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ChatGPT in June 2023: An annotated bibliography for ALL professionals

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This annotated bibliography includes 10 of the most interesting texts on ChatGPT published between January and May 2023. They are a radio broadcast, articles written by university educational innovation departments, peer-reviewed empirical research articles, a white paper, and a government framework. The bibliography covers all of the ChatGPT topics an Academic Language and Learning (ALL) educator needs for an up-to-date opinion on it in June 2023, but with extra focus on innovative learning applications for both teachers and students. It was written to be current, concise and accurate; useful, interesting, occasionally entertaining, and engaging.

Contents

1. The big media discussion around ChatGPT, exams, and integrity

Moore, A. (Presenter) (2023, January 17). *How will universities confront the rising use of AI in academia?* [Radio Broadcast]. ABC Melbourne. https://www.abc.net.au/melbourne/programs/mornings/how-will-universities-confront-the-rising-use-of-ai-in-academia/101862702

In this broadcast, the hosts and guests on *ABC Radio Melbourne* explore whether using AI for writing assignments is cheating and how educators can detect and address the issue. The guests emphasise the importance of students acknowledging their use of AI tools and the need to educate students and academics on academic integrity and the responsible use of AI. They also mention the challenges of detecting AI-generated text and how the current concerns are just the beginning of the upcoming educational issues around generative AI. The conversation covers comparison

with calculators, the possible replacement of written assessments with other forms, and the need for ongoing discussion and adaptation of modes of assessment by academics and educational designers in order to protect academic integrity. The guests acknowledge that tertiary education faces particular challenges in detecting AI use compared to schools because of a greater reliance on digital and remote assessment.

Despite its rigid organisation, the interview manages a reasonable depth of analysis on whether AI-assisted writing should be considered cheating, the importance of acknowledging AI use, and the need for further education on academic integrity and more sophisticated detection methods. The two guests are a Deputy Vice-Chancellor Academic and an Associate Professor and Director of Digital Learning at a leading Australian university who appear knowledgeable and reasonable except perhaps when suggesting that tutors and lecturers could detect AI cheating by getting to know their students better. The interview is published on the website of *ABC Radio Melbourne*, a reputable news organisation, but also the national broadcaster of Australia. The interview offers useful insights into the discussion surrounding the use of AI tools in academia, particularly in writing assessments, which make up a large bulk of assessments for undergraduates in Australia.

2. An overview of the implications of ChatGPT

Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2023). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*. https://doi.org/10.1080/14703297.2023.2195846

This article provides a comprehensive SWOT analysis of ChatGPT, with a specific focus on its implications for the field of education. Strengths identified include the generation of plausible responses, continuous improvement, and the ability to provide personalised, real-time answers, all of which could transform how education is delivered and accessed. Weaknesses such as lack of deep understanding, difficulty in evaluating response quality, the potential for bias, and absence of higher-order thinking skills are also critically explored, offering insight into potential barriers to the full integration of ChatGPT in the educational sphere (although since March 27th, a new version of ChatGPT with significantly greater capabilities has been released, as shown by Figure 4 in OpenAI (2023, p. 6)[1]). The research of the present article supplies a pragmatic analysis of potential threats and the ethical considerations of incorporating ChatGPT into education, including issues of academic integrity, the perpetuation of discrimination, and decrease in higher-order cognitive skills. This ethical reflection is crucial as we navigate the uncharted territory of AI in education and strive to ensure fairness, equity, and quality in teaching and learning. The article not only outlines problems, but also provides an insightful roadmap for educational practice and research. The authors propose changes in curriculum design, assessment methods, and the process of learning to better incorporate ChatGPT and similar AI technologies. Furthermore, the call for further empirical research indicates a realistic understanding of the need for continued investigation and refinement as AI evolves and becomes further embedded in our educational practices.

Although the SWOT framework sometimes feels inappropriate and incongruous as a way of evaluating technology development as fast-paced and dynamic as AI, this is acknowledged by the authors and more than made up for by their comprehensive assessment of the topic.

