy and security when utilizing AI technologies?

3.Ethical Guidelines and Frameworks: What ethical guidelines or frameworks exist to assist researchers in navigating the intersection of technological advancement?

4.Engagement with Stakeholders: How can researchers actively engage with stakeholders and the public to ensure the ethical and responsible use of AI in their research endeavors?

5.Ethical Challenges: What are the potential ethical challenges that researchers face when utilizing artificial intelligence methods?

Research Hypothesis:

Main Hypothesis:

There is a statistically significant positive relationship between the ethical training and guidelines provided to researchers and their adherence to and management of ethical standards in AI research.

Sub-Hypotheses:

Positive Relationship Between Ethical Training and Ethical Awareness:

H1: There is a statistically significant positive relationship between the extent of ethical training provided and the level of ethical awareness among Ph.D. researchers at Midocean University.

Positive Relationship Between Ethical Guidelines and Support Factors:

H2: There is a statistically significant positive relationship between the clarity and comprehensiveness of ethical guidelines and the support factors that facilitate ethical AI research practices among Ph.D. researchers at Midocean University.

Inverse Relationship Between Ethical Challenges and Ethical Training:

H3: There is a statistically significant inverse relationship between the adequacy of ethical training and the difficulties faced by Ph.D. researchers at Midocean University in addressing ethical challenges in AI research.

The structured hypotheses aim to test the effects of ethical training and guidelines on researchers' adherence to ethical standards in AI research, providing a framework for analyzing the relationships between these variables.

To support our research questions and hypotheses of the study on the ethical responsibilities of researchers in the context of technological advancements and AI, the research objectives can be structured as follows:

The Research Objectives

To support the research's questions and hypotheses of the study on the ethical responsibilities of researchers in the context of technological advancements and AI, the research objectives can be structured as follows:

Main Objective:

To investigate the ethical responsibilities of researchers in light of technological advancements and the integration of AI methods in academic research.

Sub- Objectives:

1.Assess the Importance of Transparency and Explainability:

To determine the importance of transparency and explainability a in AI research and identify strategies to achieve these attributes.

2.Evaluate Data Privacy and Security Measures:

The objective of this examination is to scrutinize the approaches utilized by researchers to guarantee the safeguarding of data privacy and security in studies driven by AI.

3.Identify Ethical Guidelines and Frameworks:

To explore existing ethical guidelines and frameworks that assist researchers in navigating ethical dilemmas at the intersection of technological advancement.

4.Analyze Stakeholder Engagement:

To assess how researchers engage with stakeholders and the public to ensure ethical and responsible use of AI in their research endeavors.

5.Explore Ethical Challenges:

To identify and analyze the potential ethical challenges that researchers face when utilizing AI methods and how these challenges are addressed.

The significance of the research

The significance of research on the ethical responsibilities of researchers in light of technological advancement and artificial intelligence methods is multifaceted, impacting various stakeholders.

1. Academic Contributions:

1.1. Advancing Knowledge: The research contributes to academic literature by providing a detailed analysis of how ethical considerations are integrated into AI research. This fills a gap in existing studies, which often focus more broadly on ethical guidelines without delving deeply into their practical application and the perceptions of researchers themselves.

1.2. Framework Development: By identifying and analyzing existing ethical frameworks and their effectiveness the study helps in refining these frameworks to better address the unique challenges posed by AI technologies.

2. Practical Implications:

2.1. Enhanced Ethical Practices: The findings can help institutions and researchers improve their ethical practices by highlighting key areas of concern and providing evidence-based recommendations for addressing these issues.

2.2. Training and Support Programs: Insights from this study can inform the development of targeted ethical training and support programs that better prepare researchers for the complexities of AI research, thereby promoting a culture of ethical diligence.

3. Policy and Governance:

3.1. Informing Policy: The research provides empirical data that can inform policy decisions related to the governance of AI in research settings, helping to shape policies that balance innovation with ethical considerations.

3.2.Global Standards: As AI continues to be an area of international focus, the study contributes to the global discourse on creating standardized ethical practices that can be adopted across different countries and research communities.

4. Societal Impact:

4.1. Public Trust and Engagement: By exploring how researchers can effectively engage with stakeholders and the public, the study promotes transparency and public trust in AI research. This is crucial for the acceptance and support of AI technologies in society.

4.2. Addressing Ethical Challenges: The research identifies potential ethical challenges and provides strategies to mitigate these, thereby helping to ensure that AI technologies are developed and used in ways that are socially responsible and beneficial.

5. Future Research:

5.1. Foundation for Further Studies: The study sets the stage for future research on ethical AI, providing a basis for longitudinal studies to examine how ethical practices evolve as AI technologies advance.

Overall, the significance of the research lies in its comprehensive approach to understanding and enhancing the ethical dimensions of AI research, ensuring that as AI technologies continue to develop, they do so within a framework that upholds the highest ethical standards.

6. Scarcity of Studies:

The importance of this study is also underscored by the general scarcity of focused research in this specific area. By exploring the ethical dimensions of AI research among Ph.D. candidates in Midocean university, this study fills a critical gap in the existing literature, offering new data and perspectives that can inform both academic discourse and practical applications in ethical AI implementation.

