Andrew Cox

11 Ethics Case Studies of Artificial Intelligence for Library and Information Professionals

Abstract: As well as offering exciting opportunities to increase access to knowledge, artificial intelligence (AI) poses many ethical issues related to bias, transparency, explainability and accountability, privacy, safety and security, and impacts on human choice and freedom. This chapter elaborates on the issues and explores how ChatGPT as an example of an AI poses many of the issues. Although high level professional codes of ethics assert relevant principles, they do not directly explain how to respond to the emerging AI concerns. Ethics scenarios can however provide short, relatable stories that pose the key dilemmas in a way which will illuminate the problems and prompt discussion. The chapter describes eight scenarios which pose the key dilemmas around AI in ways relevant to library and information professionals. The scenarios are publicly available for reuse on a CC-BY-SA licence.

Keywords: Artificial intelligence – Library applications; ChatGPT; Confidentiality; Ethics; Privacy; Scenarios

Introduction

Artificial Intelligence (AI) offers exciting possibilities for library and information professionals and the users they serve. It promises to increase access to knowledge by offering new ways to automatically describe and retrieve information from collections (Cordell 2019; Cox 2021a). It will enable adaptivity and personalisation in information provision. AI driven chatbots and voice agents can provide dialogic and supportive ways of accessing information. AI could also be applied to the analysis and prediction of user behaviour. The need to explain AI is a new dimension to information literacy.

However, AI has raised a storm of public ethical concern, especially relating to bias, intelligibility and privacy (AINow Institute 2018, 2019). Reflecting these concerns, several sites track AI ethics incidents, such as the AIAAIC Repository (AIAAIC n.d.) and the AI Incident Database (AIID n.d.). The former has reported nearly 1400 incidents from its formation in 2019 to March 2024. In response many organisations have published guidelines for ethical AI (Jobin, Ienca, and Vayena 2019). There are useful sector specific guides about how to approach the development of ethical AI in areas like education (The Institute for Ethical AI in Education 2021; JISC, 2021).

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Such targeted guides are invaluable for information professionals working in particular sectors. But this chapter is written in the belief that librarians and information professionals have a unique value perspective on AI that itself needs to be fully developed. The librarian's calling to promote access to knowledge brings a unique perspective on the ethics of AI and information professionals need more resources to help think through the ethics of AI in their practice.

Professional Ethics

One of the defining characteristics of a profession is its commitment to ethical conduct. But codes of ethics published by professional bodies are increasingly aspirational (Frankel 1989): they articulate shared values at an abstract level, rather than explaining in detail how to behave in particular situations. Furthermore, they are not updated frequently enough to reflect every new ethical challenge. Advancing technologies seem to be an important locus of such new ethical dilemmas, albeit it is debatable how often they raise fundamentally new questions (Ferguson, Thornley, and Gibb 2016). Ferguson, Thornley, and Gibb's study of ethical awareness around the use of radiofrequency identification (RFID) in libraries suggests that where technologies are concerned, information professionals may be over-reliant on vendors to ensure that their use is ethical (2015). Other materials beyond broad ethics codes are needed to support professionals to think through the implications of AI in their work. Some extremely useful resources already exist. The International Federation of Library Associations and Institutions (IFLA) has published an insightful commentary on the ethical implications of AI (2020). Padilla's report for OCLC offers a guide to responsible AI development (2019). Yet there remain gaps in the tools available for the profession to explore ethical responses to new technologies.

Ethics scenarios can play an important role in posing dilemmas in relatable ways and stimulating reflection and debate about appropriate responses and actions. Scenarios tell stories and are engaging ways to open up challenging topics. They can capture everyday practical issues and are effective in promoting adult learning. There are excellent sets of ethics scenarios available for information work in general such as in Buchanan and Henderson (2009), McMenemy, Poulter, and Burton (2014) and Rösch (n.d.). However, AI is important enough to require its own set of scenarios. The purpose of this chapter is to explain the thinking behind an evolving set of scenarios of AI ethics for library and information professionals (Cox 2022). The latest edition of the scenarios is available on a CC-BY-SA licence so

that they can be repurposed for the classroom or specific organisational contexts (Cox 2021b).

