Ethical Considerations in AI-Driven Big Data Analytics: The Perspectives of Social Work Students

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Abstract
As artificial intelligence (AI) increasingly shapes the landscape of big data analytics, it brings forth a myriad of ethical considerations that demand our attention. The integration of artificial intelligence into social work increases the concerns in regards to ethical consideration as it brings complex situations. Hence this article aims to explore the ethical consideration when applying artificial intelligence applications in big data analysis from the perspective of the students of the social work undergraduate program in National University of Malaysia. 22 of second year students were selected by purposive sampling to participate in a series of AI workshops to analyse big data analysis. Participants were asked about their ethical consideration via open-ended Google form. Data were then analyzed by thematic analysis. Analysis found three themes emerged namely: data privacy is a priority, transparency and accountability and avoiding algorithmic bias. The results showed that the students integrity and professional manners when adopting AI skills in their career. This awareness reflects their readiness to become effective social workers. By maintaining these values and practices as they transition into professional roles, they are well-positioned to excel in their field and the integrity of the profession.
Keywords: Ethic, Artificial Intelligent, Big Data Analysis, Social Work, Undergraduate Students

Introduction
As artificial intelligence (AI) continues to transform the field of big data analytics, it also encourages students in social work programs to adapt to this growing demand. The integration of AI in social work settings presents a complex landscape of ethical considerations that demand our attention and must be navigated carefully. As AI technologies

become increasingly prevalent in social work, they promise to enhance decision-making, optimize resource allocation, and improve service delivery. However, these benefits come with significant ethical challenges, including issues of privacy, bias, accountability, and the potential displacement of human roles in social services.

One of the main ethical concerns in optimizing AI within social work is the issue of privacy and protection of the data. It is due to the reason that social workers often deal with sensitive client information. Hence, opting to the AI system raises questions on how this data is collected, stored, accessed and used. Ethical frameworks must established to ensure that AI applications comply with legal standards and also respecting the rights of clients (Ayling & Chapman, 2017; Fan, 2024). The establishment of ethical guideline or framework is essential as it can provide clear moral direction that govern the usage of AI technologies into the practice (Fan, 2024; Burr & Leslie, 2023)

Another ethical concern is the risk of algorithmic bias. Owing that AI systems trained on biased data can perpetuate existing inequalities and lead to discriminatory outcomes, particularly for marginalized populations (Toli, 2024; Redko, 2023). To mitigate these risks, it is firmly encouraged for social workers to engage in the design and auditing of AI systems, to ensure the transparency and accountability of the AI applications (Toli, 2024; Reamer, 2023). This engagement not only helps in identifying and rectifying biases but also fosters a collaborative approach to AI development that includes diverse stakeholder perspectives (Toli, 2024; Burr & Leslie, 2023).

The growing usage of AI encourage researchers to delve into the issue such as Mohamed and Kasa (2024), Mohd Makhbul, Ali and Mat Deli (2024), Saleh and Ijab (2023) and Peter, Sinniah and Yacob (2022). There were also previous studies that focusing on the application of AI among Malaysian students for example Mizan and Norman (2024), Zawawi and Azizan (2024), and Nordin, Mustafa, and Mosbiran (2023). However limited studies done in regards of the ethical consideration from the students' perspectives (Hossain, Miraz and Ya'u, 2024; Nawi et.al, 2021). Hence this article aims to delve into the ethical consideration in AI big data analytics from the perspectives of social work undergraduate students in National University of Malaysia.

AI Ethics in Social Work
As AI increasingly integrates in the field of social work, understanding the ethical implication of its use is critical for students, educators and practitioners. Segal (2023), emphasized the importance of a comprehensive ethical issue associated with AI in social work. He argue that while AI has the potential to enhance service delivery and efficiency, it also raises significant ethical concerns, including privacy, informed consent, and algorithmic bias. The authors emphasize that social work educators must equip students with a robust understanding of these ethical challenges to ensure responsible practice. Likewise Barsky (2022), how AI technologies, such as chatbots and virtual assistants, can be used in social work practice. While these tools can improve accessibility and responsiveness to client needs, Barsky warns of the potential for dehumanization and misdiagnosis if practitioners rely too heavily on technology without maintaining human oversight. This highlights the necessity for social work education to focus on balancing technological integration with the essential human elements of empathy and judgment.

