AI bots: Our secret weapon for information literacy, info smarts and global thinking!

By Sarah Pavey

Snapshot

Sarah Pavey clearly explores the possibilities of Artificial Intelligence for how we educate students in information literacy arguing that exciting developments in AI can complement and enrich traditional practices. Pavey details how AI chatbots have the potential to make a significant impact on information literacy of all kinds, providing accessible and interactive support and empowering students to make informed decisions, and contribute positively in school, to the workplace, and in society.

UNESCO have called for mobile phones to be banned in schools to safeguard children's wellbeing and enhance their learning screamed the UK papers (Butler and Farah, 2023). This was the media's impression of the press release from UNESCO, 2023 that declares:

> *Countries are urged to set their own terms for the way technology is designed and used in education so that it never replaces in-person, teacher-led instruction, and supports the shared objective of quality education for all.*

Surely, this questionable interpretation drives involvement with the technology away from a safe environment protected by acceptable use policies and expertise to the wild west of the outside world. Who is benefiting? Maybe teachers will conduct lessons with less interruption and distraction, maybe assessment of work will be easier but is it helping students become information literate in an increasingly digital world? Claims are made that learning progress is hampered by mobile phones, but this is hard to gauge accurately when assessment is firmly based in the analogue rather than digital world. Visions of the luddites from the Industrial Revolution spring to mind.

It seems to me this dichotomy is happening in the world of Artificial Intelligence (AI) too as education authorities adopt a knee jerk reaction to an assumed but not proven threat. The English examination boards simply refuse to acknowledge that AI needs to be addressed at all, suggesting it is irrelevant because all assessment takes place in a room without access to the internet. What concerns me most about the examination board and JQC attitudes (JCQ, 2023), is that AI, even with all its current limitations, still helps students to understand that there is more to information handling than regurgitating facts. Maybe this technology will force formal assessments to value process and critical thinking alongside the end product, as found in the International Baccalaureate (IB) qualifications. Pushing these information literacy competencies further underground will only serve to widen the gap between school students and expectations

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for technology application use in higher education. Certainly Geoff Barton (General Secretary, Association of School and College Leaders) believes the development of AI highlights the need for an informed review of teaching and assessment (Barton, 2023) a view which seems more aligned with the UNESCO report. The report states that only 11 out of 51 governments worldwide have addressed AI technology use in their national curricula.

Recently the Australian Government have relented and are likely to allow the use of AI in public schools (Henebery, 2023). However, indications are they will follow the lead of universities and seek a return to using pen and paper in examinations to avoid students demonstrating competency in this new technology (Cassidy, 2023). Asking students to use handwriting in examinations when they have scant opportunity to practise this skill is like assuming a couch potato could run a marathon with no training! What a blinkered view. Why this obsession with debunking what will become an essential element of any workplace or higher education course? We should be teaching young people how to use this innovation responsibly. We should be embracing the skills AI development offers and capitalise on how it can enhance information literacy and global citizenship. We should be questioning our methods of assessment of learning and move from fact regurgitation to comprehension and demonstration of cognitive process.

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The UK's Medial and Information Literacy Alliance (MILA, 2023) has set out the reasons why it is vital we invest in improving the understanding of the digital and analogue worlds of information in the general population for a variety of reasons linked with definitions of information, digital and media literacy. Part of that responsibility must rest with schools. AI has been embedded in lesson plans since 2018 in China and is now being introduced to school students in the USA (Welk, 2020). So, should not all countries be adopting this approach too? China may have taken steps to limit screen time in schools but is not ignoring the advances in technology, just advocating for responsible use. France may have a ban on mobile technology but makes exceptions for pedagogical use and for students with special needs. Certainly, the International Baccalaureate Organisation has already adopted AI as an opportunity to move students onwards from rote learning of facts to thinking about how the concepts they uncover through independent research can be questioned, endorsed, or rejected. Their statement about ChatGPT and artificial intelligence in assessment and education (updated in June 2023) reads:

> *The IB believes that artificial intelligence (AI) technology will become part of our everyday lives—like spell checkers, translation software and calculators. We, therefore, need to adapt and transform our educational programmes and assessment practices so that students can use these new AI tools ethically and effectively. The IB is not going to ban the use of such software but will work with schools to help them support their students on how to use these tools ethically in line with our principles of academic integrity.*
> (IBO, 2023)

But just how will AI impact on information literacy competencies and how this is taught by school librarians? In 2018 CILIP (Chartered Institute of Library and Information Professionals) redefined

information literacy to encompass five areas of everyday living: education, the workplace, society, healthcare, and government & policy making. The intent is to create a more information literate population – a mission now promoted through MILA. If we accept that schools should be teaching these competencies, then maybe we can engage AI tools to play a role in supporting and realising each of these.