2. Literature review:

1. Ethical Reflections on Data-Centric AI: Balancing Benefits and Risks (Patel,2024):

The study analyzes the ethical risks and challenges of data-centric AI, using a literature review, case studies, and synthesis of ethical frameworks. It emphasizes the benefits of data-centric AI while underscoring the need for ethical trade-offs, and the need for continuous ethical reflection and promoting AI practices that align with societal values and human rights.

2. Artificial Intelligence Trust, Risk and Security Management (AI TRiSM): Frameworks, applications, challenges and future research directions. (Habal et al ,2024):

The study aims to provide a comprehensive review of the AI Trust, Risk, and Security Management (AI TRiSM) framework, exploring its applications across domains like finance, healthcare, and the Metaverse, and addressing implementation challenges. The results show that AI TRiSM framework effectively promotes innovation, builds trust, and generates value across

diverse areas. The study recommends ongoing adaptation and collaboration among stakeholders to manage emerging risks and promote ethical and secure AI practices.

3. Artificial Intelligence (AI) Ethics: Ethics of AI and Ethical AI (Siau and Wang ,2020):

The study explores the ethical and moral challenges associated with artificial intelligence (AI), particularly focusing on issues such as explainability, data biases, security, and privacy. It found that AI systems often lack transparency, obscuring their decision-making and undermining trust. Data biases in AI were a significant concern. There are also widespread worries about data security and privacy. Additionally, there is a general lack of robust ethical guidelines to govern the development and implementation of AI technologies. The recommendations were to establish clear, enforceable ethical principles and regulations to govern AI development and use. It suggested improving AI explainability to ensure transparency and understandability of decisions and designing AI systems to inherently embody ethical standards from the outset.

4. The ethics of ChatGPT – Exploring the ethical issues of an emerging technology. (Stahl and Eke ,2024):

The study aims to explore the ethical implications of generative AI like ChatGPT, considering both the potential benefits and ethical concerns. The results show that ChatGPT and similar AI systems offer potential societal benefits, but also raise ethical concerns. The study recommends engaging diverse stakeholders in ongoing ethical discussions to ensure various perspectives are considered in developing and deploying AI systems. It emphasizes the need for holistic assessment of benefits and risks when creating AI applications to ensure positive societal impact.

5. Ethics of Artificial Intelligence in Education: Student Privacy and Data Protection (Huang , 2023):

The study aims to examine the ethical risks associated with the use of AI technology in educational settings, particularly regarding the protection of student personal information.The study identifies key ethical risks of AI in education, primarily concerning student data privacy. It highlights significant concerns about how AI systems handle, store, and process student data, which could compromise privacy. The study recommends developing collaborative data protection frameworks involving educational institutions, government bodies, and AI developers to effectively safeguard student data. It emphasizes the need for continuous monitoring and updating of data protection practices as AI technologies evolve.

6. Trust and ethics in AI (Choung et al,2022):

The study aims to explore the relationship between trust and ethics in AI. The study finds that trust in AI is multifaceted, influenced by individual predispositions, confidence in organizations deploying AI, and direct experiences with AI technologies. The study propose a multidimensional framework for AI trust that integrates ethical values into AI development and deployment. It emphasizes the importance of promoting ethical requirements, such as societal well-being, accountability, and technical robustness, to enhance trust in AI. It also suggests ongoing efforts to educate the public about AI ethics.

7. I Am ChatGPT, the ultimate AI Chatbot! Investigating the determinants of users' loyalty and ethical usage concerns of ChatGPT (Niu and Mvondo,2024):

The study aims to investigate the factors influencing user satisfaction and loyalty towards ChatGPT, focusing on the impact of perceived ethical practices and the quality of interactions facilitated by the AI chatbot. The study results show that the users are more satisfied and loyal when they find ChatGPT useful in their daily tasks and appreciate its advanced, human-like capabilities. The study recommends that brand managers and programmers continuously assess and improve ChatGPT's performance to maintain high information quality and reliability.

8. The Role of Artificial Intelligence (AI) in the Academic Paper Writing and Its Prospective Application as a Co-Author: A Letter to the Editor (Deniz, 2023)

The study aims to explore the role and implications of using AI, specifically Large Language Models like ChatGPT, in the composition of scholarly articles and its potential to act as a collaborative co-author. The results show that ChatGPT is a valuable AI tool for academic writing, offering significant content generation and refinement capabilities. However, there are concerns about the accuracy of the information provided, the reliability of internet data sources, and the ethical implications of its use, particularly regarding authorship and plagiarism. The study suggests using AI tools like ChatGPT to refine and enhance written work, rather than to generate complete scholarly articles. There is a need for more nuanced AI programs that address ethical concerns and improve the accuracy and reliability of generated content.

9. The Role of Artificial Intelligence in Scientific Writing. (Kammer, 2023)

The study aims to explore the impact of artificial intelligence (AI) on the field of scientific writing. It found that AI technologies have the potential to enhance scientific writing by automating routine tasks and assisting with data analysis and information synthesis. AI can also improve the clarity and coherence of scientific manuscripts by analyzing large volumes of data and identifying relevant information. AI can assist in scientific writing, but should not replace human expertise and involvement in the research process. Researchers should use AI as a tool to enhance their work, while maintaining active participation in critical writing aspects to ensure accuracy and integrity. A balanced approach is recommended, where AI is utilized as an ally to boost productivity without compromising the quality and depth of scientific research.

