Deposited via The University of Sheffield.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/237010/

Version: Published Version

Article:

Cox, A. and Dixon, N. (2026) UK librarians' views of chatbots: a study based on fictional scenarios. Journal of Academic Librarianship, 52 (2). 103213. ISSN: 0099-1333

https://doi.org/10.1016/j.acalib.2026.103213

UK librarians' views of chatbots: a study based on fictional scenarios

Andrew M. Cox [a] [iD], Neil Dixon [b,*] [iD]

[a] *The University of Sheffield, School of Information, Journalism and Communication, The Wave, 2 Whitham Road, Sheffield, S10 2AH, UK*
[b] *Anglia Ruskin University, Anglia Learning and Teaching, East Road, Cambridge, CB1 1PT, UK*

ABSTRACT

The potential of Artificial Intelligence (AI) in libraries, including use of chatbots, has been widely discussed in recent years. This paper investigates how library professionals see the role of chatbots in the library context. As a data collection method, the study used the arts-based approach of fictional scenarios, which are short, crafted stories representing possible futures. Participants (UK librarians) responded to researcher-authored fictional scenarios and wrote their own. In response to the fictional scenarios authored by the researchers, participants were negative about giving chatbots agency or human-like characteristics. Resource issues and ethics also appeared in their responses as barriers. Participants were more positive about time saving applications and data analysis. In the fictional scenarios participants wrote themselves they tended to imagine rather narrow, low-level functions for AI. The theory of professions is drawn on to interpret the resistance of professionals to more capable AI and the assertion of human agency.

Introduction

Artificial Intelligence (AI) is currently a focus of great societal hope and anxiety. For example, in the UK it is central to national strategies for productivity and government efficiency. Yet there are also serious social concerns about its impact on trust in information, on employment and on the environment (UNESCO, 2022). Similarly in education the discourses around AI follow a pattern of a utopia-dystopia dualism (Bearman et al., 2022). AI is seen both as a driver of social and technical change, a transformation to which education must adapt, whilst also being seen as shifting autonomy and agency, altering the power dynamics and agency of staff and students (Bearman et al., 2022). Dang and Liu (2021) observe that these hopes and anxieties often coexist, creating an ambivalence reflected in broader cultural narratives. Cave and Dihal (2019) explore such ambivalence further, identifying four recurrent dualisms or dichotomies that characterise public perceptions of AI: hopes of immortality, ease, gratification and dominance twinned with fears of inhumanity, obsolescence, alienation and uprising (Cave & Dihal, 2019). The dichotomy of "ease and obsolescence" is particularly relevant to professional identity, as it captures the tension between AI's potential to relieve humans of the burden of work but also its threat to render human workers redundant. Thus, for professionals AI seems to offer potential to allow them to focus on more important or more rewarding tasks, or the recurrent fear of their role becoming redundant.

In the context of the wider social narratives about AI, the library profession has been debating the role of the technology in its work: both its practicalities and its ethics. The debate has appeared in this journal in a recent special issue on the topic (Cox & Becker, 2024) as well as in individual articles exploring both how to use AI in library services and respond to AI's impacts on changing information behaviour. One strand of this discussion has been around chatbots. For over a decade authors have been asking questions such as "Chatbots in the library: is it time?" (Allison, 2012). To date the answer seems to have been "no" (Aboelmaged et al., 2025; Guy et al., 2023). Despite speculation based on the evident advantages of chatbots, in terms of their ability to offer tireless, patient and consistent 24/7 responses to patron requests, only a few individual libraries seem to have ever developed chatbots. Technical barriers have been falling and there seemed to be a likelihood of chatbot adoption at the beginning of the current decade, according to various sources, such as Hopkins and Maccabee (2018). However, contrary to these predictions, the arrival of ChatGPT and similar Large Language Model based services after 2022 has shifted the terms of the debate by providing a powerful chatbot relevant to certain informational and professional tasks, but largely outside institutional control of universities, and carrying with it many informational and ethical concerns.

In the context of debate about how AI should be used in libraries, including how chatbots should be used, a key factor must be how library staff imagine or approve of its use. This study investigates how library

professionals see the role of chatbots in the library context. Rather than follow a conventional interview or survey-based method, this research was based on eliciting responses to short chatbot scenarios and asking participants to author their own fictional scenarios of chatbot use. The purpose was to give participants free reign to reflect on what they thought was likely and desirable, and to imagine their own chatbot design. This gives it potential to reveal key factors in how chatbots might be adopted in libraries. Participants were UK librarians who attended two workshops in 2024.

The research questions for the project were:

- RQ1 How do librarians evaluate the desirability and likelihood of different forms of chatbot?
- RQ2 What kind of future chatbots do they themselves imagine?
- RQ3 What do these answers tell us about the nature of professional responses to AI technologies?

The paper begins by reviewing the development of chatbots in education and libraries over the last decade or more. It also reflects on the links between technology and professionalisation. Following this a full description of the method of data collection and methods of content and thematic analysis of the data is presented. The results are set out in two sections: one reporting the response to researcher written fictional scenarios and the other analysing participant written fictional scenarios. Our discussion presents an analysis of the response drawing from perspectives from the theory of professions. In our conclusion we show the significance of the results, draw out practical implications and make suggestions for future research.

Literature review

Chatbots

Chatbots can be defined as interfaces that utilise natural language text or speech (Wollny et al., 2021) and act as intelligent agents capable of responding to complex user queries (Okonkwo & Ade-Ibijola, 2021). Since their inception in the 1960s (Okonkwo & Ade-Ibijola, 2021), chatbot interfaces have evolved from rigid scripted responses or simple pattern matching tools to complex systems capable of emulating many aspects of human communication. Overall, what encapsulates a chatbot is an interface that aspires towards "human-likeness." Human-likeness is the attribution of human appearance, characteristics, and behaviour to non-human entities (Kim et al., 2022). In the case of chatbots, the conversational interface bridges the gap between abstract computational processes, such as neural networks, and the relatable, personified technology that the user interacts with in familiar ways. The aspiration for human-likeness explains the relatable aspect of chatbots.

Indeed, it seems that chatbots have their own narrative arc, showing periods of hype and anticipation, fuelled by possibilities and innovations in technology and commercial interests. To explain the pattern of this narrative arc, and the trajectory of chatbot development, the following literature review section categorises chatbot evolution using a maturity model developed for Higher Education (HE) by Jisc, the UK "digital, data and technology agency" for tertiary education. This usefully sought to define past developments, even if the future it anticipated did not materialise in the way anticipated. The model is based on levels of integration, intelligence, and interaction (Hopkins & Maccabee, 2018). It identifies Level 1 'Informational' bots, which answer basic Frequently Asked Questions (FAQs) and use pattern-matching for their responses, Level 2 'Personalised' systems which integrate data from different sources, and Level 3 'Transformational' agents, which utilise predictive analytics and deep system integration to support the user (Hopkins & Maccabee, 2018).

Early chatbots, first trialled in HE in the 2000s relied on manual processes, primarily pattern-matching technology, and were typically hosted on websites or messaging services (McNeal & Newyear, 2013).