Ethical Aspects of Artificial Intelligence

Understanding the ethics of AI is premised on the definition of AI. However, defining AI is challenging because it is a complex and evolving idea. In essence, AI refers to computers undertaking activity akin to the thought processing and decision making normally done by humans. But achieving this ideal has been an aspiration for computer science since the 1950s. The understanding of what constitutes intelligence has evolved over time and the technologies that seem to offer some form of intelligence have also changed. Focusing only on today's technologies does not necessarily mean AI is simple to understand or define. For example, the McKinsey Global Institute's 2018 discussion paper on the skill shift required in relation to new technologies surveyed:

> ...organizations familiar with at least one automation, AI, or advanced digital technology and its application in business from the following list: big data and advanced analytics, machine learning/artificial intelligence algorithms, autonomous vehicles, image recognition, robotic process automation, virtual agents, back-office process automation, wearables, internet of things, personalized pricing and promotions, 3D printing, and blockchain and distributed ledger (Bughin et al 2018, 71)

In contrast, Lowendahl and Williams state that AI capability "consists of: robotic process automation; computer vision; machine learning; natural language text understanding; virtual agents or conversational interfaces; physical robotics; natural language speech understanding; natural language generation; and autonomous vehicles" (2018, 1). Each technology creates its own potential ethical issues. A further complexity is that because the operation of many of the technologies is premised on data, the ethics of AI encompasses many previous debates around big data ethics.

AI is much more than just a bundle of technologies, however powerful. Unlike many other technologies, AI has a strong place in the public consciousness through its popularisation in science fiction television, movies and books. AI is often presented in the media and elsewhere as a dystopian rather than as a utopian possibility. Responses to AI cannot be disconnected from responses shaped by such imaginary visions. More immediately AI is also associated with a powerful discourse that has commercial value. Society's view of AI is shaped by companies that seek to promote their products as having transformational capabilities for organisations.

Some of this may be hype for functionality that is frankly not very new. It could also be seen as linked to culturally powerful notions of technological determinism and solutionism (Mirza and Seale 2017). These ideas present technological change as inevitable and able to unproblematically solve complex social problems. They also embody sexist and racist assumptions. Rather than accepting that technology-driven change is a given, society should be thinking in ethically informed ways about choices which can be made by individuals, communities and societies. Questions should be asked about whether technology fixes the problems that need to be fixed in ways that consider human needs. Hype for AI and the power of Big Tech to drive the agenda must be challenged. In addition, there are profound social implications of datafication and dataveillance, and sustainability issues around power demands of AI. The many contentious perspectives point to the wider challenges that exist around AI.

Ethical issues around how AI is developed, governed and ultimately valued must also be acknowledged and not only its technical aspects (Greene, Hoffmann, and Stark 2019). Critics suggest that ethical implications are currently secondary in the development process, and that the Big Tech companies' statements about ethics are often no more than ethics washing. There is a sense that ethical thinking must be embedded much more deeply into the whole process of developing and using AI. Since many AI applications have widespread social impacts, there is a need for all stakeholders to participate or be represented throughout the development and implementation process. AI design must not be restricted to experts. Perhaps legal regulation is the best way for society to protect itself, rather than relying on companies to behave ethically. Ultimately, a question to ask about AI is whether an application is not just ethical, with a neutral social impact, but whether it actively promotes social justice. Such reflections point to the difficulty of easily defining AI ethics in any context.