[1] OpenAI. (2023). *GPT-4 Technical Report* (v3). https://arxiv.org/abs/2303.08774

3. How to uphold academic integrity in the short-term

LX Team. (2023, February 21). *Short-term approaches to mitigation and AI literacy.* LX Team Publications. https://lx.uts.edu.au/collections/artificial-intelligence-in-learning-and-teaching/resources/short-term-approaches-to-mitigation-and-ai-literacy/

In this post, the authors present a compelling argument for immediately integrating generative AI technologies into assessment design, while concurrently upholding academic integrity. Emphasising the imperative of AI literacy, the text provides a praxis-orientated blueprint for initiating critical dialogues regarding the use, expectations, and limitations of AI, specifically large language models such as ChatGPT, within educational circles. The authors support the paradigm shift from focussing on AI as a potential challenge to academic integrity, to recognising it as a catalyst for enhancing pedagogical practises and learning outcomes. They underscore the criticality of transparent communication on AI usage, the establishment of comprehensive guidelines, and the strategic modification of assessments to incorporate authentic experiences beyond the capability of AI to replicate. This exploration, which is disruptive and forward-thinking, posits a democratised interaction with AI, fostering a symbiotic relationship with higher education that could shape pedagogical norms.

A specific highlight of the article is promoting students' use of AI combined with explicit usage guidelines, but also clever re-weighting of rubrics to move marks towards original thought and nuanced analysis that AI cannot easily recreate. Another ingenious idea is to incorporate minor assessment redesigns including personal and unique experiences, or relating assessment questions to specific texts where AI factual inaccuracies could be more easily spotted. This article is part of an excellent series called, *Artificial Intelligence in Learning and Teaching*, published on the UTS website.

4. An overview of what ChatGPT can do for Individual ALL Educators

Kohnke, L. M. A., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for Language Teaching and Learning. *RELC Journal*. https://doi.org/10.1177/00336882231162868

The authors identify and exemplify various novel applications of ChatGPT such as the clarification of word meanings, generation of texts across genres, provision of definitions and examples, adjustment of linguistic complexity, and even formative assessment of texts. Alongside the excitement around these innovative uses, the article offers a critical appraisal of ChatGPT, discussing limitations such as a lack of accuracy that can extend all the way to total fabrication, ethical concerns about misuse and academic integrity, and cultural bias developed and developing from the source database (English text) and algorithms. The article is most interesting for two aspects, however; first, its detailed examples of the advantages and disadvantages of ChatGPT allow the reader to fully comprehend and recreate these features in their own use of ChatGPT. Second, the article contains a final section arguing that the skills required to navigate and maximise the advantages of tools like ChatGPT are currently beyond the capabilities of many educators, which could hinder its full integration into educational settings for the foreseeable future. Despite this capability lack, the article recognises the transformative role of AI in language education and concludes that the best course of action is to promote the principled use of AI-driven educational technology.

This scholarly work presents a broad coverage of the transformative influence of ChatGPT within the realm of foreign language education and an in-depth exploration of its impact and multidimensional implications for language instruction and acquisition. It is published in a reputable peer-reviewed academic journal and is authored by a highly cited academic who is well-established in the field of teaching and learning enhancement. The content is of particular significance to academic language and learning educators aiming to infuse their instructional practices with

technological innovation and foster dynamic, future-proof, learner-centric language education environments.

5. Practical applications for teachers and students

Liu, D., Ho, E., Weeks, R., & Bridgeman, A. J. (2023, January 20). *How AI can be used meaningfully by teachers and students in 2023*. Teaching@Sydney, the University of Sydney. https://educational-innovation.sydney.edu.au/teaching@sydney/how-ai-can-be-used-meaningfully-by-teachers-and-students-in-2023/

For teachers, the article suggests several ways to use AI, including generating quiz questions and feedback, designing marking rubrics, creating exemplars for critique, generating discussion prompts, and writing lesson plans. It also offers sample prompts showing how to do each of these tasks with ChatGPT. Students can have teacher-student conversations with the AI where the AI is the student. They can engage it in Socratic discussions, overcome writer's block by using it to draft prompts or outlines, discuss programming concepts, and explore diverse perspectives. The article encourages the incorporation of AI into assessments in creative ways, such as having students generate AI responses and critically evaluate them. It emphasises the importance of setting boundaries, managing expectations, and promoting transparency when using AI in the learning process. In general, AI is shown to be a tool that can improve teaching and learning experiences when used appropriately and in accordance with educational goals.

This article explores a wide range of AI uses for teachers and students with enough depth and, most importantly, with examples of the prompts required to put ideas into action. This is a goldmine of information for any educator planning to use AI. The information presented is accurate and aligned with the latest understanding of generative AI's capabilities in education. Specific examples of how AI can be used by teachers and students to save time, improve participation, and facilitate learning processes are given. The article is written by leading educators, published on the official website of the University of Sydney, and is part of the Artificial Intelligence and Education at Sydney series, which comes strongly recommended.