Education

AI tools can encourage students to think critically about the information they encounter, teaching them to question sources and consider multiple perspectives. Some chatbots such as Elicit (2023) guide students through academic papers related to the question they submit. And it is all about the quality of the questions posed to produce the most pertinent answers, a skill that needs to be practised. A chatbot can help with this too, offering quizzes and interactive activities to reinforce information literacy skills. AI could provide personalised support with research, source evaluation, proper citation, academic integrity, and ethical use of information helping students to become responsible users of information.

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Workplace

Preparation for the workplace, is now a core element of many school inspections. Some subjects such as design technology or business studies include projects simulating finding information for commercial intent. AI can assist students by providing quick access to company policies, procedures, and knowledge databases leaving more time to critically evaluate information from different sources, ensuring students rely on accurate data for decision-making and understand the importance of this.

Another perspective might be developing AI career coaches that could teach students about job searching and hiring skills - identifying information needs, finding and evaluating data and helping to create polished Curriculum Vitae.

Society

Getting a grip on social media and understanding the implications of personal actions can be taught through AI tools. In addition to fact-checking claims and providing evidence-based

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information to combat the spread of false information, these tools can engage with users on social media platforms, promoting media literacy by encouraging students to verify information before sharing it. AI chatbots can also raise awareness about privacy and data security, helping students become more informed about the risks associated with sharing personal information online.

Healthcare

AI assistants could guide students in finding reliable health information online, understanding medical terminology, asking informed questions to doctors, and safely managing personal health records. These life skills are vital to our wellbeing. AI chatbots can provide patients with accurate and reliable medical information, assisting them in understanding their conditions and treatment options. Chatbots can help healthcare professionals stay updated on the latest research and best practices, promoting evidence-based decision-making, and using such tools will be essential for anyone considering a career in this sector. Maybe questions around this topic would be raised during a university interview, so it is essential confidence is built at school in using this technology. To say that the use of technology creates a digital divide may be true in some instances, but during the African Ebola outbreak news programmes were littered with images of patients in isolation tents using mobile phones to contact and update relatives, even in the poorest countries. The world, each year becomes more connected, and AI can support public health initiatives by disseminating accurate information about disease outbreaks, preventive measures, and vaccination campaigns.

Government and policy-making

AI tutors could teach students how to stay objectively informed on political issues by accessing non-partisan legislative and policy sources and considering diverse viewpoints. Students studying history and politics will need an understanding of how the technology can assist policymakers and government officials in accessing relevant data and research for evidence-based decision-making. These tools can encourage citizens to be informed participants in the democratic process by providing access to reliable information on policies and candidates and this can even be applied within a school environment electing form representatives or prefects. Chatbots can promote transparency by answering citizens' queries and providing information about government activities and services. All this drives the move towards global citizenship and world peace.

Further possibilities for AI

We might argue that surely all the above falls into the remit of a school librarian so why do we need AI? The key is using AI's data analysis and personalisation capabilities to complement not replace our traditional classroom teaching and mentorship. This can expand students' access to instruction and practice to build competencies as responsible lifelong learners and information users across these domains. With the right guidance, AI can make students smarter consumers and creators of information.

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The rise of AI stands to simplify learning for students in numerous ways. With AI's ability to analyse large volumes of text, students can more easily grasp key concepts without having to slog through dense readings overloaded with extraneous details. Where students used to struggle with complex academic writing, AI tools can now re-explain difficult concepts in straightforward

terms that are much easier to comprehend. They can provide examples of how to integrate information from multiple sources to create a cohesive understanding of a topic. AI can provide feedback on drafts to improve information flow, argument logic and use of evidence. AI chatbots can help students understand how to apply the information they find in their studies or daily life. This allows students to focus more mental energy on understanding rather than deciphering complicated texts, reducing their cognitive load.

By scanning millions of sources, AI chatbots can instantly identify the most relevant, reliable information tailored to each student's needs. Rather than one-size-fits-all teaching, students receive a personalised learning experience with AI assessing knowledge gaps and recommending customised resources to fill them. Chatbots can engage students in conversations about various topics, prompting them to identify gaps in their knowledge or areas where they need more information. This helps students to hone skills in framing questions to ensure pertinent answers to their research and information needs. Through thought-provoking questions and challenges, AI chatbots can encourage students to think critically about the information they encounter. By prompting students to question and analyse information, chatbots foster the development of critical thinking skills. Even though the learning experience is personalised, AI facilitates collaborative learning among students. The tools can serve as a mediator in discussions related to media, information, and critical thinking, encouraging students to share ideas and learn from one another.

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Moreover, AI plays a crucial role in promoting academic integrity. Through sophisticated plagiarism detectors, it compares students' work against extensive databases to identify any copied or unoriginal content, emphasising the importance of proper citation and attribution in the correct format. Chatbots can educate students about the importance of respecting copyright and intellectual property rights.