10. AI Technology and Academic Writing: Knowing and Mastering the “Craft Skills “ (Storey, 2023)

The study aims to analyze the impact of artificial intelligence (AI) on the process of dissertation writing within doctoral programs. The results show the increasing use of AI tools by doctoral students for research and writing tasks raises concerns about the development of their inherent writing skills. Many doctoral programs fail to ensure students develop the necessary linguistic and analytical skills without relying on AI assistance. While AI can improve the efficiency of data analysis and preliminary writing, it cannot substitute the critical thinking, in-depth understanding, and unique insights required for advanced academic writing. The study recommends that doctoral programs focus on developing students' intrinsic writing and analytical skills and suggests that institutions should implement training modules emphasizing

the importance of mastering traditional writing skills, even as AI tools become more integrated into research. The study calls for clearer guidelines on using AI in academic writing to ensure doctoral candidates can differentiate their own work from AI-generated content.

11. Adapting to the Impact of AI in Scientific Writing: Balancing Benefits and Drawbacks while Developing Policies and Regulations (BaHammam et al., 2023)

The study aims to explore how artificial intelligence (AI) tools, particularly expansive language models, impact academic writing and research, focusing on both the benefits and potential drawbacks. The results show that AI tools can assist non-native English speakers with grammar, language refinement, and other writing elements. The study recommend developing sophisticated plagiarism detection software to differentiate human-authored and AI-generated content, preserving academic integrity. The study suggests involving diverse stakeholders, including non-native English speakers and those with specific needs, in formulating inclusive and effective regulations.

12. AI and the future of academic writing: Insights from the ESCP Business School Prompt-o-thon workshop in Berlin (Bick et al., 2023/2024)

The study aims to explore the use of expansive language models (LLMs) and other artificial intelligence (AI) tools in the composition of thesis outlines by students at a business school workshop, examining both the processes and outcomes. The results show that students effectively used AI tools to draft thesis outlines, demonstrating AI's potential to streamline academic writing, but many students doubted AI tools' reliability and ability to fully compose a thesis, suggesting they cannot yet replace human input entirely. The study recommends developing additional mechanisms, such as a Chatbot verifier, to work with existing plagiarism detection tools. This would help ensure the originality and integrity of academic work produced with AI assistance. The study also suggests that universities should foster an environment where students can critically engage with AI tools, understanding their capabilities and limitations.

13. ChatGPT and its impact on research supervision: Insights from Australian postgraduate research students (Dai et al., 2023)

The study aims to investigate how ChatGPT is utilized by postgraduate research students in Australia and its impact on the supervision process and research development. The results show that ChatGPT enhances student research by improving quality and efficiency. It has transformed the supervisor-student dynamic, fostering a more collaborative and empowering supervision model. Students report increased self-reliance and confidence in tackling complex tasks.The study recommends integrating ChatGPT and similar AI tools in postgraduate research programs to enhance research training and development. They suggest training programs for students and supervisors to leverage AI capabilities in research supervision.

14. Ethical Responsibility of Researchers and Subjects in Drugs Clinical Trials (Yan & Liu, 2018)

The study aims to examine the ethical responsibilities of both researchers and participants in drug clinical trials. The study emphasizes the importance of ethical responsibilities in ensuring the integrity and validity of clinical trials. Inaccurate information or failure to disclose relevant

health changes can significantly impact the trial's outcomes and pose serious risks. Effective communication between researchers and participants is essential for accurately assessing the benefits and risks of the drugs being tested. The Study recommends continuous open communication with participants to foster transparency and trust. The study suggests implementing stricter monitoring and reporting protocols to ensure accurate and complete participant information.

15. Artificial intelligence: From ethics to law (Margarita Robles Carrillo, 2020)

The study aims to explore and clarify the distinctions and intersections between the ethical and legal aspects of artificial intelligence (AI), addressing common confusions and the implications of these distinctions for AI governance. The study identifies a prevalent confusion between ethical guidelines and legal regulations in the field of AI. It emphasizes the necessity of law in establishing clear, enforceable rules for the behavior of individuals and organizations involved in the development and deployment of AI. Some of the recommendations were that, Carrillo advocates for clearer distinctions and better integration between ethical guidelines and legal regulations for AI. It suggests that AI laws should reflect and enforce ethical norms effectively, ensuring AI development supports the well-being of society.

16. Multi-chaos, fractal, and multi-fractional AI in different complex systems (Yeliz Karaca 2022)

The study aims to explore the application of multi-chaos, fractal, and multi-fractional AI approaches in understanding and managing complex systems in both natural and social sciences. The study highlights the usefulness of multi-chaos, fractal, and multi-fractional approaches in AI for improved modeling and prediction of complex systems. The study emphasizes the need to integrate ethical considerations into these AI applications, given the complexities and potential societal impact. The study recommends developing comprehensive ethical frameworks tailored to guide the use of fractal and multi-fractional AI in research and application. The study suggests enhancing interdisciplinary collaboration among relevant experts to foster a deeper understanding and application of these complex AI systems.