6. A case study of students using AI

LX Team. (2023, March 10). *AI case study: Legal practice with Dr Evana Wright.* LX Team Publications. https://lx.uts.edu.au/collections/artificial-intelligence-in-learning-and-teaching/resources/ai-case-study-dr-evana-wright/

In this innovative case study, the LX Team at the University of Technology (UTS) implements generative AI in legal studies, focusing on how this disruptive technology can impact the traditionally manual field of law. Dr Wright introduces an assessment task for her students to prepare them for the legal ramifications of emerging technologies, incorporating a critical analysis and self-reflection. First, ChatGPT, "Critically analyses the definition of personal information in the Privacy Act 1998 (Cth)", and students respond to the answer by critically evaluating their own research and displaying authorial voice. Second, students self-reflect using a further AI tool, AcaWriter, which is proprietary to UTS, and draw a conclusion on the future use of AI in legal writing. Initial results suggest that ChatGPT generates incorrect or limited responses to questions about Australian law and privacy legislation, although this may already be changing (see Figure 4 in OpenAI (2023, p. 6)[2]).

The implication of the article is that students of law must not only learn to use ChatGPT and other generative AI as a way of rapidly finding and analysing content, but also be able to evaluate and critically assess AI output and understand the rapidly changing legislation around how AI content

[2] OpenAI. (2023). *GPT-4 Technical Report* (v3). https://arxiv.org/abs/2303.08774

can be ethically and legally used. Educators need to do the same, whilst also maintaining the integrity of the education and assessment system, but, equally importantly, not impeding the development of their discipline or cohort regarding these tools. One AI topic this article did not cover is the essential skill of prompt engineering for current and future legal practice.

7. ChatGPT as a proofreader

Fang, T., Yang, S., Lan, K., Wong, D. F., Hu, J., Chao, L. S., & Zhang, Y. (2023). Is ChatGPT a Highly Fluent Grammatical Error Correction System? A Comprehensive Evaluation. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2304.01746

Fang et al. (2023) present a comprehensive evaluation of ChatGPT in the area of Grammatical Error Correction (GEC). They design zero-shot chain-of-thought (CoT) and few-shot CoT settings using in-context learning for ChatGPT and assess its performance on five official test sets in three different languages, along with three document-level GEC test sets in English. The results and human evaluations show that ChatGPT has excellent error detection capabilities and can freely correct errors to make the corrected sentences very fluent. However, it tends to overcorrect and does not adhere to the principle of minimal edits. ChatGPT also performs well in non-English and low-resource settings, highlighting its abilities in multilingual GEC. The study identifies limitations in ChatGPT's ability to correct certain types of errors across sentences, such as agreement, co-reference, tense errors across sentences, and cross-sentence boundary errors. Overall, ChatGPT shows promise in GEC, but has room for improvement in the specified areas.

This recent article is found in an online digital archive for scientific papers and is associated with a reputable university. It is written by well-published academics from science, technology, and IT faculties, several of whom are highly cited. What differentiates this article is the breadth of its evaluation methodology, including automatic metrics, human evaluations, and analysis of error types. It also delves deeply into the potential of ChatGPT in multilingual and low-resource settings, showcasing its advantages over other models. Academic language and learning educators will find this article highly relevant, as the large language model has excellent Grammatical Error Correction (GEC) capabilities and demonstrates a high degree of fluency in its corrected sentences. Although it struggles to correct certain types of errors, it has the potential to significantly reduce the burden on educators who perform similar tasks as part of their work.

8. A glimpse of AI's future potential

Kung, T. H., Cheatham, M., Medenilla, A., Sillos, C., De Leon, L., Elepaño, C., Madriaga, M., Aggabao, R., Diaz-Candido, G., Maningo, J., & Tseng, V. (2023). Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models. *PLOS Digital Health*, *2*(2), pp. 1-12. https://doi.org/10.1371/journal.pdig.0000198

This study evaluates the performance of ChatGPT on the US Medical Licencing Exam (USMLE) to assess its potential in medical education and clinical decision making. Without specialised training, ChatGPT performed at or near the passing threshold for all three USMLE exams. The model also demonstrated a high level of concordance and provided insightful explanations. The findings indicate that large language models such as ChatGPT could have the ability to assist with medical education and potentially improve clinical decision-making. Trust and explainability are crucial in the development of clinical AI systems, and this study serves as an important step in evaluating these qualities. ChatGPT's performance on the USMLE, achieving a benchmark of 60% accuracy, is a significant milestone in the maturation of AI. In particular, ChatGPT accomplished this without specialised input from human trainers, and as can be seen in Figure 1, as of March 27th OpenAI's latest model ChatGPT 4 has shown a significant advance in these capabilities, even though it did not specifically complete the USMILE. The comprehensible reasoning of the model and valid clinical insights further enhance confidence in its trustworthiness and

explainability. The study suggests that integrating large language models such as ChatGPT into medical education could benefit human learners and pave the way for future integration into clinical decision-making processes.

