Ethical Considerations for the Future of Artificial Intelligence in Education (AIED) and Healthcare

CARNEGIE ETHICS FELLOWS

CARNEGIE COUNCIL *for Ethics in International Affairs*

Authors

ARMAN AMINI

Carnegie Ethics Fellow and Management Consultant at Boston Consulting Group

Arman Amini is a management consultant at Boston Consulting Group and was previously a math teacher and vice principal in Southeast Arkansas. Amini is a Council on Foreign Relations term member and was a Fulbright scholar in Central Asia. He is an alumnus of Harvard University (where he was a Center for Public Leadership fellow) and earned his MBA at Dartmouth College.

EBUKA OKOLI

Carnegie Ethics Fellow and Teaching Assistant at the School of Communication, Arizona State University

Ebuka Okoli is a doctoral student and graduate teaching associate at the Hugh Downs School of Human Communication, Arizona State University. He played a key role in the Strategic Planning team that improved revenue collection in Nigeria's Federal Inland Revenue Service (FIRS). Okoli also developed a communication plan for the Strategic Planning and Evaluation Department of the Energy Efficiency Program at ComEd.

The following project was produced by a working group from the inaugural Carnegie Ethics Fellows cohort reflecting nearly two years of convenings, collaboration, and research. Each report in this special series examines a critical issue at the intersection of ethics and international affairs. The ***Carnegie Ethics Fellowship*** *aims to develop the next generation of ethical leaders across business, government, academia, and non-governmental organizations.*

Introduction

Artificial intelligence (AI) has the potential to revolutionize healthcare and education, but the ethical implications of these technological systems must be addressed. While AI can improve patient outcomes and personalize learning experiences, mitigating risks such as bias, privacy breaches, and unequal access is essential.

Artificial Intelligence in Education (AIED)

Artificial intelligence in education (AIED) integrates educational theory and technological innovations to improve education systems for teachers and students, ensuring educational accessibility for all. The integration of AI in education presents several ethical challenges that should be addressed:

AIED Ethical Challenges

Data Autonomy

Data autonomy issues arise when third-party data ownership is involved, especially in countries where laws do not clearly protect personal data. For instance, using facial recognition technology to gauge classroom engagement can disrupt the natural learning environment and treat students like research subjects whose data might be harvested and sold.

Bias and Lack of Diversity

AI algorithms focus primarily on data from Western countries that might exclude underrepresented populations. This lack of diversity can increase the digital divide.

Privacy Concerns

Using data without the consent of students or their guardians raises questions about privacy. Applying AI in a predictive way to assess student performance may hinder the necessary human interaction that teacher immediacy provides.

Surveillance Issues

Surveillance issues emerge as some learning management systems monitor students' activities, raising privacy questions and hindering social skill development.

Ethical Framework

1. **Data Mining and Governance**
   Equitable AI systems require the inclusion of diverse data to avoid systemic discrimination and bias. Federal regulations like Family Educational Rights and Privacy Act (FERPA) and the Protection of Pupil Rights Amendment (PPRA) protect student data, but clear parameters for data ownership and stringent supervision are necessary to safeguard privacy and maintain trust.

2. **AI Literacy for Students**
   Students must be educated on AI literacy to use generative AI appropriately and critically. Teachers should integrate AI literacy into the curriculum, focusing on ethical considerations and cultural perspectives.

3. **AI Roles for Instructor**
   Academic institutions must develop strategies to detect and deter AI-facilitated plagiarism and set clear guidelines for AI use in academic work to maintain academic integrity. Comprehensive policies should guide how instructors utilize AI in various educational activities, including lesson facilitation, curriculum development, grading, and providing feedback .

4. **AI Accessibility and Equity**
   Ensuring all students can engage with AI technologies meaningfully is crucial. Ethical frameworks should prioritize the needs of students with physical disabilities, neurodiversity, and diverse learning needs.

"Equitable AI systems require diverse data to prevent systemic discrimination and bias, ensuring privacy, trust, and fairness in education."