17. Ethics of Artificial Intelligence: Research Challenges and Potential Solutions (Tanzeela Jameel and others, 2023)

The study aims to examine the ethical dimensions of artificial intelligence across various applications. The study examines the widespread applications of AI and the ethical challenges that arise in various sectors, including healthcare, industry, and urban planning. It emphasizes the significance of high-quality data for the effective functioning of AI algorithms, as biases in data can lead to discriminatory outcomes. The study recommend developing strict data management guidelines to ensure AI systems are built on accurate, unbiased data. It suggests policymakers and industry should collaborate to create regulations that foster ethical AI while encouraging innovation.

18. On the Governance of Artificial Intelligence through Ethics Guidelines (Cambridge University, 2022)

The study aims to explore the role of ethical guidelines in the governance of artificial intelligence (AI) and how they interact with legal frameworks and impact AI development. The study emphasizes the significance of ethics guidelines, particularly the EU's framework for "trustworthy AI," in shaping the development and deployment of AI technologies. The study suggests that AI governance should have adaptable yet robust ethical guidelines to keep pace with the rapid advancements and diverse applications of AI technology. It emphasizes the importance of integrating ethical considerations throughout the AI development process through ongoing dialogue among technologists, policymakers, and the public. The article also calls for international collaboration in establishing and harmonizing AI ethics guidelines to address the global challenges posed by AI.

Research Gaps:

Despite the extensive exploration of AI's ethical implications and governance in the existing literature, several gaps remain evident. These gaps underscore the need for further research and the potential for significant contributions through this study.

Unique Contextual Insights:

No existing studies have specifically investigated how AI is integrated and governed within the context of Midocean University's PhD programs. This study will fill this crucial gap by examining the specific ethical, legal, and operational challenges faced by researchers and students within this institution. It will also assess the effectiveness of current ethical frameworks and governance models in addressing these challenges, providing tailored recommendations that are directly applicable to Midocean University.

Dynamic Ethical Guidelines:

While previous studies, such as those by Floridi and Cowls (2019), have advocated for adaptive ethical frameworks to keep pace with AI advancements, there is a lack of empirical research on how these frameworks can be continuously updated in practice. The current study seeks to fill this gap by proposing mechanisms for the regular revision of ethical guidelines that adapt to new AI developments and societal impacts. By addressing these gaps, the current study aims to advance the understanding of ethical AI governance and enhance the practical application of ethical guidelines in various sectors influenced by AI technology. This research will contribute to the development of more nuanced and context-specific ethical practices that are crucial for the responsible evolution of AI technologies.

3. Theoretical Framework for AI Ethics, Governance, and Regulation:

1. Ethical AI Design (Adaptive Ethics Models)

Objective: To embed ethical considerations into the design and development process of AI systems.

Theory: This component is based on the adaptive ethics model, which advocates for the continuous integration of ethical principles as AI technologies evolve. This model suggests that

ethical AI is not a static goal but a dynamic process that adapts to new challenges and technologies.

Application: Utilize frameworks such as the Ethics Guidelines for Trustworthy AI by the EU, which emphasize accountability, data governance, transparency, and fairness.

2. AI Legal Frameworks (Responsive Regulation)

Objective: To develop legal standards that are flexible enough to adapt to the rapid advancements in AI technology.

Theory: Responsive regulation theory suggests that legal frameworks should be capable of adjusting in response to technological innovations and societal expectations, without stifling innovation.

Application: Implement a tiered approach to AI regulation that includes both self-regulation by AI developers and statutory regulations enforced by governments.

3. AI in Scientific Integrity (Scholarly AI Accountability)

Objective: To ensure that AI tools used in academic research uphold standards of scholarly integrity and transparency.

Theory: Scholarly AI accountability focuses on the responsibility of AI developers and users in academia to ensure that AI tools are used in a manner that is open, reproducible, and ethically sound.

Application: Guidelines for the use of AI in research that specify how AI contributions should be disclosed in scholarly publications.

4. AI and Human Rights (Rights-Based AI Approach)

Objective: To align AI development and application with international human rights standards.

Theory: A rights-based AI approach integrates human rights law into the lifecycle of AI systems, ensuring that these technologies support rather than undermine human rights.

Application: Adopt AI practices that explicitly consider rights such as privacy, freedom of expression, and non-discrimination.

5. AI Governance (Multi-Stakeholder Governance Model)

Objective: To foster effective governance mechanisms that involve all stakeholders in the AI ecosystem.

Theory: The multi-stakeholder governance model calls for the collaboration of governments, industry, academia, and civil society to jointly oversee AI development and deployment, ensuring diverse perspectives are considered.

Application: Formation of AI ethics boards and regulatory bodies that include representatives from various sectors to discuss and implement AI governance policies.

The provided theoretical framework integrates theories from ethics, law, and governance to offer a comprehensive approach to AI management. It aims to ensure that AI development and deployment adhere to ethical, legal, and human rights standards, while also being effectively governed. Adopting this framework can help policymakers, technologists, and researchers navigate the complexities of AI in a way that fosters innovation while safeguarding societal values and norms.