Best of all, AI offers real-time feedback on student work, acting as an always-available coach to help polish citations, arguments, evidence usage, and more. When students encounter misleading information or biased sources, the chatbot can intervene, correct misconceptions, and offer guidance on evaluating the credibility of sources. AI can engage students in interactive learning experiences by presenting information literacy concepts, media literacy techniques, and critical thinking skills in a conversational format, making the learning process more enjoyable and engaging. With these AI capabilities reducing busywork and complexity, students can dedicate more time to genuine learning and skill building. Chatbots can also track students' progress and provide insights to us as librarians. This data can help us identify areas where students might need more support and tailor our instruction accordingly.

Overall, AI chatbots have the potential to make a significant impact on information literacy across various domains. By providing accessible and interactive support, these tools can empower

students to navigate the vast sea of information effectively, make informed decisions, and contribute positively in school, to the workplace, and in society.

One significant advantage of AI is the scalability in comparison with our role as librarians. AI can provide personalised guidance to many students simultaneously, freeing us up to concentrate on more complex and higher-order tasks that require human expertise. Additionally, AI offers the advantage of availability beyond school hours, allowing students to access continued learning support and practice opportunities whenever they need it. Nonetheless, while AI may be a helpful tool, it cannot wholly replace the wisdom and judgment of school librarians. We bring indispensable qualities to the educational landscape that AI cannot replicate. One such quality is our empathetic guidance, connecting with students on a human level, motivating them and fostering a positive learning environment. Moreover, when faced with complex and nuanced issues, we can rely on our intuition and experience to provide context-specific solutions, demonstrating our adeptness in complex problem-solving. We focus on the holistic development of students' information skills, nurturing well-rounded lifelong learners. We instil ethical grounding in students, teaching them the importance of responsible information use. These essential human qualities of empathy, complex problem-solving, big picture development, and ethical guidance make school librarians irreplaceable in the mission to equip students with robust information literacy skills. In summary, while AI tools offer valuable advantages, school librarians' unique expertise remains an indispensable asset in the path to creating an information literate society.

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The ideal scenario is AI and librarians working together – school librarians establishing the information literacy curriculum, overseeing AI tools, and handling higher-level instruction and AI tools handling routine tasks, so we, as librarians can focus on relationship-building and complex skill development. Rather than replacement, we should be looking to collaboration.

Chatbot GPT (2023) may have hit the headlines but there is far more development behind the scenes in AI technology and this is having an impact on the school curriculum and upon information literacy competencies. Welk, 2020 suggests focus is on 5 big ideas where intelligent robots can have influence – perception (robots using visual sensors), representation and reasoning (where robots construct models and then use these to debate and resolve issues), learning (where robots can learn from the information they have been given to construct new content), natural interaction (where robots use natural language to help humans feel more comfortable and safe conversing with them) and social impact (will robots affect how we live our lives in the future?). The Gartner Hype Cycle for Artificial Intelligence (Gartner, 2022) gives us clues about future development too. There are four main areas of development – data-centric AI, model-centric AI, applications-centric AI and human-centric AI. Although we are unlikely to see self-driving cars and robots with inherent general knowledge intelligence as commonplace for another 10 years, using computers to analyse visual material is already at launch point. On our personal devices, this technology will help students and staff create 3D models and scenes

and develop our learning pathways through using a multisensory approach. How exciting is that? But will it be allowed or banned?

Conclusions

It is impossible now to place the genie back in the bottle and we will in future need to work with AI tools. This will require some effort to understand its advantages and limitations and yes, it

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is an easy option (and probably a cheaper option) just to impose a block. Because AI masters its own learning from experience, the sophistication can only grow, and far more rapidly than a human would be able to assimilate the same degree of information and reasoning. The limitations on currency of knowledge, poor referencing, cited as reasons why students would still need to edit content, within a short time will no longer be valid. We simply cannot afford to ignore the advancements being made and we need to adapt and change our approach to learning, no matter how uncomfortable that may be.

When I first studied for my master's degree in information science in the 1980s, we were told we were living in a time of technological change and that the T part of IT was at the core. However, we were informed that in our lifetime the I for information would eventually assume even more importance so has that time arrived now? The emphasis on combating plagiarism is shifting towards to a focus on academic integrity and the importance of legacy setting a solid base for inventions to come in future generations. By doing this we are helping young people to understand the growth of global citizenship through 'standing on the shoulders of giants'. We have, in society, through information literacy managed move our attitude towards climate change. Not that long ago we were obsessed with spotting incidences of pollution and imposing sanctions but now there has been a fundamental change of perspective towards prevention and redressing the damage done. Maybe AI will prove a useful ally in helping highlight the impact on society of poor information management, manipulation and understanding. AI being a computer programme has no real wisdom about the information it offers and lacks empathy so maybe it will allow us to concentrate on what the human brain does best while taking the tedium out of routine tasks. Maybe that goal of an information literate society has nudged just a bit closer to reality using collaborative practices between advanced technology and expert navigation with school librarians steady at the helm.

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