Artificial Intelligence in Healthcare

Healthcare artificial intelligence (AI) has enormous potential to enhance patient health outcomes through improved treatment and diagnosis, reductions in human error, and streamlined institutional operations.

However, significant ethical issues surround AI usage around access, bias, data security, decision-making, and employment:

Artificial Intelligence in Healthcare Ethical Challenges

Access

Patients from or living in underserved communities may not have access to AI technologies that are poised to markedly improve patient outcomes.

Bias

Algorithmic bias in healthcare AI—e.g., models solely programmed with specific demographic data—may exacerbate health disparities for underrepresented groups and increase the likelihood of misdiagnoses and inadequate care.

Data sensitivity

AI models handle significant quantities of personalized data, requiring fully informed patient consent and airtight systems to safeguard data.

Decision-making

With widespread AI adoption, non-human judgment may override or unduly influence healthcare provider decision-making. In the event of AI-driven decision-making errors, healthcare systems (e.g., hospitals and providers) must have clearly established accountabilities. Ethical frameworks and laws must exist to outline who is legally and morally responsible when AI-led decisions go awry.

Employment

Rampant AI adoption can fundamentally disrupt employment in the healthcare system, leading to large-scale workforce reduction.

Ethical Framework

Before innovators develop AI-led health innovations, and before hospital systems adopt them, the following questions should be answered in the affirmative:

1. **Purpose**
   Does this innovation address a specific issue or inefficiency that if solved will meaningfully improve the human condition? Are there non-AI alternatives to solve it?
   - Innovations should address specific issues or inefficiencies that will improve the human condition.
2. **Access**
   Will all patients who can benefit from this innovation have timely access, including those with resource limitations? What is the time horizon for widespread adoption and access?
   - Patients from all backgrounds should have access to AI-driven benefits in a timely fashion (e.g., <six months after adoption).
3. **Bias**
   How was the innovation developed and tested to eliminate potential bias, and what steps are being taken to eliminate biases if/when they arise?
   - Models should be programmed to consider wide-ranging patient demographics to individualize care.
4. **Data Sensitivity**
   Is patient data completely safeguarded? Can the innovation—and how data will be used—be easily explained to patients to get their fully informed consent?
   - Patient data must be safeguarded, and patients must understand how their data will be used and fully consent to it.
5. **Decision-making**
   Will providers have final decision-making authority? If not, why? How will errors be addressed and who will be legally accountable for those errors?

   - Providers should have final decision-making authority and be able to override AI errors
6. **Employment**
   Will adopting this technology result in a significant reduction in force (RIF)? Do the health outcomes outweigh the social, individual, and economic costs?
   - Social health benefit(s) must outweigh potential social and economic costs (e.g., significant job loss).
7. **Removal**
   Can human decision-makers safely and immediately eliminate the technology if it is found to be harmful?
   - Human decision-makers must be able to safely and immediately eliminate AI-driven innovations found to be harmful.

Conclusion

Addressing ethical challenges and tradeoffs ensures that AI is implemented in a fair and transparent manner. By developing robust ethical frameworks, we can create an AI ecosystem that respects individual rights and creates supportive learning environments and accessible healthcare services for all.

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In today's world of geopolitical upheaval and global economic transformation, where can young leaders go to understand the power of ethical leadership, its impact on multilateral cooperation and collaboration, and how it applies to their professional and personal lives?

The Carnegie Ethics Fellowship is a space for talented young professionals to develop their capabilities and be examples of values-driven responsible leadership. Fellows collaborate on projects curated by Carnegie Council for Ethics in International Affairs, giving them the opportunity to contribute to work that has deep connections to both New York and the broader world.
The two-year Fellowship is structured to develop the next generation of ethical leaders from business, government, academia, and non-governmental organizations. The Fellowship is part of Carnegie Council's significant commitment to developing ethics in leadership and to the communities of experts that work toward this end, aligning the power of decision-making with reflective right action.

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