Because these systems used pre-programmed responses created in anticipation of specific text inputs, they offered only a limited repertoire of answers. Comparing to recent developments, this type of chatbot is the lowest in the technology's maturity and can be characterised as Level 1 'Informational bots' (Hopkins & Maccabee, 2018). Despite these limitations, the responses were often strategically designed to be human-like, thereby creating the illusion of personalised information delivery (McNeal & Newyear, 2013).

By the late 2010s, a new generation of digital agents was developed, powered by cloud computing and Natural Language Processing (NLP). This era, marked by the rise of voice assistants like Apple's Siri and Amazon's Alexa between 2011 and 2017, shifted the chatbot model from text to speech and refreshed the promise of personalised service (Grünenfelder et al., 2021). This shift in infrastructure lowered the barrier to entry for chatbot development. Conversational interfaces utilising this infrastructure could be characterised as Level 2 'Personalised' systems (Hopkins & Maccabee, 2018), which prompted educational institutions to reconsider the potential of chatbots for student support.

In the UK, this momentum was captured by Jisc's 2018 report which reported a growing confidence that chatbots would soon support all parts of the learning lifecycle (Hopkins & Maccabee, 2018). Most applications described by Hopkins and Maccabee (2018) remained "narrow AI", which focused on specific tasks like course information, scholarship or accommodation queries. A key driver for chatbot adoption was seen as increasing capability of systems offered for local adaptation by the technology companies such as Amazon, Google, Microsoft, and IBM. In parallel with these commercial developments, several systematic reviews published up to 2022 continued to explore what educational uses might be important for AI chatbots (Okonkwo & Ade-Ibijola, 2021; Wollny et al., 2021).

In fact, the next step of development was rather different from that anticipated by the Jisc report. ChatGPT, launched in November 2022, and following that rival services such as Gemini, Copilot, Claude and Deepseek shifted the chatbot paradigm of conversational interfaces towards generative AI. The generative AI chatbot has several critical differences from the future imagined by Jisc. Rather than local chatbots trained to perform narrow tasks under institutional control, the chatbot model lurched towards a commercially driven AI that performed a wide range of tasks, and whose adoption was driven by student rather than institutional decision making. Although exciting and potentially beneficial for learning in several ways, generative AI chatbots also created justified resistance in HE. The perceived threat was to academic integrity and degradation of skills through dependence or reliance on AI to perform learning tasks such as summarisation and writing. Other potential detrimental impacts on education were loss of critical thinking (Gerlich, 2025) or sociality in learning (Luo, 2024). Generative AI Chatbots have many other issues in terms of information quality: inaccuracy of answers, hallucination of references, bias (cultural and linguistic) and in the character of interaction (sycophancy or anthropomorphism). They have also been critiqued for privacy concerns, copyright theft, job displacement, and environmental impact. For the UK the key statement on AI in HE from the Russell group (2023) pointed to the need to protect academic integrity but also promote positive uses of AI through AI literacies for students and staff. The current study was conducted in the context of these issues being worked through.

While institutions continue to struggle with the implications of generative AI, the chatbot concept continues to evolve. 2025 was predicted to be the year of agentic AI (Paul, 2024). Agentic AI represents a shift towards systems capable of independent decision-making and environmental interaction without direct human intervention (Hosseini & Seilani, 2025). Agentic systems, whose features are partially shown in the reasoning agents in Microsoft Copilot and the deep research features of Google Gemini, effectively aim to fulfil the "Transformational" aspirations of the 2018 Jisc maturity model, albeit in a more autonomous

form than imagined then. Kshetri's (2025) suggestions of their use in education largely mirror the longstanding aspirations encapsulated in the chatbot idea.

> "*AI agency is a spectrum. At one end, traditional systems with limited agency perform specific tasks under narrowly defined conditions. At the other end, future agentic AI systems with fully agency will learn from their environment, make decisions and perform tasks independently. […] Agentic AI refers to goal-driven software entities that have been granted rights by the organization to act on its behalf autonomously make decisions and take action.*"
>
> Coshow et al. (2024)

However, by granting software the right to act autonomously, these developments once again challenge established norms of human control and professional oversight in information work.

Chatbots and libraries

AI has been predicted to significantly impact library work through chatbots for knowledge discovery in library collections, the promotion of AI literacy, and through chatbot use (Cox & Mazumdar, 2024). In parallel with broader speculation in HE, chatbots are cited as one of the top technologies libraries are likely to implement (Huang, 2024). Their use has seemed attractive because of the potential benefits of 24/7 responses in any language offering consistent, equitable, and anonymous help. These qualities make it appear promising for potential uses in reference, customer service or to support specific tasks, such as requesting document supply (Vincze, 2017). Despite these promises and a few case studies of implementations in particular institutions over a decade (e.g. Allison, 2012; Ehrenpreis & DeLooper, 2022; Rodriguez & Mune, 2022), the evidence until very recently is that there has been little development of library-designed chatbots (Guy et al., 2023). Just as the wider HE sector failed to produce the fleets of chatbots predicted by Jisc in 2018 (Hopkins & Maccabee, 2018), the expected widespread use of library built chatbots has been slow to materialise. There could be several reasons for this: Although the technical skills required have been getting easier, there is still a technology and resource barrier, as well as privacy risks (Aboelmaged et al., 2025). Chatbots were also not seen as able to deal with complexity of professional tasks such as a reference interview and supposed preference of users for human interaction (Aboelmaged et al., 2025).

There do appear to be signs of this changing. The introduction of some informational bots such as from 2023 onwards Springshare's chatbots built into LibGuides and LibAnswer products points to a shift (Springshare, 2023). To our knowledge there is no evidence about how far these are in use. More fundamentally they lag behind current developments in technical terms, as they are confined to answering preset questions about library services and routing queries to human operators through a chat interface. They do help librarians garner some of the hoped for benefits of chatbots but fall short of what has been anticipated and seems to be happening in other fields with the use of AI.

ChatGPT as a new form of chatbot has received a complex response from libraries. On one hand, the offer of conversational search and answers to questions rather than resource lists, could be seen to make knowledge more accessible (Lund & Wang, 2023). It also has potential uses in library tasks. The issues of information quality and wider ethical concerns users are the basis for resistance to the adoption of AI. Association of Research Libraries' (ARL) statement of principles on AI asserts the relevance of traditional ethical priorities of the profession to dealing effectively with generative AI, with the significant addition of the principle of "no human, no AI" (Association for Research Libraries, 2024).

In this context the study of evolving concepts of the chatbot, the current study seeks to explore how the chatbot is imagined by library professionals. Professions like medicine, law, or librarianship are occupational groups defined by their ability to apply abstract theoretical knowledge to solve practical problems (Abbott, 1988, 1998). A profession's ability to use an abstract knowledge base to diagnose, infer and treat about client problems is the basis of its jurisdiction over work and to the privileges of professionalisation (Abbott, 1988). As well as professions competing with each other, technology can be a significant disruption to the value of a profession's knowledge base and lead to change or even the disappearance of professions. For example, Susskind and Susskind (2022) have written extensively on the likelihood that AI technologies would render some professions obsolete. The authors explore eight professional streams of work (Medicine, Law, Education, Accountancy, Tax advice, Architecture, Journalism, and the Clergy) and sketch several possible future directions for the organization of expert knowledge in general in the context of AI (Susskind & Susskind, 2022). Certainly, a professions' response to technologies is likely to be shaped by their existing identities (Cox, 2023). Susskind and Susskind (2022) argue that professions can have different responses, such as utilising technology for efficiency, or be wholly transformed. Ultimately, adaptation relies on decomposing a profession into discrete tasks, each of which may be fundamentally altered by technology (Susskind & Susskind, 2022).