The article empirically proves that AI language models are now sophisticated enough to pass high-level medical exams, which is quite spectacular. It also briefly touches on the potential benefits of integrating large language models into medical education and clinical decision-making. The study is published in a peer-reviewed journal known for its rigorous evaluation process, by authors whose affiliations suggest expertise in the field, so it is extremely credible. Although its direct relevance to academic language and learning education may be limited, the potential of ChatGPT to educate and support decision-making in medicine can be extrapolated to many other fields of human expertise, and an empirical study proving its effectiveness is thought-provoking regarding what we teach and our students' futures.

9. Educators. Your opinions, please!

Venaruzzo, L., Ames, K., & Leichtweis, S. (2023). *Embracing AI for student and staff productivity: An ACODE Whitepaper based on the ACODE 88 Workshop and Roundtables*. [White Paper] ASCILITE Publications, 1-8. https://www.acode.edu.au/pluginfile.php/13426/mod_resource/content/1/ACODE88-Whitepaper.pdf

This white paper provides an overview of the Australasian Council on Open, Distance and e-Learning (ACODE) 88 workshop, which explored the challenges, strategies, tools, and opportunities associated with incorporating AI in learning and teaching. The workshop had a diverse range of attendees, including teaching academic staff, educational designers, and technologists. The paper highlights the recommendations developed based on workshop discussions, roundtables, and survey responses.

Key recommendations from the participants include:

1. Embracing AI in learning, teaching, and assessment while considering potential risks and challenges, such as academic integrity concerns and workload issues.
2. Fostering a culture of transparency, collaboration, and partnership between educators, students, and AI experts to ensure ethical and effective use of AI.
3. Developing evidence-based support systems and guidelines for AI use in education and regularly updating them to keep up with developments and challenges.
4. Identifying and providing appropriate training and professional development opportunities for educators to enhance their AI competencies.
5. Considering the potential impact of AI on equity and accessibility and designing AI solutions that benefit all students, regardless of their background.
6. Collaborating with external bodies to align educational responses to AI across different education sectors.
7. Monitoring and evaluating the impact of AI on learning, teaching, and assessment and making necessary adjustments based on evidence.
8. Prioritizing assessment redesign to minimize the use of AI-based tools by adopting more authentic forms of assessment.

This white paper offers recommendations based entirely on its attendees and survey respondents who represent many in the tertiary sector. There is an overwhelming move to embrace AI while considering potential challenges and ensuring ethical and equitable practices. The paper highlights that AI is not just a technology or education issue but also impacts social interactions, behaviour, and expectations. Finally, the paper ends with a long list of excellent resources for ALL professionals interested in AI.

10. A government framework of ethics

Australian Government Department of Industry, Science, Energy and Resources. (2023). *Australia's AI Ethics Principles.* https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles

This optimistic governmental document outlines eight voluntary AI ethics principles intended to guide the development and deployment of AI technologies, including in the education sector. These principles underscore human, societal, and environmental well-being; human-centred values; fairness; privacy protection and security; reliability and safety; transparency; contestability; and accountability. The principles, taken directly from the IEEE website, are the government's attempt to allay public concerns, recommend but not impose ethical conduct, and promise wide-ranging societal benefits from the proliferation of AI. They impress upon us that AI will bolster societal outcomes, "enable diversity" (exactly how is not clearly explained), and "augment, complement and empower human cognitive, social and cultural skills." There is less mention of the inevitable data-based bias against underrepresented groups and the potential for massive job loss to automation. They also make it clear that this is merely a framework, and the responsibility for AI outcomes lies at the doorsteps of all parties involved in the AI lifecycle, including us.

Regardless of the ultimate thoughtfulness, sincerity, or effectiveness of this framework, it underscores eight incontestable ethical principles that *should* guide the development of AI. And, in the tertiary education landscape, where we have the support of liberal colleagues, unions, ethics committees, and fewer underrepresented groups to remind us that they are being biased against, we have the opportunity to support these AI Ethics Principles more than most.

Acknowledgements

This annotated bibliography was written with the liberal use of ChatGPT-4. It helped us to summarise the shorter texts and rephrase some of our duller sentences. Although we attempted to use ChatGPT-4 to summarise longer articles, such as those from RELC and Innovations in Teaching International, we found it had an input limit of around 2,500 words, and segmenting articles led to poor results. We critically evaluated and edited all of its output, and the 'evaluative' sections of each annotated bibliography came from us only. Finally, it checked our spelling.