

The Ethics of Machine Learning in Health Care Education and Practice

Health care access and equitable distribution of resources is a global issue. The introduction of learning analytics and machine learning in health professions education and delivery come with the promise of improved systems and improved access and delivery of care. The anticipated improvements also come with the potential risks associated with predictive analytics; risks that must be balanced with the promised benefits. Now is the time to put in place the ethical principles that are needed to assure quality and equity in educational and medical algorithms that are being used to help make decisions regarding how to educate and or treat and who to educate and or treat. The use of machine learning and predictive analytics has rapidly become a given and expected part of societal life, however, there exists gaps in our knowledge regarding the ethical uses of the algorithms being used. The research and literature discussing and guiding the ethics of predictive analytics doubled in the year 2018 (Pragman & McGrath, 2021), demonstrating the desire and need of computing professionals to infuse ethical principles into programing, interpretation and uses of the algorithms produced by predictive analytics. A multidisciplinary approach will be required to find solutions to the many questions to be answered regarding ethical concerns about the uses of machine learning in health professions education and delivery. Bioethicists will need to collaborate with companies and data scientists with input from allied health, program designers and stakeholders in the government and business sectors to develop ethical models and to deploy and monitor them (Hardt & Chin, 2020, Johnson, 2019). Oversight and the prevention of harm, algorithmic accountability, student/patient vulnerability and agency, privacy, and the erosion of student-teacher/patient-provider relationships are some of the topics to be added to the more traditional themes in the study of

bioethics of autonomy, non-maleficence, beneficence, and justice. This paper addresses the following question: What are the ethics and regulations currently driving machine learning in Health Professions Education and Practice? A sub question deals with the ethics of machine learning that uses data gathered from learning management platforms. The intent of this paper is to explore the background of ethics as it relates to the use of learning analytics in healthcare education and delivery, discuss existing guidelines, present common uses in healthcare education, discuss the implications for educators and practitioners of health care, describe student perceptions (knowledge and attitudes), and identify gaps in the literature and future research goals and directions.

Hardt, M., & Chin, M. H. (2020). It is time for bioethicists to enter the arena of machine learning ethics. *The American Journal of Bioethics*, 20(11), 18-20.

Johnson, S. L. (2019). AI, machine learning, and ethics in health care. *Journal of Legal Medicine*, 39(4), 427-441.

Pargman, T. C., & McGrath, C. (2021). Mapping the terrain of ethics in learning analytics: A systematic literature review of empirical research. *Journal of Learning Analytics*.