

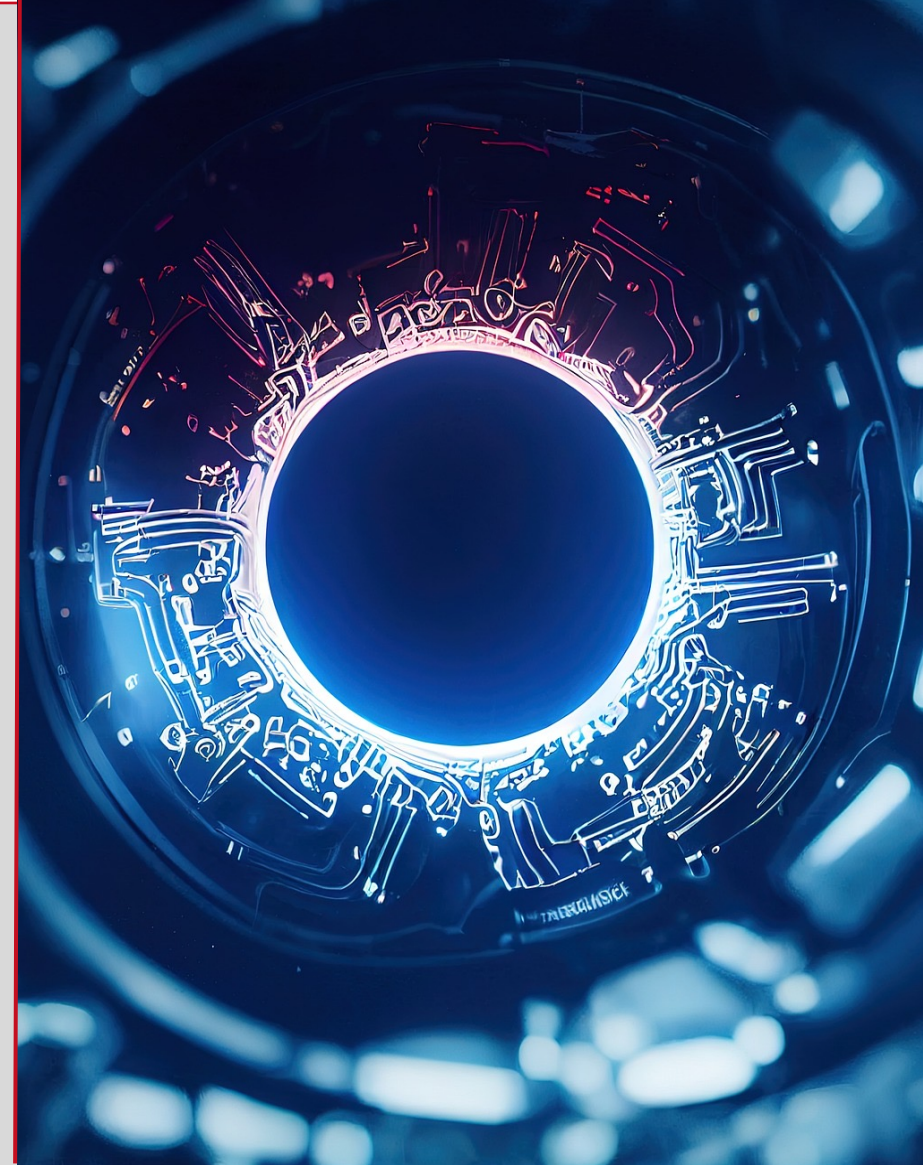
Understanding the Impact of Artificial Intelligence on Higher Education

Public Lightning Talks

University of Calgary

June 8, 2023

9:30 AM – 3:00 PM (MDT)



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The University of Calgary, located in the heart of Southern Alberta, both acknowledges and pays tribute to the traditional territories of the peoples of Treaty 7, which include the Blackfoot Confederacy (comprised of the Siksika, the Piikani, and the Kainai First Nations), the Tsuut'ina First Nation, and the Stoney Nakoda (including Chiniki, Bearspaw, and Goodstoney First Nations). The City of Calgary is also home to the Métis Nation of Alberta Region 3.