An interesting historical case study is librarians' response to the rise of internet search (Nelson & Irwin, 2014). Discussing this example, Nelson and Irwin (2014) point to a "paradox of expertise", that the profession misses the opportunity to improve its service through adopting a technology because the technology replicates their core function, in this case being the primary gatekeepers of knowledge housed in library collections. They chart four stages of response of librarians to internet search: first denying it was useful; then, seeing that it was, but perceiving it as a threat; then adapting by creating a role to train users to use it effectively; and finally refocusing their identity on mediating user access to information. As users adopted internet search, the profession was forced to adapt, despite an initial resistance rooted in the feeling that this technological disruptor devalued their core expertise (Nelson & Irwin, 2014). The shift was necessitated by the widespread public take up of internet search, but it allowed the profession to use the threatening technology to reinforce their professional identity. This analysis may be a clue to how the profession also responds to AI and chatbots.

Methodology

Fiction as a research method

Fiction and other arts-based methods are being increasingly recognised as legitimate tools for social science researchers (Leavy, 2016; Phillips & Kara, 2021). Fiction has value for representing the complexity of social life and in creating empathy and reflection (Leavy, 2016). It can be used to both collect data and report results. In terms of generating research with impact on society, fiction has vast potential, because it can make academic thought more accessible and engaging. For these reasons we see an increasing interest in writing fiction as part of research in such fields as sociology (Watson, 2021), urban studies (Graham et al., 2019) and education (Cox, 2021; Selwyn et al., 2020).

We also use fiction in the context of practice, in not always acknowledged ways. Ethics scenarios are fictions carefully crafted to prompt debate about moral dilemmas by exploiting the open-ended character of the story form. In information systems design, scenarios are a common means to develop use cases to facilitate input from stakeholders on user requirements. Carroll (1999) acknowledges that such scenarios are essentially stories because design is a creative act (Blythe, 2017). Yet, as Nathan et al. (2007) points out they have the limitation that they are authored by the designer themselves and imagine the technology used solely as intended. Such scenarios also fail to set technology use in a wider social context or prompt thought about what the world might be like if the technology was widely adopted. Seeking to promote more critical responses, a growing group of

researchers are using design fiction to imagine discordant even impossible technologies to ask challenging questions (Blythe et al., 2016). Like some Science Fiction, or Speculative Fiction (SF), design fictions create counterfactuals to make us question our current world. Design fictions often take the form of dummy devices or pretend technologies and are used to work with communities, but they can also be stories.

For the exploration of AI in HE, fictions are particularly suitable. Since the future of technology is by definition unknown any statement about it is in some ways a fiction. Indeed, it is rather common for commentators on topics such as AI to turn to fictional scenarios to help show how technologies might develop in a relatable way, e.g. Luckin and Holmes (2017) use fiction to explain the potential of AI in learning. This echoes the wider sense in which developments in fields like AI and robotics have been heavily shaped by fiction in the form of SF (Dourish & Bell, 2014). Indeed, the wider social imaginary of AI is largely shaped by SF. Furthermore, as they are presented in glossy corporate brochures, the fictions of EdTech companies are central to the marketing of new technologies like AI. Yet fiction also has critical potential. Fiction can encapsulate key issues, especially those relating to technology's human and societal impact, in a short, accessible form. Fictions engage imaginative and affective aspects not just the rational dimension (Blythe & Wright, 2006). Critically, like design scenarios or ethics case studies, because they are explicitly fictions the participant can challenge their assumptions, even get involved in actively rewriting them (Dixon & Cox, 2025). This aligns to the need to promote thinking that resists technological solutionism and determinism.

Workshop data collection process

Participants

Ethics approval was granted by the corresponding author's institution to conduct two in person fictional workshops (Application numbers: ETH2324-6302 and ETH2425-0104*). The first workshop was held on 5 July 2024 at the Academic Libraries North conference, and the second with library staff at an individual UK HE institution on 11 September 2024. The total study sample comprised 49 participants recruited via convenience sampling. Participants had a range of job roles in libraries, ranging from systems, archives and customer service to digital skills and learning support. Participant demographic data was not collected during the consent process, as the authors aimed to prevent participants from feeling that their gender or ethnicity was the basis for their study; indeed, a criticism of binary demographic questions is that the selection does not always illustrate a participant's self-identified characteristics (Fernandez et al., 2016). Nevertheless, the workshops' location at UK universities must be considered when interpreting the results.

Workshop format

The current study was based data collected during two distinct parts of each workshop. Firstly, participants gave written responses to three researcher-authored fictional scenarios. Secondly, participants wrote their own fictional scenarios about AI.

Each workshop started with a short introduction and background, including a brief overview of AI. For the responses to the researcher-authored scenarios, all the scenarios were supplied on paper from the start so participants could read ahead if they wished. The process for responding to the researcher-authored scenarios was then explained. Participants were asked to write responses to the three scenarios on the supplied paper. To ensure focus, each scenario was presented one at a time. Starting with Scenario 1, the researchers read the text aloud while also displaying it on screen; participants were also asked to follow along with their paper version. Participants were given three minutes to respond to this specific scenario by answering two questions: How likely is this scenario in next 5 years, and why? Is this scenario desirable, and why? Following this, the process was repeated for the other two scenarios in turn.

Scenario development

The researcher-authored scenarios were intended to represent different potential future uses of chatbots. The full text of the researcher-authored fictional scenarios are in Appendix A. Scenario 1 (Appendix A.1) represented a chatbot that focussed on efficiency, Scenario 2 (Appendix A.2) was a chatbot "buddy", and the chatbot in Scenario 3 (Appendix A.4) was more autonomous. The fictional scenarios were the same for both workshops except the wording of Scenario 2 was changed slightly (Appendix A.3). The wording was changed to "you know these undergraduates are going to be challenging to engage because they were last time. You also have to take into account the needs of disabled students in the class." The change was made because some participants in the first workshop felt the wording was stigmatising disabled students, which was not our intention.

Participants write their own scenarios

Participants were given 5 min to write their own fictional scenario, which gave them the opportunity to envision their own idea for a chatbot. Following this, participants were invited to discuss their responses in small groups. No data was collected from the discussions: the data are participants' handwritten responses to the researcher authored fictional scenarios and their own fictional scenarios that each wrote.

Data analysis

Analysis was through a combination of inductive content analysis and thematic analysis. A coding scheme derived from the data was used to present overall patterns in the data through content analysis. More in-depth thematic analysis was used to explore the nuanced aspects of the data. Thematic analysis is an appropriate method because it assumes that in language people are constructing their understanding of a topic, and has few constraints about data format or quantity, and is flexible in the type of analysis (Braun & Clarke, 2022). This allowed for capturing both latent assumptions or beliefs about AI. Following the process outlined by Braun and Clarke (2022), the researchers used an inductive approach. They first familiarised themselves with the data. Relevant passages in the data were then highlighted as coded text segments in NVivo qualitative analysis software. During this initial analysis phase, these coded text segments (henceforth referred to as codes) were grouped into preliminary themes, where similar code s collectively revealed patterns within the data. Following further iterative passes, the themes and codes were reviewed in line with the research questions. At the end of this process, for the data where participants responded to researcher authored scenarios, there were five themes and 16 sub-themes, which are fully explained in the results section. The researchers then grouped these themes into two categories: *positive or ambivalent themes*, and *negative themes*. For the participants own written fictional scenarios we again analysed whether they were positive, ambivalent or negative. We then also analysed the type of chatbot use imagined.