4. Methodology and Research Methods:

To fulfill the objectives of this study, the researchers adopted a descriptive analytical approach. This methodology was chosen to systematically evaluate the existing ethical guidelines and governance frameworks implemented within the PhD programs at Midocean University. By analyzing these structures, the study aims to uncover the efficacy and potential gaps in how AI technologies are currently managed and perceived within this academic setting. The researchers distributed an electronic questionnaire to the PhD researchers at the university to study their perceptions, experiences, and attitudes towards the use of AI in their academic and research activities. This approach also allowed for capturing the nuances of how these researchers interact with AI tools in their scholarly work and the ethical considerations they deem most critical.

The perspectives from the side of the PhD researchers were meticulously taken into account to ensure a comprehensive understanding of the current ethical climate and the effectiveness of AI governance at the university. This firsthand insight is crucial for proposing informed enhancements to the existing AI frameworks at Midocean University.

Study Tools

To achieve the study's objectives, the researchers utilized a structured questionnaire consisting of five sections, each based on a five-point Likert scale (ranging from "Strongly Disagree" to "Strongly Agree"). This format was specifically chosen to measure the intensity of the respondents' attitudes towards various statements concerning AI ethics and governance. The questionnaire sections included:

1. Awareness and Understanding: Assessing the level of awareness and understanding of AI technologies and ethical standards.

2. Ethical Concerns: Evaluating concerns regarding data privacy, bias, and transparency within AI applications.

3. Governance and Oversight: Examining perceptions of the existing governance frameworks for AI at the university.

4. Impact of AI on Research: Investigating how AI tools impact the quality and efficiency of research.

5. Training and Resources: Determining the availability and adequacy of training and resources related to AI.

The data collected were quantitatively analyzed using the Statistical Package for the Social Sciences (SPSS). This analysis involved various statistical tests to identify significant patterns and relationships within the data, facilitating a deeper understanding of the current state of AI governance and its impact on PhD researchers at Midocean University.

The study, through the utilization of these tools and methodologies, not only illuminates the particular requirements and deficiencies within the university's AI frameworks but also contributes to the more extensive dialogue regarding the ethical implementation of AI in the academic setting.

Research Population:

The research population for this study consists of all the PhD researchers currently enrolled at Midocean University. The total number of researchers in this population is 143. These researchers are involved in diverse academic disciplines, which provides a comprehensive view across different areas of study where AI may be implemented. This diversity is crucial for examining the varied impacts of AI technologies on different fields of research, as well as the ethical considerations and governance models pertaining to AI in an academic setting.

Sample Description:

Given the focused research population, a simple random sampling technique was utilized to select participants from the total pool of 143 PhD researchers. This method ensures each member of the population has an equal chance of being selected, thus enhancing the representativeness and generalizability of the findings within the university.

Sampling Procedure:

Data were collected via an anonymous electronic questionnaire, designed to ensure ease of use and encourage maximum response rates. The questionnaire included sections designed to assess various aspects of AI integration, ethics, and governance within their PhD research.

Out of the 105 PhD researchers initially sampled to participate in the survey at Midocean University, 54 completed it, resulting in a response rate of approximately 51.4%. This rate, while modest, is quite common in academic research settings, where survey fatigue or time constraints can affect participation.

Ethical Considerations:

Ethical standards were maintained throughout the research process. Participants were assured of their anonymity and informed about the voluntary nature of their participation, with consent obtained at the start of the survey.

Study Limitations:

1. Spatial Boundaries: The spatial boundaries of this study are confined to Midocean University. This delineation is critical as it restricts the investigation to the AI usage, ethical considerations, and governance within the specific context of this academic institution. Midocean University is the primary setting where the data collection, through electronic surveys, was conducted among PhD researchers.

2. Temporal boundaries: The temporal boundaries of this study are defined by the specific time period during which the data collection occurred (2024) , as well as the period in which the analysis was conducted and the findings were applicable.

3. Response Rate: The study achieved a response rate of 51.4%, with only 54 out of 105 sampled PhD researchers completing the survey. While this rate is relatively common in academic research, it might limit the representativeness of the findings. The potential for non-response bias exists, as those who chose to participate might differ in significant ways from those who did not, potentially skewing the results.

Data Analysis:

The population size is 143 researchers from the Management Ph.D. program at Midocean University. To calculate the sample size for a population of 143 with a confidence level of 95% and a margin of error of 5%, which are common parameters for many surveys, we can use the following formula:

Sample Size Calculation

$$n = \frac{N \times Z^2 \times p \times (1-p)}{(N-1) \times E^2 + Z^2 \times p \times (1-p)}$$

Given:

Population Size (N): 143 researchers

Confidence Level: 95% (Z = 1.96)

Margin of Error: 5% (e = 0.05)

Estimated Proportion (p): 0.5 (maximizes sample size)

$$n = \frac{143 \cdot (1.96)^2 \cdot 0.5 \cdot (1 - 0.5)}{(0.05)^2 \cdot (143 - 1) + (1.96)^2 \cdot 0.5 \cdot (1 - 0.5)}$$

The sample size calculated is approximately 105 researchers.

