**Improving Saskatchewan Middle Years Student Engagement: Exploring the impact of AI-Powered tools on Instructional Design and the Learning Environment**

**Annotated Bibliography**

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Bai, J. Y. H., Zawacki-Richter, O., & Muskens, W. (2024). Re-examining the future prospects of

artificial intelligence in education in light of the GDPR and ChatGPT. *The Turkish Online Journal of Distance Education TOJDE*, *25*(1), 20–32. <https://doi.org/10.17718/tojde.1248901>

The EU’s GDPR (General Data Protection Regulation) is one of the most heavily regulated privacy laws in the world. In light of AI’s exponential growth in education, there have been significant ethical concerns regarding governance of data. Resulting risks such as academic dishonesty, privacy breaches and lawsuits underscore the importance of thoughtful implementation when it comes to youth in education. Researchers urge the analysis of the function of assessment and emphasize the importance of active student participation in the development of policies around AI in Education. “The potential for AI technologies to transform education provides an opportunity to reexamine what it means to teach and learn” (Bai, Zawacki-Richter & Muskens, 2024, p. 23). The GDPR serves as a model for AI regulation and highlights the importance of balancing risk with potential.

Bastani, H., Bastani, O., Sungu, A., Haosen, G., & Kabakcı, O., & Mariman, R. (2024)

Generative AI Can Harm Learning. *The Wharton School Research Paper.* <http://dx.doi.org/10.2139/ssrn.4895486>

AI is likely to impact educational settings, particularly in its ability to improve productivity and efficiency, however limited research exists on how its use will impact learning. A small study of approximately 1000 students was conducted where a custom math tutoring program based on OpenAI’s ChatGPT-4 was designed to help students solve problems. Students had access to a basic version of ChatGPT, a special tutor ChatGPT or access only to traditional pen and paper activities. During practice sessions, students using AI scored approximately 50-100% higher than their peers. However, during the closed book tests, they scored 17% below their pen and paper peers. Educators are cautioned that while generative AI can make tasks easier for humans, they can deteriorate human ability to build skills required to solve these tasks on their own. There is a marked risk for learning loss due to the use of AI to replace learning tasks. While research in this field is rapidly unfolding, there still is not much information available for educators to make informed decisions about the use of AI in schools. It is important for educators to understand the potential risks of AI so that they can make informed decisions in the classroom.

Common Sense Privacy Program. (2024). Privacy ratings. Common Sense Media. <https://privacy.commonsense.org/resource/privacy-ratings>

 A comprehensive app evaluation process is required to support education stakeholders (parents, educators, consumers, experts, researchers and policy makers) in choosing apps that meet requirements for key privacy concerns. The Common Sense Privacy Program offers three potential screening processes to evaluate apps for students. The first, a “Quick Evaluation,” requires that approved apps would not allow the following six conditions: data to be sold, third-party marketing, targeted advertisements, third-party tracking, across-app tracking or profiling for commercial purposes. Deeper exploration of privacy categories can be found on “Basic Evaluations” (30 conditions) or “Full Evaluations” (155 conditions). This site provides simple-language instructions and checklists to help stakeholders understand both terms and conditions, as well as privacy policies.

Firth, D., Derendinger, M., & Triche, J. (2024). Cheating better with ChatGPT: A framework for teaching students when to use ChatGPT and other generative AI bots. *Information Systems Education Journal*, *22*(3), 47–60. <https://doi.org/10.62273/BZSU7160>

When is the use of AI appropriate, and when is it cheating? Firth, Derendinger & Triche (2024) propose a new, but field tested, framework to help students and educators determine when it is appropriate to use generative AI. After outlining rapid technological advancements in society, perceived risks of AI to the institution of education and resistance to AI’s use, authors advocate for conditional AI use in educational settings. Two tools: a simple flowchart and a more nuanced 2x2 matrix were developed and trialed to empower students to determine if AI use was appropriate for their compositions. Authors assert that students thoughtfully using AI as a tool will encourage them to invest in their own learning and that schools must embrace cultural change to prepare students for the world. This article provides a quality example that teaching intentional AI use has the potential to increase creativity and critical thinking, as well as providing suggested conditional use criteria.