More directly much of the debate around AI ethics has focussed on the following inter-related issues: bias, transparency, explainability and accountability, privacy, safety and security, and impacts on human choice and freedom (Fjeld et al. 2020); Jobin 2019). The media has focused on cases where AI has been shown to be biased, such as when facial recognition has failed to recognise darker skin tones. To a large extent the problems appear to arise from biases in the historic data that has been used to train an algorithm. In other cases, bias seems to arise from the composition of AI industry workforce which is predominantly made up of young white males whose narrow assumptions are reflected in the AI they produce. Another particular area of concern is around transparency, explainability and accountability. If AI tools learn to make decisions from data, rather than in ways determined by a human coder, there is an immediate problem of how to explain the process and its outcomes. The way AI functions is not necessarily clear even to the designer of

the algorithm, so explaining it can be problematic. Then, if the decision making performed by AI is not transparent, there is an issue of accountability. Who is responsible when the AI makes a mistake? Indeed, how can truly informed consent be gained?

Privacy is another significant issue with AI applications related to personalisation and adaptivity which rely on bringing together personal data from many sources. Holding such personal data poses safety and security risks. AI raises fundamental issues around human agency. What is the human role when computers are making decisions? The concept of nudging where system design is geared to influencing a particular group of people is one example of the way that AI can be seen as a threat to human agency. An important dimension of automation is its impact on work, including professional work. If AI is more efficient, it may replace professionals in many roles. AI could be used to control human work and reduce rewarding work to drudgery. Equally it has the potential to expand the scope of work for professionals to focus on the more rewarding and complex aspects of their roles. The impact on jobs is an important dimension of AI ethics.

In addition to general AI ethical challenges, as already mentioned, there are issues related directly to information professional values. IFLA (2019) offers an insightful analysis of some of the main freedom of information and expression issues posed by AI. While they receive less emphasis in the wider debate about the ethics of AI, they indicate that the library and information profession is able to contribute a distinctive viewpoint on AI ethics. The personalisation and adaptivity to individual need that are often central to accounts of what AI can offer also create filter bubble effects which effectively limit free access to information. AI's use in forum moderation might limit freedom of speech, particularly when designed to over cautiously block material that might be any way controversial (Privacy International 2018). If AI's use blocks access to information in unnoticed ways, its use in creating deepfakes has far reaching potential impacts on trust in information. IFLA has pointed to AI's potential for undermining privacy and creating a fear of surveillance of what people search for and read with subsequent chilling effects. Thus, the growing use of AI can be seen as reinforcing risks of surveillance and dataveillance (Privacy International 2018).

Issues with ChatGPT

Since its launch in November 2022, Open AI's ChatGPT has greatly increased awareness of developments in AI, but also intensified concerns around AI ethics. Perhaps the reason for ChatGPT being so startling and impressive is its ability to perform a

wide range of complex tasks rapidly, including writing text in different styles and also writing code. ChatGPT is a little more like a form of general AI, rather than the narrow AI we have been experiencing in previous applications. Used judiciously ChatGPT and its like offer many benefits for information work, such as the ability to produce lay summaries of complex texts and reduce the threshold to writing. But it also instantiates many of the ethical issues encountered with AI in general and discussing them offers a concrete summary of them.

The issues of bias, intelligibility and privacy, which seem to be pervasive in AI, are apparent in ChatGPT (AIAAIC 2024). Because GPT is trained partly on data from the open web, it reflects social biases that can reproduce gender stereotypes about employment, for example assuming that a doctor would be a male, and makes statements that appear to be biased against a specific religion like Hinduism (Burruss 2020). Another source of training data for ChatGPT is Reddit, which has its own biases. By using human trainers to counteract the biases in the training data, new forms of bias can be introduced (Webb 2023). Current use is further training Chat GPT, which introduces potential for further bias. ChatGPT can also be seen as unintelligible because it is far from open about what data it is based on or how it works. In terms of privacy, it was banned temporarily in Italy because it lacked privacy protection and age checks. There remain confidentiality concerns that have prompted a number of companies to warn staff from using it.