Response Rate:

Out of the 105 researchers invited to participate in the survey, 54 responded, resulting in a response rate of approximately 51.4%.

Response Rate= (10554) ×100≈51.4%

Implications of Response Rate:

The response rate of 51.4% may have implications for the generalizability of the study findings. According to (Baruch & Holtom, 2008), response rates in organizational research typically average around 52.7%, indicating that a response rate above 50% is common and generally acceptable. While this supports the adequacy of our response rate, it is still important to consider the possibility of non-response bias. Non-response bias can occur if the researchers who did not participate in the survey have different views or characteristics compared to those who did participate. This potential bias should be acknowledged when interpreting the results.

Reliability and Validity Analysis:

Cronbach's Alpha:

To evaluate the internal consistency of the questionnaire, we calculated Cronbach's Alpha. The computed value was approximately 0.796, indicating a good level of internal consistency among the items in the survey.

Case Processing Summary

		N	%
Cases	Valid	54	100.0
	Excluded[a]	0	.0
	Total	54	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.796	15

Figure 1. SPSS Output indicates that Cronbach's Alpha for the 15-item questionnaire.

Square Root of Cronbach's Alpha:

As an additional measure of construct validity, we calculated the square root of Cronbach's Alpha, which was approximately 0.892. This high value suggests a strong general correlation among the items, supporting the construct validity of the questionnaire.

α: Cronbach's alpha

$\sqrt{\alpha} = .892$ indicating high validity

Mean and Standard Deviation:

Table prepared by the researchers.

Question	Mean	Standard Deviation
Q2: The AI researcher is sufficiently aware of ethical frameworks	4.2	0.5
Q3: The researcher always reviews ethical frameworks during research	4.1	0.6
Q4: There is a need to constantly update ethical frameworks	3.9	0.7
Q5: AI contributes to increasing the accuracy of research results	4.3	0.4
Q6: There are no concerns about violating research ethics	3.7	0.8
Q7: AI development increases the complexity of research ethics	4.0	0.6
Q8: AI enables exploring new research areas	4.5	0.5
Q9: Ethical awareness is crucial when using AI techniques	4.6	0.4
Q10: Continuous training on ethical issues is necessary	4.4	0.5
Q11: Researchers must be aware of ethical challenges in AI research	4.3	0.5
Q12: Ethical priorities should be a leading consideration in scientific research	4.2	0.5
Q13: The university provides clear and detailed ethical guidelines	4.1	0.6
Q14: The university provides sufficient support to overcome ethical challenges	4.0	0.7
Q15: University takes effective measures to monitor adherence to its ethical standards	4.2	0.6
Q16: Accountability procedures help deter and prevent ethical violations	4.3	0.5

Based on the survey data, the mean and standard deviation for each question indicates how the management Ph.D. researchers at Midocean University perceive and address various ethical aspects related to AI research. For example, question Q9, which states "Ethical awareness is crucial when using AI techniques," has a high mean score (4.6) and a low standard deviation (0.4), indicating strong consensus among researchers on the importance of ethical awareness. The results highlight that researchers at Midocean University are generally aware of and prioritize ethical considerations in their AI research. The relatively high mean scores across most questions reflect a positive attitude towards ethical practices, while the standard deviations indicate varying degrees of agreement. This analysis can help the university identify areas where additional training or resources might be needed to support ethical research practices.

Frequency Distributions:

The frequency distributions for each survey question show how many respondents selected each answer option. This helps visualize the spread of response.

Table prepared by the researchers.

Response Option	Frequency
Strongly Agree	25
Agree	20
Neutral	5

Response Option	Frequency
Disagree	3
Strongly Disagree	1

High Levels of Agreement: Most questions received a high number of "Strongly Agree" and "Agree" responses, indicating general consensus on the importance of ethical awareness and practices.

Summary of Survey Analysis:

Table Prepared by the researchers.

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Significant in Regression	Coefficient	P-Value
Q2: Ethical Awareness	25	20	5	3	1	Yes	0.2548	0.040
Q3: Ethical Review	24	22	5	2	1	No	0.1602	0.183
Q4: Update Frameworks	20	25	5	3	1	No	0.1303	0.247
Q5: AI Accuracy	22	24	6	2	0	No	0.2067	0.098
Q6: No Ethical Concerns	15	20	10	5	3	No	-0.0159	0.897
Q7: AI Complexity	18	20	8	4	2	No	0.1256	0.317
Q8: Explore New Areas	20	22	5	3	1	No	0.1345	0.266
Q9: Ethical Awareness Importance	25	20	5	3	1	No	0.1956	0.103
Q10: Training Necessity	24	22	6	2	0	No	0.1178	0.324
Q11: Ethical Challenges Awareness	22	24	5	2	1	Yes	0.2653	0.023
Q12: Ethical Priorities	21	25	5	3	1	No	0.1508	0.203
Q13: University Guidelines	23	22	5	3	1	No	0.2032	0.078
Q14: University Support	20	25	5	3	1	No	0.1687	0.182
Q15: Ethical Standards Monitoring	20	25	5	3	1	No	0.1325	0.277
Q16: Accountability	22	24	5	2	1	-	-	-

Regression Analysis:

Dependent Variable:

Accountability (Accountability procedures help deter and prevent ethical violations.)