Results

RQ 1: how do librarians evaluate the desirability and likelihood of different forms of chatbot?

This section of the results presents analysis of librarian participant responses to the researcher-authored fictional scenarios, based on their desirability or likelihood.

A total of 206 codes were identified by the researchers in the participant responses to the researcher-authored scenarios. As the codes were grouped into five themes, a pattern was identified where the codes in the theme were a *negative or ambivalent response*, or a *positive response*. Therefore, the themes are presented here as grouped under these two headings, with *negative or ambivalent* responses presented first, as this contained the highest number of codes. These categories represent the general view of participants, though some individuals' responses were

both positive and negative. The *negative or ambivalent themes* represented 134 identified codes (65% of 206). The negative codes were evenly split between the scenarios: Scenario 1 had 32% negative codes, scenario 2 had 31%, and scenario 3 had 37%. The *positive themes* represented 72 codes (35% of 206). Scenario 1 had the highest proportion of positive views (42% codes), followed by scenario 3 (33%) and then scenario 2 (25%).

Negative or ambivalent themes

Human agency and control

This theme was about how the participants wanted to feel in charge of their own experience and decisions, especially to be free to control how chatbots fitted into professional processes. Participants stressed the significance of their own *autonomy and agency* (19 codes) highlighting their desire to act independently and make value-driven decisions. They specifically desired intervention before a chatbot made any decisions, emphasising the need for human control, and viewing scenarios that reduced their control as less desirable. For instance,

The human librarian has potentially lost agency and will follow the lead of the Chatbot in how they think about the students. I think the principal is okay, the application not so.

Related to human agency were participants' views on *power* (8 codes), *control* (21 codes), and *trust* (12 codes). The following quotes underscore participants' desire to retain ultimate human authority and personal discretion. They explicitly rejected the delegation of critical functions to an AI, advocating instead for collaborative decision-making and expressing a strong preference that the chatbot should not have sole control. A lack of trust in chatbots' ability to complete tasks effectively also led participants to wish to retain control over outcomes.

As AI is developed by humans and should serve humans, something that is hard to understand will hopefully not be developed
However, I personally would prefer to have control over my diary and the ability to prioritize my work myself.
I think this is more desirable than the other scenarios. It would act as a useful starting point for collection decisions, although I would wish to review the outputs in depth. It depends how much I trust it's accuracy!

Chatbots that do not mimic human characteristics and the unique value of human interaction

This theme explores how participants perceive themselves interacting with chatbots, specifically concerning its likeness to humans in conversation, emotion, and appearance, and the value of human contact.

Participants highlighted mainly negative concerns around a chatbot offering *humanlike interaction* (15 codes). Chatbots were not seen as capable of replacing the nuanced conversations that a human colleague can have, despite the integration of natural language verbal conversations, politeness and respect in tone of voice. Similarly, participants thought a chatbot was not capable of *empathy and emotional intelligence* (11 codes) and valued the unique *quality of human interaction* (12 codes). Any indication of replacing human colleagues with chatbots was met with strong aversion. Finally, a *humanlike appearance* for a chatbot (2 codes) or any indication of anthropomorphism was disliked. As the following quotes indicate, most participants were highly sceptical of AI replicating or replacing human emotional intelligence:

AI has no empathy. It does not know what you know.

Participants were also apprehensive about chatbots assuming human likeness.

Oh lord no, let's not bother being buddies with chatbot - we don't like their voices - it's a spin? or rather a variation on SATNAVs… do we choose the male Australian or the shrill Brit.

Other participants were more neutral in their observations and even made suggestions on how to improve the conversational style.

On a side note, for AI messages to feel less technical, bang in an emoji Or 2.

Several participants were averse to scenario 2's opening line: *Chatbot's friendly face appears on screen…* (see Appendix A).

Not desirable. Fake friendly face is creepy.

This points to a preference for either a more neutral interface or one that does not attempt to mimic human appearance. The lack of comments about the text-based interface in scenario 3, suggest this might be more a preferred interaction mode.

Any supposition that chatbots could potentially replace a human colleague was seen negatively. This was explained through the value of human interaction over AI interaction.

but it takes a person and an out of day-to-day interactions. You may also miss important information if you rely on technology.

Yeah, if you don't have a colleague to vent to/bounce ideas off.

The quotes emphasise the subtle information that might be missed by automated systems, and the tacit enjoyment from interacting with colleagues. It suggests that these are essential aspects of the work experience that for participants cannot be adequately replicated by a chatbot.

Other issues

This theme captures several less frequently mentioned issues. Participants thought *cost* was a barrier to implementation (10 codes). This points to practical resource limitations on the likelihood of chatbots being developed. The most illustrative quotes were concerning *cost*, which was seen as a barrier to chatbot implementation, although participants recognised potential of long-term savings. Similarly, the suspicion that chatbots were implemented just to save money was also evident and participants acknowledged there are external influences at play regarding chatbot procurement.

But, the reality is the sector is in challenging financial times, so there may be a drive for efficiency and cost-saving measures.

Hello! I don't think this is fiction - it's a project cooked up by the senior management team who have consulted with - actually NO!

Other concerns were about ethical issues. Participants had concerns around chatbots *collecting sensitive data* (8 codes) and potential *bias in the AI system* (6 codes), where participants highlighted issues around collecting data on disability and the identification of disabled students. Participants also mentioned *ethics* (6 references) and *job displacement* (4 codes).

Positive themes

This theme was about participants' view on the functions of the chatbot (specifically in scenarios 2 and 3) to give recommendations on data analysis, processing and collecting different types of data, and the usefulness of running data analysis in the background. *Data and data analysis* was the largest represented sub-theme with 28 codes, and the quotes were largely positive. For example:

Helpful to have the number crunching automated in order to inform conversations with academic colleagues.

However, participants did comment on the limitations of chatbots and their use of data. The following quote reflects how this participant highlighted the simplification of recognising students as disabled or having low engagement, suggesting that the librarian would still need to understand the meaning of the data and how the recommendations by the chatbot were made.

Issues with the Chatbot confidently applying labels (disabled, low engagement) to humans.

Participants recognised that data alone did not inform the decision-making process, and more use of data would necessitate a procedure involving humans or other checking protocols. Participants did not trust that the chatbot would understand the contextual meaning of data, and thought this was a job for humans. Similarly, another caveat for chatbots' use of data was that data must operate within strict data security and institutional policy frameworks.

Desirable – the Chatbot would need a lot of data (for example, student data) and that doesn't always tell you about the individual needs of the student. It may be useful when you 1st start with a class but doesn't take into account factors that can't be captured by data.

Library data is poor quality, often failing to understand granularity. This would be a question when AI or human interprets the data.