Acknowledgements

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- Social Sciences and Humanities Research Council of Canada (SSHRC)
- University of Calgary International Research Partnership Workshop Grant
- University of Calgary Teaching and Learning Grant
- Werklund School of Education, University of Calgary
- Brock University
- Toronto Metropolitan University
- University of Saskatchewan

Twitter hashtag: [#AlinHE23](#)

Future-Authentic Assessment and Generative Artificial Intelligence

Phillip Dawson, Deakin University

June 7-9, 2023



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GenAI and future-authentic assessment



GenAI can do a lot of what we currently assess



We probably can't and shouldn't ban it



Assessment needs to prepare students for their future, not our past

Duty to Engage: A Call to Teach Emerging Artificial Intelligence Tools

Brenda McDermott, University of Calgary

June 7-9, 2023



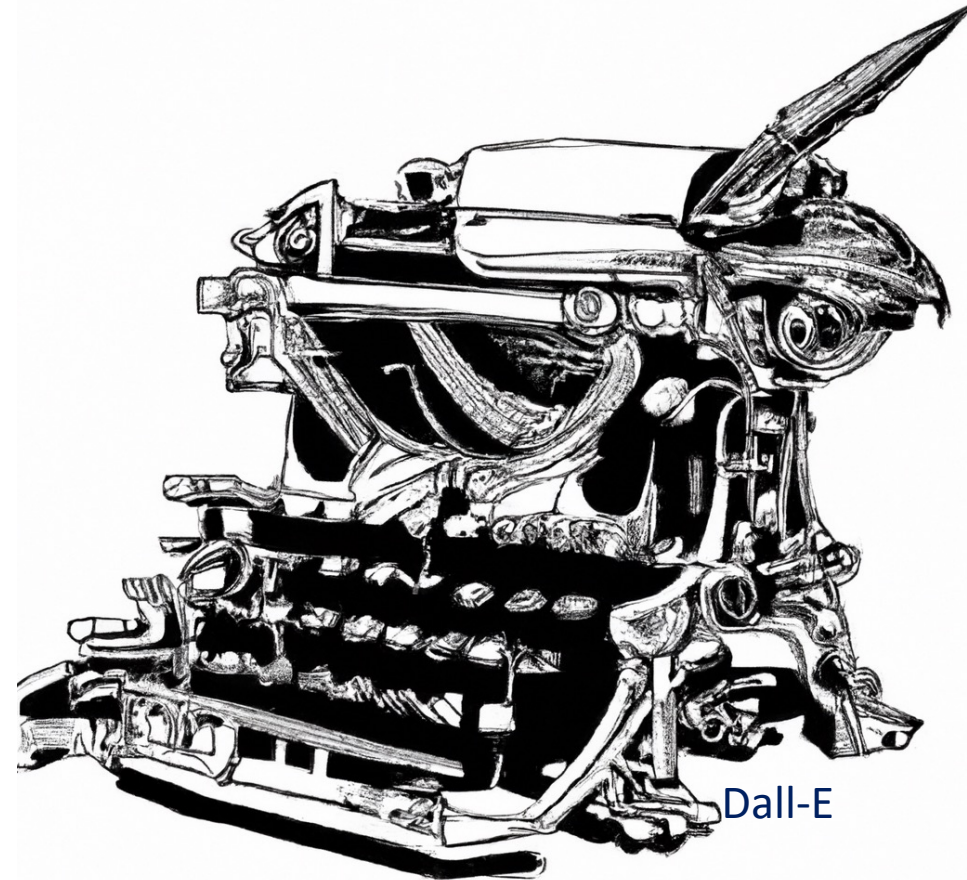
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Generative AI as Watershed Moment for Assessment

“Today we are facing a new sort of plague, one that threatens our minds more than our bodies. ChatGPT, the artificial intelligence chat bot that can write college-level essays, is going viral” (Weissman, 2023).



Dall-E

Weissman, J. (2023, February 9). ChatGPT Is a plague upon education. *Inside Higher Ed*.
<https://www.insidehighered.com/views/2023/02/09/chatgpt-plague-upon-education-opinion>

A Social Justice Perspective on AI



Dall-E

- Recognizing “socio-technical inequality” (Zajko, 2022, p. 4), including how existing inequities are often exacerbated through barriers to access and use.
- Acknowledging how responses to emerging technologies intersect with these inequalities.

Zajko, M. (2022). Artificial intelligence, algorithms, and social inequality: Sociological contributions to contemporary debates. *Sociology Compass*, 16(3). <https://doi.org/10.1111/soc4.12962>