Giannakos, M., Azevedo, R., Brusilovsky, P., Cukurova, M., Dimitriadis, Y., Hernandez-Leo, D., Järvelä, S., Mavrikis, M., & Rienties, B. (2024): The promise and challenges of generative AI in education. *Behaviour & Information Technology*, 1–27. <https://doi.org/10.1080/0144929X.2024.2394886>

Deep consideration of efficacy, implications, ethics and pedagogical soundness is required before educators adopt Generative Artificial Intelligence (GenAI). Nine leading experts in learning technologies contribute to this rich resource that explores opportunities and risks associated with GenAI. Authors assert that the decision to adopt AI in education must align with human values, have a research agenda, be designed to work ethically (combatting bias/disinformation), have supporting policies and be used by competent individuals. AI has the potential to enhance the creative, human-centred learning process, however, authors warn against the high likelihood of abuse and misuse in schools. “GenAI tools are some of the most transformative tools developed” and may “revolutionize different aspects of teaching and learning” (Giannakos et al., 2024, p. 29). This is an important warning to share with prospective educational GenAI users.

Hamilton, A., Wiliam, D., & Hattie, J. (2023). The Future of AI in Education: 13 Things we can do to Minimize the Damage. Pre-Print. <https://doi.org/10.35542/osf.io/372vr>

 In this pre-print paper, Hamilton, William and Hattie review the risks of the rapid advancement of AI on our ability to learn and grow as a collective human society. They explore history, brain science, scenarios and recommendations. Authors compare current and prospective human and AI performance on a variety of tests and tasks. They also identify potential short- and long-term implications for work, education and society. With recommendations taken, authors can foresee a skeptically optimistic future with AI. Filled with visuals, interesting facts and humour, this article is deep, current and research supported must-read. Similar to other publications, the need for careful implementation in educational settings is emphasized.

Hristovska, A.. (2023). Fostering media literacy in the age of AI: Examining the impact on digital citizenship and ethical decision-making. *Kairos*, *2*(2), 39–59.

Integrating media literacy education with AI education is crucial to enhance individuals’ abilities to navigate the information rich world that we live in. Hristovska conducted a literature review and research survey, (including an experiment on participants response to fabricated news). Data collected indicates that while most participants use unreliable social media as a primary source of news, they “are motivated to fact-check information when provided with improved fact-checking resources and interactive tools”. This finding underscores the positive impact that media literacy has on individuals understanding and analysis of media content. Concluding recommendations stress not only educational efforts, but also technology development and a responsibility placed on the media to ensure information is credible and to cite AI-generated content.

Kay, R. (2018). Creating a framework for selecting and evaluating educational apps. *INTED2018 Proceedings.* 374-382. <https://doi.org/10.21125/inted.2018.0106>.

This article is a conference paper shared at the 2018 International Education Conference. The author is from the University of Ontario Institute of Technology. The paper reviews research in the field, types of educational apps and characteristics of effective apps. There is a simple proposed framework to use as a guide when evaluating educational apps. The eight characteristics include: learning value, content quality, learning goals, usability, engagement (behavioural, emotional and cognitive), challenge level, feedback and collaboration.

Picton, I., & Clark, C. (2024). Children and young people’s use of generative AI to support

literacy in 2024, London: National Literacy Trust.

This summary report based on data from more than 50 000 children is compiled based on a survey conducted in the UK in 2023-2024. The link to the complete study is included in the report. Summary findings indicate that approximately 76% of youth aged 8-18 have used AI for the purposes of entertainment, curiosity and homework. Comparatively, 47% of teachers are currently using AI. In surveys, educators express concerns about the risks of AI, and their lack of training to use it effectively and ethically. Overall, the findings indicate that over the past year, youth use and teacher use of AI has increased dramatically, with little to no systemic direction or basic competency training. These statistics no doubt have implications on the future of education, student engagement and instructional design.

Swindell, A., Greeley, L., Farag, A., & Verdone, B. (2024). Against artificial education:

Towards an ethical framework for generative artificial intelligence (AI) use in education. *Online Learning (Newburyport, Mass.)*, *28*(2). <https://doi.org/10.24059/olj.v28i2.4438>

A critical reflection paper, prominent educational philosophers are cited to answer the question: “how can AI be employed in future educational contexts in a humanizing and ethical manner,” (Swindel et al., 2024. p.1). The foundational writings of Anders, Foucault, Friere, Bloom and Arendt in relation to rapid technological advancements and AI are used to develop an ethical framework. The philosophical framework sets parameters, calling for: 1) an acknowledgement of the ways history, technology and social contexts shape us, 2) critical thought about AI’s bias and interests, 3) co-construction of knowledge with AI to promote humanization and critical consciousness, 4) an understanding of how AI may complement instructional design: thought and purpose of learning, and 5) a focus on action-oriented learning to “build lasting contributions to the habitability of the world” (Swindel et al., 2024. p.12). Authors assert that teachers and instructional designers must use the framework to implement AI ethically and that further research is required.