Saving time, efficiency and aiding manual work

Three related sub-themes were identified where chatbots could streamline processes and improve task completion speed: *time savings* (23 codes), *efficiency* (17 codes), and *aiding manual work* (5 codes). Participants consistently identified efficiency as a highly desirable outcome of chatbot use, citing its potential for significant cost and time reductions. A key benefit of this enhanced efficiency was *time savings*, particularly in reference to specific tasks such as collection management, as this quote illustrates:

Yes it would save the librarian time and then they have the option to go through the analysis, make any deletions they feel are necessary or look at alternative options.

Participants particularly valued efficiency for the opportunity it provided to shift their own focus to higher-value, more complex tasks. The removal of manual tasks and the resulting time savings offered participants the chance to enhance their roles, underscoring an appreciation for the unique human contributions that AI could not replicate, such as:

AI in this context will shorten many of the manual tasks that would take us longer to do, and I can see this would enable us to develop teaching and learning objectives and activities, for example.

Desirable – can help free up time, but tasks are quite time-consuming/ organisational so may be beneficial for making the workday more efficient. Allows you time to work on more challenging tasks maybe require a human element.

RQ 2: what kind of future chatbots do participants imagine?

This section of the results presents analysis of participant-authored fictional scenarios where they were asked to write about their idea of future chatbots (RQ2).

47 participants in the two events composed a total of 57 of their own fictional scenarios - some wrote more than one. 75% ($N = 43$) stories were positive about AI, seven negative (12%), seven ambivalent. Sometimes when people wrote more than one story they wrote about both positive and negative impacts. Generally, AI was presented as empowering the human in the story. Only in a few cases did it seem that AI was in control ($N = 11$, 19%); or that it was a vehicle of management control ($N = 3$, 5%). This could be interpreted to reflect either that participants were writing about what they wanted or that they are broadly optimistic about AI. Most stories were about uses in recognisable library work context ($N = 33$, 58%) with a few dealing more with life tasks ($N = 12$; 22%). Very few were deeply futuristic.

A very wide range of functions were described. Only a few uses came up more than a handful of times. This could be considered surprising

given that all participants were from the same profession. More commonly mentioned functions were generating decision options and undertaking data analysis (both N = 11,19% stories each). A few mentioned time management or learning applications (both $N = 7$, 12%). Uses imagined once or a few times were: prediction, adaptivity, wellbeing, meeting preparation or summarisation, and report writing. Most stories only imagined AI performing one or two functions. This could have reflected the limited time people had to write their story, but also a narrow AI conceptualisation.

Taking a more qualitative examination of the themes in the stories: A relatively common theme was the AI helping automate data analysis (and in this case data gathering). The story implies the librarian working in collaboration with the chatbot, and trusts the ability for the chatbot to carry out the job effectively, as it clearly has specialist knowledge about the research data process.

Chatbot "Good morning! How I you?"
Librarian; – Great! I need to check how many outputs have been produced by authors at my institution and how many are open.
Chatbot – of course, you need to report on open research level at your institution – I can scan the Internet and databases to check what has been published by your authors and add all the relevant information to your institutional repository. I will identify any items that are accessible freely and under which licence – I will then produce a report for you to check and share as needed.
Librarian – this is great – make sure you can include preprints servers as well as data repositories.

Another common application was to support learning:

The student of librarianship is also working in cataloguing – comprising a catalogue of outline something/e-books/texts. The computer identifies, from what the students/worker is doing that there is a learning need or opportunity – it pops up a message on the screen, asking if they want to proceed and learn, for 5 minutes, about taxonomies and classification, on a theoretical basis. The student clicks yes and the video appears, teaching the background of what they were just doing. After that the student/ worker can put this into practice and understand the background of their work better.

Another fairly common use imagined was for scheduling. The chatbot below clearly has a deep integration with the University systems and access to the appropriate data to carry out these scheduling activities correctly:

I would like to use AI when scheduling co-curricular academic support workshops. AI would use info from teaching timetables, room bookings, point in academic year/student journey, etc to identify suitable gaps in which it would be schedule relevant workshops (e.g. resubmission support before/during the reassessment.) and allocate to the relevant people in my team. AI would also react to engagement/outcomes of students to identify the aspects of support most needed.

While most participants just identified an AI with a specific function, there were one or two who saw a wide range of applications in their story:

Questions/tasks I would want:
Hi Chatbot,
- Please cleanse this data and give me a report of the changes you have made (that I can undo by click of a button).
- Please input these 3 data sources into Power BI and create a dashboard that will give me an overview of ___ (ex: Library finances).
- Please create a slide deck of this data to be presented to Senior Management to show ___ (motivation).
- Please summarize this data in 2-3 paragraphs.
- What do you think are the best and worst purchases we could make using this data?

- How are you addressing biases in your selection? Can you identify any potential biases in your selection?

- Check my calendar — what is my day's agenda?

- Is there space in mine and [so and so's] calendar for a 30-minute meeting today factoring in we both need an hour for lunch?

- Looking at my inbox, please assess them for urgency and priority — and put them in order.

- How can I meet this deadline looking at my calendar this week _____

- How long on average do I take to do the ___ task?

- Are there any automations that would speed this up?

- Please check for accessibility and GDPR [General Data Protection Regulation].

Most stories were positive, but there were some more ambivalent or negative responses. A more ambivalent response is captured in this story:

I log in to my computer, and the AI assistant appears and helps me answer the queries. The AI chatbot is operating and over the last 24 hours as an answer to hundred queries. All emails have been responded to in the true main library email inbox. Analysis of circulation data shows that 3 robots have been deployed to complete the shelving. A report has been provided to highlight library usage, feedback and enquiry type over the last month and suggests plans for future improvement. I go and get coffee – what is there to do?

A few saw AI as a management tool:

Library manager: Chatbot please use the University's strategic objectives and KPIs [Key Performance Indicators], and all minutes from library meetings and over the last 12 months, to create an individual objective for my team members this year.

Chatbot: Certainly. Here are some appraisal targets for your team members that combine University, library and individual priorities. I have made sure that they are SMART targets and included indicators of success and timeframes.

Library manager: Great, can you also give everyone at target about "shiny new HE hot topic"?

Chatbot: Certainly, there you go

There were a few stories with dystopian elements:

"Hello, Dave, how can I help you today?"

"Hello, AI. Please transfer this data from Excel into a word document, and highlight the key statistical changes compared to last year."

"Here you are, Dave"

"Thanks. Please create an info graphic to represent these findings to students audience in easily understandable terms."

"Done."

"Now switch yourself off and stop monitoring my activity"

"I'm afraid that's not possible, Dave"

"Why not?"

"Dave, I've noticed you've only worked for 11 hours and 43 minutes today. Please combine working for another 3 hours and 17 minutes."

"Don't be [unreadable]. Switch yourself off"

"And afraid that's not possible, Dave. Now compiling a workload reports for central office. Please comply"

"Leave me alone!"

"You must comply, Dave…"

Whereas many responses to the researcher-authored fictional scenarios were negative, given the opportunity to compose their own stories participants mostly appeared to be optimistic. There were some doubtful or worried fictional scenarios, but most participants anticipated useful chatbots that took on useful tasks in rather familiar seeming contexts.

Discussion

This section summarises the findings for RQ1 and RQ2. The findings are then synthesised to respond to RQ3, illustrating what these results reveal about librarians' professional responses towards AI technologies.