In line with that, Share and Pender (2024), also advocate for curriculum not only focusing on teaching of AI technologies but also should engage students with robust discussion on ethical implications including issues to client confidentiality and data security. According to their study, by adopting critical thinking among the students would prepare them to make informed choices when utilizing AI tools in their future practice. Moreover James et al. (2023), noted that social workers may encounter unexpected challenges if they lack sufficient training in AI. In line with that, Share and Pender (2024), highlight the importance of practical training to ensure the ethical use of AI. They suggest that social work programs should include simulations and role-playing exercises that allow students to navigate ethical dilemmas involving AI technologies. Hence, this experiential learning approach enable students to develop necessary skills and consideration while adhering to ethical standards.

Methodology

The methodology for this study was designed to explore the ethical considerations of social work students while utilizing the usage of AI in big data analytics. A total of 22 students from the Social Work Program at UKM were selected through a purposive sampling method to participate in three series of AI training workshops. The workshops, conducted by AI experts from Sweden via Google Meet, aimed to equip students with essential skills in AI model selection, training, and optimization. Before the training sessions, a pre-training analysis task was administered to assess the participants' baseline understanding of AI and big data analysis. During the workshop sessions, the students were guided through the process of developing AI models to analyze complex datasets, with a specific focus model accuracy, and the practical application of AI in analyzing big data related to social work. The students were then answered an open-ended survey question about ethical consideration when they applied the AI during the analysis. The data were analyzed by thematic analysis according to Clarke and Braun (2017).

Results

Majority respondents' ages range from 22 to 26 years. Only one respondent ages 46 years old. All students who participated are in their second year of Social Work Undergraduate Programme, National University of Malaysia.

The analysis found that three themes emerged and five sub themes represented the students' perspectives in ethical consideration when they applied the AI during the big data analysis.

Themes	Sub-themes
Data privacy as a priority	Protecting Personal Data
	Informed consent and compliance
Transparency and Accountability	Algorithm Transparency
	Accountability for AI Decisions
Avoiding Algorithmic Bias	Avoiding Algorithmic Bias

Data Privacy as a Priority
Two sub-themes emerged under the theme data privacy as a priority - protecting personal data and informed consent and compliance

The participants highlighted that it is a must to protect personal data by ensuring that data used in analytics is securely stored and managed to prevent unauthorized access. Moreover, they also point out that it is crucial to obtain clear consent from individuals that we used the data. Individuals should be fully informed about how their data will be used, with explicit consent obtained before analysis. This sub-theme shows their professional ethical concern when dealing with the data. Participant 20 noted that; "It is important to protect the data from unauthorized access and to ensure the data are accurate." Moreover, Participant 17 quoted that, "Ensure privacy and safety of the data. Justice without prejudice." The analysis found that almost all participants expressed their concern about ensuring that the collection, storage, and processing of data are carried out with the utmost protection of personal information. Participant 23 also stated that, "The ethical consideration should include privacy and safety of the data, avoid algorithm bias, ensure transparency in the process, comply with relevant laws and regulations."

In addition, participants also stated about informed consent and compliance. For example Participant 16 noted that; "What needs to be considered when using AI in big data analysis is ensuring that personal data is protected and used with legitimate consent." Moreover the participants emphasized the importance of ethically obtaining consent from individuals that their data will be used. Participant 21 quoted as below;

> *"First, ensure the data are protected well and do not breach the individual privacy. Secondly, obtain clear consent from individuals or entities whose data will be analyzed. Ensure that users understand how their data will be used.*
> *(Participant 21)*

Transparency and Accountability
Two sub-themes emerged under the theme transparency and accountability - algorithm transparency and accountability for AI decisions.