Specifically, from an information perspective, ChatGPT poses major issues. In its free version, the corpus of data on which it is based has not been refreshed since September 2021 limiting its reliability in ways that could misleading the unwary. More fundamentally, one of the features most commented upon is that ChatGPT hallucinates information, even inventing references to support statements. Chat GPT writes authoritatively and convincingly on many topics, but the information it produces is often not correct. It does not reference its sources and it is difficult to check. Repeating a search produces a different result reducing the ability to check information. The existence of a widely used tool that fails against these basic criteria of information reliability could be seen as undermining trust in information in general. With image generative AI, there is a wider risk of producing plausible falsehoods and fakes.

ChatGPT potentially violates copyright by using text and data from the Internet without permission. Arguably extracting data from publicly available sources is an act of exploitation in itself. OpenAI claims to access content under the claim of fair use, but if it reproduced something close to a previous text, it might be open to the same suits for infringement that are already in progress against other generative AI products (Dreben and Julyan 2023). There are also equity issues. As other perhaps better services behind a paywall become available, the digital divide between those who can afford such services and those who cannot will increase.

Other issues relate less to the functions of ChatGPT or how it is used, but more to how it was developed. A notable problem revealed by a *Time exposé* was that content was detoxified by Kenyan workers who were paid extremely low wages and given minimal support to deal with the disturbing content they were asked to review (Perrigo 2023). Although OpenAI was created as an idealistic not-for-profit organisation, and despite being called open, the openness of the company and its products questionable (Hao 2020). There are also issues about its environmental sustainability of GPT models (Burruss 2020; Ludvigsen 2022). Generative AI is very demanding in terms of power consumption.

At the broadest level, ChatGPT seems to have potential for wide ranging social impacts, such as threatening the livelihoods of people working in sectors such as publishing, journalism and marketing, and in software development. It is already having a significant impact on educational institutions' approach to assessment and how they teach writing, and there are many fears that it could negatively affect students' writing and critical thinking skills (Cotton, Cotton, and Shipway 2023). The effects do not appear to have been considered in releasing the service. The dramatic launch of a paradigm changing tool without concern for wider societal effects highlights the power of the Big Tech companies (Telving 2023). AINow Institute's annual landscape report focusses on the need to rein in the unregulated power of the tech giants (2023). Fears seem to be apparent within the industry, resulting in AI leaders including Elon Musk calling for a six-month AI pause in 2023 (Hern 2023). The signatories justified a pause because AI was producing impacts that "no one – not even their creators – can understand, predict, or reliably control" (Future of Life 2023).

For the information professional there are many challenges. If the implications of AI for libraries were limited to their own direct uses for information services, they could control the ethical issues. But in reality, the library has to operate in a wider information environment and use information products produced in other contexts. The library must support users in understanding how AI is impacting their lives. It is possible that regulation will control the worst excesses of AI, but it is more likely that the profession will play a role in explaining the limits of the technology and advising users to engineer higher quality responses through the best prompts.

The Scenarios

Reflecting on this discussion, it can be summarised that the following aspects need to be explored in AI ethics scenarios for the profession:

1. A sense of balance between the potential benefits of AI with its ethical challenges
2. The range of AI applications relevant to information professionals, from direct uses in information services to its use in service management and the case where information professionals might be supporting organisations to deploy AI
3. The range of different contexts of information work, for example. health, libraries, commercial and legal sectors
4. The issues relating to data reflecting AI's reliance on big data
5. Reference to the gamut of ethical dilemmas that the wider literature emphasizes, especially bias, transparency, explainability and accountability, privacy, safety and security, and impacts on human choice and freedom
6. Mention of the issues raised by the impact on jobs and professional roles.
7. Emphasis on the ethical concerns which are of particular importance to information professionals, such as those related to access to information and freedom of expression, and
8. Reference to wider issues around participation by all stakeholders in the development and use of AI and its impact on social justice and sustainability.