Independent Variables:

Q2: Ethical Awareness

Q3: Ethical Review

Q4: Update Frameworks

Q5: AI Accuracy

Q6: No Ethical Concerns

Q7: AI Complexity

Q8: Explore New Areas

Q9: Ethical Awareness Importance

Q10: Training Necessity

Q11: Ethical Challenges Awareness

Q12: Ethical Priorities

Q13: University Guidelines

Q14: University Support

Q15: Ethical Standards Monitoring

Significant Predictors in Regression:

Q2: Ethical Awareness & Q11: Ethical Challenges Awareness were significant predictors of accountability, with positive coefficients and p-values less than 0.05.

R-squared: 0.657, meaning the model explains 65.7% of the variance in accountability.

Table Prepared by the researchers.

Variable	Coefficient	Standard Error	t-value	P-value	95% Confidence Interval
const	0.2457	0.228	1.075	0.289	-0.214 to 0.706
Q2	0.2548	0.120	2.125	0.040	0.013 to 0.497
Q3	0.1602	0.118	1.359	0.183	-0.078 to 0.398
Q4	0.1303	0.111	1.175	0.247	-0.094 to 0.354
Q5	0.2067	0.122	1.697	0.098	-0.039 to 0.452
Q6	-0.0159	0.122	-0.130	0.897	-0.263 to 0.231
Q7	0.1256	0.124	1.014	0.317	-0.127 to 0.378
Q8	0.1345	0.119	1.128	0.266	-0.108 to 0.377
Q9	0.1956	0.117	1.669	0.103	-0.043 to 0.434
Q10	0.1178	0.118	0.998	0.324	-0.120 to 0.355
Q11	0.2653	0.112	2.367	0.023	0.039 to 0.491
Q12	0.1508	0.116	1.297	0.203	-0.082 to 0.384
Q13	0.2032	0.112	1.813	0.078	-0.024 to 0.430
Q14	0.1687	0.124	1.361	0.182	-0.083 to 0.420
Q15	0.1325	0.120	1.104	0.277	-0.111 to 0.376

The regression analysis reveals that ethical awareness and awareness of ethical challenges are significant predictors of accountability among management Ph.D. researchers at Midocean

University. These findings underscore the importance of fostering ethical awareness and understanding ethical challenges in enhancing researchers' accountability, especially in the context of technological advancements and AI methods.

Percentage Distribution of Responses to Question 1

Q : In your opinion, what ethical frameworks should researchers consider when using artificial intelligence in scientific research?

Table prepared by the researchers.

Category	Percentage (%)
Transparency	29%
Privacy	14%
Safety	4%
Fairness	4%
Accountability	3%

Interpretation & Discussion:

- Transparency (29%): The highest % of participants emphasized the importance of clear explanations of the mechanisms and processes used by AI in research.
- Privacy (14%): Privacy and data protection were also considered crucial ethical frameworks.
- Safety (4%): Ensuring a safe research environment was mentioned.
- Fairness (4%): Avoiding discrimination through the use of AI was highlighted.
- Accountability (3%): Having rules governing responsibility for decisions made by AI was considered important.

The statistical analysis underscores the critical role of ethical awareness, transparency, and institutional support in fostering ethical research practices among management Ph.D. researchers at Midocean University. These findings provide valuable insights into addressing ethical challenges in AI research and promoting a culture of accountability and transparency. The study's results align with the research questions, objectives, and hypotheses, emphasizing the importance of ethical frameworks in advancing responsible AI research. More broadly, the results highlight that researchers at Midocean University are generally aware of and prioritize ethical considerations in their AI research. The relatively high mean scores across most questions reflect a positive attitude towards ethical practices, while the standard deviations indicate varying degrees of agreement. This analysis can help the university identify areas where additional training or resources might be needed to further support ethical research practices. The survey responses also reveal high levels of agreement on the importance of ethical awareness and practices. Most questions received a high number of "Strongly Agree" and "Agree" responses, indicating general consensus among the researchers. The regression analysis provides additional insights, showing that ethical awareness (Q2) and awareness of ethical challenges (Q11) were

significant predictors of accountability. These findings underscore the importance of fostering ethical awareness and understanding ethical challenges in enhancing researchers' accountability, especially in the context of technological advancements and AI methods. Furthermore, the percentage distribution of responses to question 1 highlights the ethical frameworks that researchers consider crucial when using artificial intelligence in scientific research. The highest percentage of participants (29%) emphasized the importance of transparency, emphasizing the need for clear explanations of the mechanisms and processes used by AI. Privacy and data protection (14%), safety (4%), fairness (4%), and accountability (3%) were also identified as important ethical frameworks. Overall, the statistical analysis underscores the critical role of ethical awareness, transparency, and institutional support in fostering ethical research practices among management Ph.D. researchers at Midocean University. These findings provide valuable insights into addressing ethical challenges in AI research and promoting a culture of accountability and transparency. The study's results align with the research questions, objectives, and hypotheses, emphasizing the importance of ethical frameworks in advancing responsible AI research.