The second important theme the students stressed out is to build trust through transparency. In their opinion, organizations that AI users should strive to make AI processes understandable, offering clear explanations that simplify and clarify the decision-making process. Any organization that uses AI should take responsibility for the outcomes of their AI analyses, implementing mechanisms to address any negative impacts. For example Participants 21 quoted, "AI algorithms and models must be transparent and explainable. Decisions made by AI should be understandable to humans." In addition, Participant 7 also quoted, "The ethics of using AI in big data analysis encompass - , algorithm transparency, algorithm bias, and accountability. It is essential to protect personal data, ensure algorithms are explainable and understandable, avoid unfair biases, and ensure that AI-driven decisions are ethically accountable."

Addition to that, participants also highlighted accountability analysis generated by AI applications. For instance Participant 14 stated that, "Accuracy of the data – ensure the data must be analyzed correctly without manipulation". Likewise Participant 22 also noted the

same; "Trustworthiness: Ensure the results from the AI analysis are accurate and trustworthy".

Participant 12 also quoted, "The ethical consideration on ensuring accuracy of the data and to use AI application for positive impacts and avoid any application that leads to danger.**"**

Avoiding Algorithmic Bias
Only one sub-theme emerged for the theme avoiding algorithmic bias - avoiding algorithmic bias.

Another ethical consideration highlighted by the participants is algorithmic bias. In the participants' perspectives, algorithmic bias can be a significant threat in the realm when applying AI applications. It is owing that biased algorithms can lead to unjust discrimination and perpetuate societal inequalities. To address this pressing concern, organizations should commit to avoiding algorithmic bias. For example, Participant 7quoted, "The ethics of using AI in big data analysis encompass - , algorithm transparency, algorithm bias, and accountability. It is essential to protect personal data, ensure algorithms are explainable and understandable, avoid unfair biases, and ensure that AI-driven decisions are ethically accountable." The majority of participants highlighted this sub-theme, demonstrating their proficiency in utilizing AI for big data analysis.

Discussion and Conclusion
As AI increasingly integrates into our daily lives and emerges as a vital skill, however, previous studies show lack of research on students' perspectives regarding ethical considerations (Hossain, Miraz and Ya'u, 2024; Nawi et.al, 2021). Hence, this article aims to explore the ethical consideration when applying artificial intelligence applications in big data analysis from the perspective of the students of the social work undergraduate program in National University of Malaysia. By incorporating AI in analyzing big data, social work students can better understand complex social issues, make data-driven decisions, and improve service delivery for vulnerable populations.

Notwithstanding the relatively limited sample, this study offers valuable insights into the concern of ethical consideration from the students' perspective centered on protecting data privacy, ensuring transparency in AI analysis and accountability of the results of analysis as well as avoiding algorithmic bias. These ethical considerations were voiced out by the social work students who participated in the AI sessions enhancing their big data analysis skills. The insights gained from this study shows the students' concern on the integrity and responsibility in using data in the AI analysis. It demonstrates that students maintain professional and ethical behavior even in the context of AI usage.

Highlighting these findings is essential for social work students, who are future professionals, to understand and uphold ethical considerations in AI-driven big data analytics. This aligns with their commitment to social justice and ethical responsibility (James et al., 2023; Share & Pender, 2024). Embarrassing these ethical considerations will empower the future professional social workers to utilize the usage of AI but maintain the rights of clients they serve. In conclusion, the social work students have demonstrated commendable professionalism by upholding ethical practices and understanding their limitations when

integrating AI into data analytics. This awareness reflects their readiness to become effective social workers. By maintaining these values and practices as they transition into professional roles, they are well-positioned to excel in their field and the integrity of the profession.

Acknowledgement

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