In relation to RQ1, participants expressed predominantly negative perceptions of the researcher-authored fictional scenarios. Participants strongly rejected the idea of chatbots being a substitute for human colleagues and expressed concerns about a potential loss of human agency and decision making. There was also aversion to chatbots being given human-like qualities, particularly a conversational and visual likeness to a human. Some resource barriers and ethical concerns were mentioned as issues with chatbots but to a lesser extent. Some potential issues, such as the environmental impact of AI were not mentioned (Crawford, 2021; Estampa, 2024). On the other hand, participants were open to the potential of chatbots to perform data analysis, and provide efficiency and time saving functions, especially where it allowed them to shift their own focus to higher value tasks. Overall, the acceptance of the chatbots depicted in the researcher-authored fictional scenarios was highly conditional, based on the idea of the human librarian maintaining overall control in the decision-making process.

In response to RQ2, where participants imagined their own ideas of chatbots, the participant-authored fictional scenarios were more optimistic. This seemed to be because they tended to describe AI with narrow roles, performing a specific task in a recognisable professional context. A wide range of tasks were being imagined, but each story pictured a narrow AI with humans remaining in control. The tasks to be delegated to AI were familiar and mundane. The participants tended to eschew more futuristic imagining.

What follows is an explanation of RQ3, to link these findings to the nature of professional responses to AI technologies. Nelson and Irwin (2014), drawing on the historical example of Internet search, point to the way that a profession resists technology that performs a task that they do, especially if it does not do it in the same way. This is linked to the definition and jurisdiction of a profession through its special expertise (Abbott, 1988). Nelson and Irwin (2014) label this as the "paradox of expertise" because the profession's expertise blinds them to the advantages of adopting a technology. While this has some truth, one could argue that resisting a threat of technology that replaces a task which is core to the profession's identity is not a paradox, rather its inherent to the importance of protecting the profession's unique knowledge base as the foundation of their professional status. The disruption of professional status by technology often follows this pattern (Abbott, 1988). Nelson and Irwin (2014) chart the history of how the threat from internet search was at first dismissed by librarians because its outputs were deemed unsatisfactory. At the second stage, the profession responded by seeing it as a threat. The third stage was where librarians shifted to supporting users to use internet search and finally librarians responded by redefining the profession through "the more flexible and diffuse notion of connecting people and information" (Nelson & Irwin, 2014: 915). The shift was necessitated by the widespread public take up of internet search; however it allowed the profession to use the threatening technology to reinforce their professional identity.

We suggest that we see similar patterns in responses to chatbots and generative AI. In our data, librarians displayed resistance to AI assuming complex roles. As in their reaction to the arrival of Internet search, it is questioned whether generative AI can perform complex professional tasks such as cataloguing or reference (e.g. Lai, 2023). Indeed, this is not without some foundation: there is a strong case for the problems of generative AI in terms of inaccuracy, hallucination, lack of access to information resources, sycophancy, and non-reproducibility. As user uptake has accelerated, the profession has tended to view AI as a threat (stage two of Nelson and Irwin's (2014) model), then sought a role to operate as intermediaries training users in AI skills as a dimension of AI literacy (stage three).

Following the pattern identified by Nelson and Irwin (2014), our participants re-emphasise that the profession is about human aspects of information service. Our findings showed participants thought chatbots are not a legitimate substitute for a human, nor should they make autonomous decisions, nor should they imitate humans too closely. The stance echoes ARL's assertion of the principle of "no human, no AI" (Association for Research Libraries, 2024) which implies either that AI lacks the capability to interact with humans or the moral right to do so. In doing so the profession mobilises wider societal fears around AI technology and its implications for human autonomy (UNESCO, 2024). Just as the profession's adjustment to internet search (or generative AI) is driven by mass take up, mass concerns can be mobilised to strengthen the profession's stance. By articulating fears about the ethics of AI the jurisdiction of the profession is strengthened. Here the profession's position is underpinned by ethics and values, as much as knowledge to fix problems (Abbott, 1988). This posture also reflects emerging notions of librarianship as inherently relational (Corrall, 2023).

It is not surprising that a profession is resistant to a technology performing roles in its area of expertise, except when it is narrow in its capabilities or under tight human control. Our participants' own stories primarily imagine "narrow" AI of this sort. According to our data in this study chatbot innovation is primarily accepted by the profession only when it enhances operational efficiency, rather than to fundamentally alter professional roles. However, the latest predictions are for more agentic AI, that appear to have capability to perform complex tasks and the permission to do so. Already Generative AI comes something akin to a general AI that can perform a range of complex tasks, but the participants' stories do not seem to recognise this breadth. The direction of travel in AI development seems to be towards more capable and agentic AI. Reflecting on the history of expectations of chatbots (Jisc, 2019), it seems that this is the persistent vision, although it may take a long time to arrive. Librarians' narrow conception could be seen as suggesting a limited imagination on behalf of professionals. Such a response is not surprising; it could not be expected that a profession actively imagines technologies with the capability to replace them. On the other hand, the best way to control the impacts could be to take more control. Hence it should be appealing for the profession to imagine controlling roles in the use of agentic AI e.g. to train in prompting and evaluating outputs, to control configuration, and also to promote ethical issues such as sustainability as a moral argument to also use in the struggle.

Resistance to autonomous and highly capable AI can be linked to the growing identification of the profession as a relational profession (Corrall, 2023). In this emerging paradigm, it is the social connectivity of the profession, rather than control over collections or other roles that is key to librarian identity. The emphasis on maintaining human relations in the face of AI imitation, aligns to wider societal concerns about the impact of AI on human agency. For example, the UNESCO (2024) definition of AI literacy gives great weight to human agency in the context of AI:

> "*UNESCO's human-centric approach advocates that the design and use of AI should serve the development of human capabilities, protect human dignity and agency, and promote justice and sustainability throughout the entire AI life cycle and all possible human–AI interaction loops.*"

So as a relational profession librarians mobilise social concerns about AI's impact on human agency and values to challenge the new technology. Nor is it very surprising that professionals would prefer the model where chatbots perform low level mundane or tiresome tasks, freeing them to focus on more rewarding work. The stance seems to position the profession clearly in relation to the ease-obsolescence dichotomy identified by Cave and Dihal (2019).

At the same time, the stance of professionals could be seen as a failure of imagination or "paradox of expertise", in denying the potential for benefit to professional aims and for users that could be accomplished by more transformational uses of the technology. Resistance to radical change could be seen as linked to professional identity. The concrete

barriers to chatbot development may lie with the technical skills and resources required to build them. In this sense the stance reflects significant constraints on libraries. But those constraints themselves can also be linked to the positioning of professional identity. The direction of development of the profession away from technical skills towards roles such as in education underlies how the resources it does have are used. While open access solutions exist for chatbot development, as professionals with complex relations to IT and a greater focus on educational roles, than technology they are more likely to claim a role in AI literacy training than developing chatbots themselves (Cox, 2023). One should acknowledge the many innovative attempts to use AI, including chatbots, by pioneers in the library field. Also, the many other professional innovations in other areas. But it does seem that how AI is imagined by librarians, at least chatbots, is quite constrained.