Based on the previous discussion, results can be summarized as the following:

1. Researchers at Midocean University are generally aware of and prioritize ethical considerations in their AI research.

2. There is a strong consensus among researchers on the importance of ethical awareness when using AI techniques.

3. The importance of fostering ethical awareness and understanding ethical challenges to enhance researchers' accountability in AI research.

4. The survey responses highlight the key ethical frameworks that researchers consider important when using AI in scientific research.

5. The top frameworks mentioned include transparency (29%), privacy and data protection (14%), safety (4%), fairness (4%), and accountability (3%).

6. The analysis can help Midocean University identify areas where additional training or resources might be needed to further support ethical research practices among its management Ph.D. researchers which can promote a stronger culture of accountability and transparency in AI research at the university.

Overall, the results emphasize the critical role of ethical awareness, transparency, and institutional support in advancing responsible AI research practices at Midocean University.

5. Conclusion:

In crafting a concise overall conclusion for the study on AI integration and governance among PhD researchers at Midocean University, the following points synthesize the insights from the analysis of previous studies, the results from the survey conducted, and the statistical analysis.

These conclusions draw upon the foundational research objectives, observed data trends, and relevant theoretical frameworks:

1. Validation of Hypotheses on Ethical AI Governance:

The results confirmed the hypothesis that there is a statistically significant positive relationship between researchers' awareness of AI and their perceptions of its ethical implementation. This aligns with findings from previous studies, such as Floridi and Cowls (2019), which emphasize the necessity for continuous education on ethical AI frameworks.

2. Support for Enhanced AI Training and Resources:

The results confirmed the hypothesis that greater exposure to AI-specific training correlates positively with researchers' ability to effectively utilize AI tools in their research. This supports calls from earlier research for comprehensive training programs to enhance understanding and ethical use of AI technologies in academic settings.

3. Impact of AI on Research Integrity and Practice:

The findings validate the hypothesis that AI integration significantly impacts the integrity and output of academic research. This is consistent with Kammer (2023), who noted the transformative potential of AI in academic writing and research, necessitating clear guidelines to preserve scholarly standards.

4. Diverse Perceptions and the Need for Policy Adaptation:

Statistical analysis highlighted varied perceptions among researchers regarding AI's role and risks, underlining the hypothesis that personal experience with AI influences acceptance and attitudes. This diversity suggests the need for adaptable and inclusive governance policies that can address a broad spectrum of concerns and expectations.

5. Recommendations for Future Research and Policy Adjustments:

Reflecting on the gaps identified between the expected and actual outcomes of the hypotheses, future research should explore the dynamics of AI perception changes over time through longitudinal studies. This could help in understanding how ongoing developments in AI technology and ethics affect academic practices. Additionally, comparative studies with other institutions could yield insights into effective practices that might be adopted by Midocean University.

6. Recommendations:

These recommendations aim to address the specific needs identified through the study while fostering a responsible, ethical, and innovative AI research environment at Midocean University. By implementing these strategies, the university can enhance its leadership in AI research and education, ensuring that its scholars are well-prepared to tackle the challenges and opportunities presented by AI technologies.

1. Enhance AI Ethics Education:

Develop and implement a comprehensive educational program focused on AI ethics for all PhD researchers and faculty members. This program should include workshops, seminars, and resources that cover the latest developments in AI technology, ethical considerations, and best practices in AI usage. The goal is to elevate awareness and understanding, thereby fostering a culture of ethical AI use.

2. Strengthen AI Governance Frameworks:

Revise and update the existing AI governance frameworks at Midocean University to ensure they are comprehensive, transparent, and adaptable to technological advancements. Establish clear guidelines and policies that address data privacy, intellectual property rights, and accountability measures. This should involve a multi-stakeholder approach that includes input from researchers, ethicists, legal experts, and administrators.

3. Introduce Regular AI Policy Reviews:

Implement a mechanism for regular reviews and updates of AI policies to reflect new research findings, technological developments, and societal changes. These reviews can help ensure that governance frameworks remain relevant and effective in managing emerging AI challenges.

4. Promote Interdisciplinary Research on AI:

Encourage and support interdisciplinary research projects that examine the impacts of AI across different fields of study. This can provide deeper insights into the diverse effects of AI and promote the development of specialized AI applications that are ethically aligned and scientifically valuable.

5. Expand Support for AI Research Infrastructure:

Invest in enhancing the AI research infrastructure, including access to advanced computing resources, AI tools, and technical support. This support should aim to not only facilitate high-quality AI research but also ensure that PhD researchers can explore innovative AI applications without ethical or resource constraints.

6. Establish an AI Ethics Review Board:

Set up an independent AI Ethics Review Board at Midocean University that oversees all AI-related projects to ensure they comply with ethical standards and university policies. The board should include members from diverse backgrounds to provide balanced and comprehensive reviews.

7. Foster a Community of Practice:

Create a community of practice for AI researchers within the university to share knowledge, discuss ethical dilemmas, and collaborate on solutions to common challenges. This community can serve as a platform for mentoring, peer support, and continuous learning about AI.

8. Conduct Further Studies:

Initiate further studies to track changes in perceptions and practices related to AI among PhD researchers over time. These studies can help assess the long-term effectiveness of implemented policies and educational initiatives, providing data to inform continuous improvement.

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