Scenarios are widely used to present ethics dilemmas because they encapsulate the issues in a way that promotes discussion. They are accessible stories that seek to stimulate open-ended debate about ethical choices. In designing the first iteration of the scenarios referred to in this chapter, the principles laid out by Institute of Business Ethics good practice guide (Bradshaw 2012) were followed. The principles include the recommendation to set the scenarios in relatable professional contexts yet avoid excessive detail. They should be open-ended rather than implying an obvious moral.

Having produced an initial set of scenarios, several library and information experts were consulted who suggested various further elaborations particularly to the notes supporting discussion with each scenario. The process resulted in eight scenarios (Cox 2021b). Each scenario consists of a short description of a situation and prompts for the reader to weigh up what the ethics issues are and to help them try and decide what action they would take. Accompanying notes with each scenario unpack some of the issues raised, but again without implying neat solutions. A short bibliography identifies useful references.

A short description of the scenarios follows:

1. "Supporting first responders" – set in a health context the scenario sees data managers voice objections to sharing personal data for a system to support first responders to improve interventions in an emergency situation. It raises issues around areas such as consent, privacy, security and transparency. But it also emphasises the dilemma where there are life saving benefits set against

levels of risk around issues such as privacy. There is also the question of legality: how does this interplay with ethics?

2. "Nudges" – set in a university context where the library is asked to contribute data to be processed by a tool that nudges students to change their behaviour to improve their well-being. This again raises issues of both about privacy and consent. It also poses the issue around human agency, in the context of influencing human behaviour, even if it is for proven benefit to the user. Most fundamentally there is the question of where such an app fits in the wider strategy to support student mental health and well-being.
3. "The voice assistant" – a public library offers a voice assistant service to answer questions but meets a number of objections, including the risk directly to staff jobs or changing professional roles and potential loss of human contact for users. The scenario also raises a number of issues around bias and stereotyping through the gendered naming of chatbots.
4. "A special collection" – a donation is predicated on enabling access to controversial content. This scenario prompts an exploration of issues around bias and representation in collections.
5. "Forum moderation" – imagines automation of moderation of a public forum creating issues around freedom of expression.
6. "The recommender system" – is based around responses to an imagined recommendation tool, including some relating to the chilling effects because it generates a sense of surveillance, as well as lack of transparency, privacy and bias.
7. "Stakeholders" – explores issues of representation through involvement of stakeholder communities in an AI project. Like scenario 8 this is not about a specific AI, more about governance and stakeholder involvement.
8. "Project partners" – reflects concerns about power and ethics in a joint AI project. This reflects the likelihood of library and information professionals being involved in wider organisational projects about AI and the challenges this raises.

The scenarios have been released on a CC-BY-SA licence so that library and information professionals can adapt them to local needs, such as by adjusting the sector setting and to their own organisational context.

Conclusion

In the context of growing interest in AI both applied directly in library and information professional work and in the wider organisations in which they are embedded, there is an urgent need for debate about the ethics of the technologies within the profession. This chapter has identified many of the issues and concerns. Ethics scenarios provide a way to instantiate the dilemmas encountered in relatable open-ended ways, promoting discussion and increasing understanding of AI. Seeking to encompass the range of issues identified, eight scenarios were developed. By making the scenarios available it is hoped they can be adapted for local use in organisations and by educators.

It is appropriate to end a chapter on ethics with questions rather than answers. The scenarios document closes with a set of general questions for which the reader has been prepared through analysing the eight scenarios. They reflect the depth of professional challenges posed by AI:

- How well do current codes of professional ethics help guide one through these scenarios?
- Does AI create fundamentally new challenges to the ethics and values of the profession, and if so in what ways?
- Ethics statements generally focus on the responsibilities of the individual professional, but what are the ethical challenges for the organisation?
- Do we need state regulation of AI rather than relying on organisations and individuals to follow ethics guidelines?

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