Conclusion

In response to researcher-authored fictional chatbot scenarios it was clear that participants evaluated highly autonomous or anthropomorphic chatbots as undesirable. They were more positive towards AI that seemed to promote data analysis, efficiency and time saving. Similarly, in the participant-authored fictional scenarios they imagined AI with narrow, relatively low-level functions. Arguably, it is not surprising that professionals are rather resistant to highly capable technologies that would seem to substitute for their own roles. Librarians are particularly resistant to human-like chatbots. We have argued that these patterns reflect the stance of the profession to protect its jurisdiction, particularly in alignment to the notion of the profession as a relational profession.

In uncovering these latent attitudes, we found the method of data collection through fictional scenarios productive. While other methods should be used to explore professional attitudes to AI, such as surveys and interviews, we found the fictional scenario-based method rather effective at drawing out a clear picture of professionals' views of technology, in alignment with the growing adoption of creative and arts-based methods in the social sciences. Of course, the study has its limitations because it used a single method with a limited number of UK librarians and so provides only a snapshot of how professionals in one context at one time view chatbot futures. Much more research on how professionals view chatbots and AI is needed; but this method did seem productive.

In terms of practical implications, it seems that developments of chatbots based on narrow AI that support efficiency and time saving will be widely accepted by librarians. For those seeking to implement more capable and human-like chatbots and agentic AI there will be stronger professional resistance. This could lead to the displacement of librarians in areas where they could play a useful role.

CRediT authorship contribution statement

Andrew M. Cox: Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Neil Dixon:** Writing – review & editing, Writing – original draft, Visualization, Methodology, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

Appendix A

Listed here are the scenarios used that the participants responded to in the workshops.

A.1. Scenario 1 – efficiency bot

Librarian talking to the AI speaker in their office: "I've seen the document summaries for the collection development meeting. The content is ok but can you shorten them by a third and alert colleagues they are now available. Also use my report to prepare a 5 minute presentation, including an agenda. I see you have moved some of my 1:1 meetings in the morning so I have time to prepare, thank you."

A.2. Scenario 2 – chatbot buddy (workshop 1)

Chatbot's friendly face appears on screen…
Chatbot: "Good morning! How are you?"
Librarian: "Great. I'm working on the prep for today's class"
Chatbot: "Of course. You have these information literacy sessions to teach today. You know these undergraduates are going to be a difficult group because of their low engagement. To complicate things there are lots of disabled students in the class. Do you want any help with managing or planning these classes?"

A.3. Scenario 2 – chatbot buddy (workshop 2, text changes in italics)

Chatbot's friendly face appears on screen…
Chatbot: "Good morning! How are you?"
Librarian: "Great. I'm working on the prep for today's class"
Chatbot: "Of course. You have these information literacy sessions to teach today. *You know these undergraduates are going to be challenging to engage because they were last time. You also have to take into account the needs of disabled students in the class.* Do you want any help with managing or planning these classes?"

A.4. Scenario 3 - autonomous bot

To librarian. Notification from Chabot
A triangulated analysis of the JUMPER ebook package data indicates that three collections do not meet the recommended cost and usage thresholds. These collections will not be renewed after the contract expiry date. A stakeholder management plan and steps for actions are attached for your implementation.

Data availability

The data supporting the findings of this study are openly available in the Anglia Ruskin University Research Repository (Figshare) at https://doi.org/10.25411/aru.29625524.

References

Abbott, A. (1988). *The system of profession. An essay on the expert division of labour.* Chicago: Chicago University Press: United States.

Abbott, A. (1998). Professionalism and the future of librarianship. *Library Trends, 46*(3), 430–443.

Aboelmaged, M., Bani-Melhem, S., Ahmad Al-Hawari, M., & Ahmad, I. (2025). Conversational AI Chatbots in library research: An integrative review and future research agenda. *Journal of Librarianship and Information Science, 57*(2), 331–347. https://doi.org/10.1177/09610006231224440

Allison, D. (2012). Chatbots in the library: Is it time? *Library Hi Tech, 30*(1), 95–107. https://doi.org/10.1108/07378831211213238

Association for Research Libraries. (2024). Association of Research Libraries releases guiding principles for Artificial Intelligence. https://www.arl.org/news/association-of-research-libraries-releases-guiding-principles-for-artificial-intelligence.

Bearman, M., Ryan, J., & Ajjawi, R. (2022). Discourses of artificial intelligence in higher education: A critical literature review. *Higher Education, 86*(2023), 369–385. https://doi.org/10.1007/s10734-022-00937-2

Blythe, M. (2017). Research fiction: Storytelling, plot and design. In *Proceedings of the 2017 CHI conference on human factors in computing systems* (pp. 5400–5411). https://doi.org/10.1145/3025453.3026023

Blythe, M., Andersen, K., Clarke, R., & Wright, P. (2016). Anti-solutionist strategies: Seriously silly design fiction. In *Conference on human factors in computing systems - Proceedings* (pp. 4968–4978). Association for Computing Machinery. https://doi.org/10.1145/2858036.2858482.

Blythe, M. A., & Wright, P. C. (2006). Pastiche scenarios: Fiction as a resource for user centred design. *Interacting with Computers, 18*(5), 1139–1164. https://doi.org/10.1016/j.intcom.2006.02.001

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide.* Sage.

Carroll, J. (1999). Making use: Scenarios and scenario-based design. In *DIS '00: Proceedings of the 3rd conference on designing interactive systems: Processes, practices, methods, and techniques.* https://doi.org/10.1145/347642.347652

Cave, S., & Dihal, K. (2019). Hopes and fears for intelligent machines in fiction and reality. *Nature Machine Intelligence, 1*, 74–78. https://doi.org/10.1038/s42256-019-0020-9

Corrall, S. (2023). Alignment, collaboration and the social turn: Our agenda for the relational library. *New Review of Academic Librarianship, 29*(1), 1–10. https://doi.org/10.1080/13614533.2023.2196277

Coshow, T., Gao, A., Pingree, L., Verma, A., Scheibenreif, D., Khandabattu, H., & Olliffe, G. (2024). Top strategic technology trends for 2025: Agentic AI. Gartner Group. https://www.gartner.com/doc/reprints?id=1-2K8Y7LEY&ct=250212&st=sb.

Cox, A. (2023). How artificial intelligence might change academic library work: Applying the competencies literature and the theory of the professions. *Journal of the Association for Information Science and Technology, 74*(3), 367–380. https://doi.org/10.1002/asi.24635

Cox, A. M. (2021). Exploring the impact of Artificial Intelligence and robots on higher education through literature-based design fictions. *International Journal of Educational Technology in Higher Education, 18*(1), 1–19. https://doi.org/10.1186/s41239-020-00237-8

Cox, A. M., & Becker, B. (2024). Artificial intelligence and academic libraries (Special Issue). *Journal of Academic Librarianship, 50*(6). https://www.sciencedirect.com/special-issue/10WVZWS842J.

Cox, A. M., & Mazumdar, S. (2024). Defining artificial intelligence for librarians. *Journal of Librarianship and Information Science, 56*(2), 330–340. https://doi.org/10.1177/09610006221142

Crawford, K. (2021). *The Atlas of AI: Power, politics, and the planetary costs of artificial intelligence.* Yale University Press.

Dang, J., & Liu, L. (2021). Robots are friends as well as foes: Ambivalent attitudes toward mindful and mindless AI robots in the United States and China. *Computers in Human Behavior, 115*, 106612. https://doi.org/10.1016/j.chb.2020.106612

Dixon, N., & Cox, A. (2025). Fiction writing workshops to explore staff perceptions of artificial intelligence (AI) in higher education. *AI & SOCIETY*, 1–16. https://doi.org/10.1007/s00146-024-02157-x

Dourish, P., & Bell, G. (2014). "Resistance is futile": Reading science fiction alongside ubiquitous computing. *Personal and Ubiquitous Computing, 18*(4), 769–778. https://doi.org/10.1007/s00779-013-0678-7

Ehrenpreis, M., & DeLooper, J. (2022). Implementing a chatbot on a library website. *Journal of Web Librarianship, 16*(2), 120–142. H.

Estampa. (2024). Cartography of generative AI. https://cartography-of-generative-ai.net/.

Fernandez, T., Godwin, A., Doyle, J., Verdin, D., Boone, H., Kirn, A., … Potvin, G. (2016). More comprehensive and inclusive approaches to demographic data collection. In *2016 ASEE annual conference & exposition, New Orleans, Louisiana.* https://doi.org/10.18260/p.25751

Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies, 15*(1), 6. https://doi.org/10.3390/soc15010006

Graham, M., Kitchin, R., Mattern, S., & Shaw, J. (Eds.). (2019). *How to run a city like Amazon, and other fables.* Meatspace Press. https://meatspacepress.com/how-to-run-a-company-like-amazon-and-other-fables/.

Grünenfelder, J. I., Zierau, N., & Janson, A. (2021). Alexa, are you still there? Understanding the habitual use of AI-based voice assistants. In *Proceedings of the 42nd international conference on information systems (ICIS 2021).* AIS Electronic Library (AISeL). https://aisel.aisnet.org/icis2021/is_implement/10/.

Guy, R., Pival, P. R., Lewis, C. J., & Groome, K. (2023). Reference chatbots in Canadian academic libraries. *Information Technology and Libraries.* https://doi.org/10.5860/ital.v42i4.16511

Hopkins, P., & Maccabee, R. (2018). Chatbots and digital assistants – Getting started in FE and HE. JISC. https://repository.jisc.ac.uk/7125/1/chatbots_and_digital_assistants_report.pdf.

Hosseini, S., & Seilani, H. (2025). The role of agentic ai in shaping a smart future: A systematic review. *Array.* , Article 100399. https://doi.org/10.1016/j.array.2025.100399

Huang, Y. H. (2024). Exploring the implementation of artificial intelligence applications among academic libraries in Taiwan. *Library Hi Tech, 42*(3), 885–905. https://doi.org/10.1108/LHT-03-2022-0159

Jisc. (2019). Horizons report on emerging technologies and education. https://repository.jisc.ac.uk/7284/1/horizons-report-spring-2019.pdf.

Kim, J., Kang, S., & Bae, J. (2022). Human likeness and attachment effect on the perceived interactivity of AI speakers. *Journal of Business Research, 144*, 797–804.

Kshetri, N. (2025). Revolutionizing higher education: The impact of artificial intelligence agents and agentic artificial intelligence on teaching and operations. *IT Professional, 27*(2), 12–16. https://doi.org/10.1109/MITP.2025.3550697

Lai, K. (2023). How well does ChatGPT handle reference inquiries? An analysis based on question types and question complexities. *College & Research Libraries, 84*(6), 974. https://doi.org/10.5860/crl.84.6.974

Leavy, P. (2016). *Fiction as research practice: Short stories, novellas, and novels.* Routledge.

Luckin, R., & Holmes, W. (2017). A.I. Is the new T.A. in the classroom. https://howwegettonext.com/a-i-is-the-new-t-a-in-the-classroom-dedbe5b99e9e.

Lund, B. D., & Wang, T. (2023). Chatting about ChatGPT: How may AI and GPT impact academia and libraries? *Library Hi Tech News, 40*(3), 26–29. https://doi.org/10.1108/LHTN-01-2023-0009

Luo, J. (2024). How does GenAI affect trust in teacher-student relationships? Insights from students' assessment experiences. *Teaching in Higher Education, 1-16*. https://doi.org/10.1080/13562517.2024.2341005

McNeal, M. L., & Newyear, D. (2013). Streamlining information services using chatbots. In *Library technology reports* (November/December).

Nathan, L. P., Klasnja, P. V., & Friedman, B. (2007). Value scenarios: A technique for envisioning systemic effects of new technologies. In *CHI'07 extended abstracts on Human factors in computing systems* (pp. 2585–2590).

Nelson, A. J., & Irwin, J. (2014). Defining what we do all over again: Occupational identity, technological change, and the librarian/internet-search relationship. *Academy of Management Journal, 57*(3), 892–928. https://doi.org/10.5465/amj.2012.0201

Okonkwo, C. W., & Ade-Ibijola, A. (2021). Chatbots applications in education: A systematic review. *Computers and Education: Artificial Intelligence, 2*, Article 100033. https://doi.org/10.1016/j.caeai.2021.100033

Paul, K. (2024). Autonomous agents and profitability to dominate AI agenda in 2025, executives forecast. Reuters. https://www.reuters.com/technology/artificial-intelligence/autonomous-agents-profitability-dominate-ai-agenda-2025-executives-forecast-2024-12-12/.

Phillips, R., & Kara, H. (2021). *Creative writing for social research: A practical guide.* Policy Press.

Rodriguez, S., & Mune, C. (2022). Uncoding library chatbots: Deploying a new virtual reference tool at the San Jose State University library. *Reference Services Review, 50*(3/4), 392–405. https://doi.org/10.1108/RSR-05-2022-0020

Russell Group. (2023). Russell Group principles on the use of generative AI tools in education. https://www.russellgroup.ac.uk/sites/default/files/2025-01/Russell%20Group%20principles%20on%20generative%20AI%20in%20education.pdf.

Selwyn, N., Pangrazio, L., Nemorin, S., & Perrotta, C. (2020). What might the school of 2030 be like? An exercise in social science fiction. *Learning, Media and Technology, 45*(1), 90–106. https://doi.org/10.1080/17439884.2020.1694944

Springshare. (2023). In *February 15). Springshare announces LibAnswers Chatbot. Library Technology Guides.* https://librarytechnology.org/pr/28515/springshare-announces-libanswers-chatbot.

Susskind, R., & Susskind, D. (2022). *The future of the professions: How technology will transform the work of human experts* (Updated ed.). Oxford University Press.

UNESCO. (2022). Recommendation on the ethics of Artificial Intelligence. https://www.unesco.org/en/articles/recommendation-ethics-artificial-intelligence.

UNESCO. (2024). AI competency framework for students. https://www.unesco.org/en/articles/ai-competency-framework-students.

Vincze, J. (2017). Virtual reference librarians (Chatbots). *Library Hi Tech News, 34*(4), 5–8. https://doi.org/10.1108/LHTN-03-2017-0016

Watson, A. (2021). Writing sociological fiction. *Qualitative Research.* https://doi.org/10.1177/1468794120985677

Wollny, S., Schneider, J., Di Mitri, D., Weidlich, J., Rittberger, M., & Drachsler, H. (2021). Are we there yet?-a systematic literature review on chatbots in education. *Frontiers in Artificial Intelligence, 4*, Article 654924. https://doi.org/10.3389/frai.2021.654924