The Dystopian Future: Restriction and Prohibition Generative AI

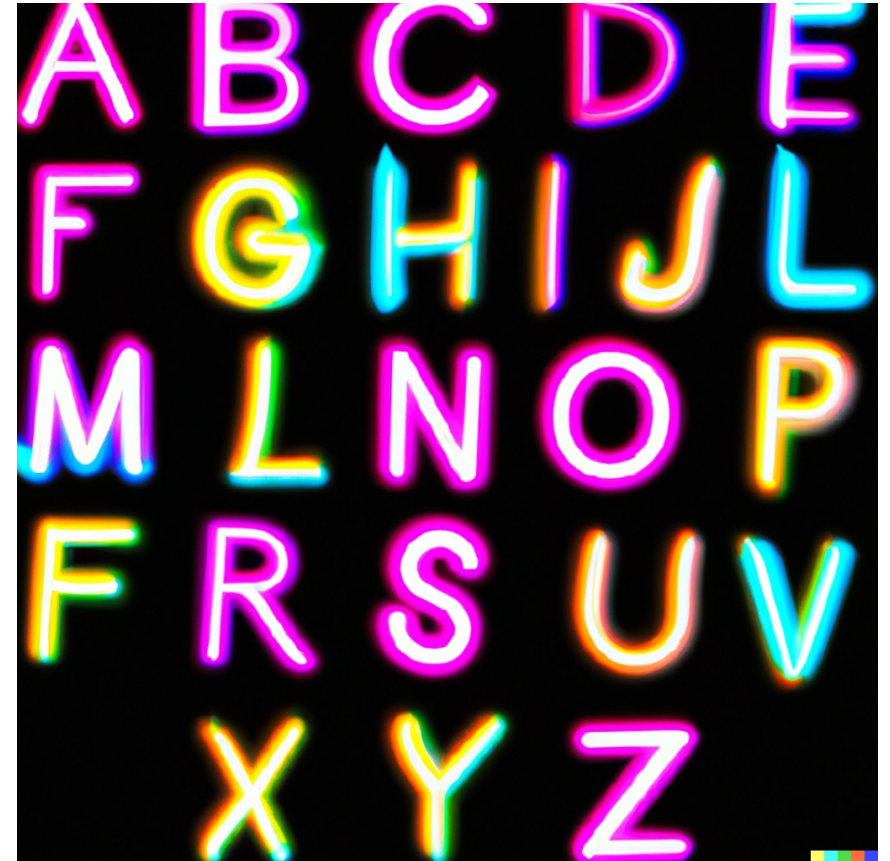
- Prohibition of AI in schools and public spaces results in Generative AI skills (such as prompt writing and algorithmic awareness) only for the socio-economically advantaged.
- Restrictive assessment techniques, like handwriting and time assessments, create new barriers for individuals with disabilities
- Biases in Generative AI become more embedded as it is trained by privileged groups using it
 - Embedded whiteness in the large language model
 - Limited diversity in training data

Dall-E



Failure to Engage Generative AI Creates Harm

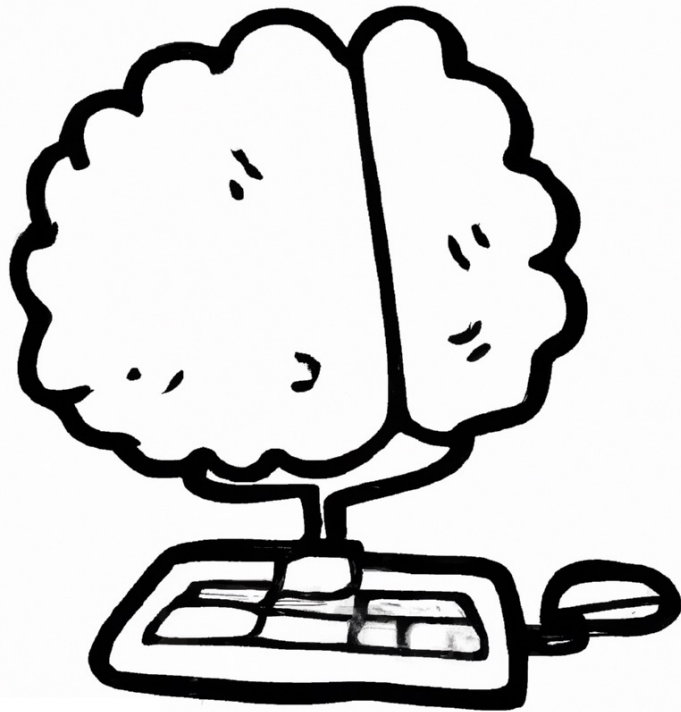
- Generative AI is not a neutral technology and failure to engage would perpetuate harms
 - Loss of opportunities
 - Economic loss
 - Social stigmatization



For more info see: Cheuk, T. (2021). Can AI be racist? Color-evasiveness in the application of machine learning to science assessments. *Science Education*, 105(5), 825–836.

<https://doi.org/10.1002/sce.21671>

The Utopian Future: Teaching and Learning with AI



Dall-E

- Using Generative AI as a learning technology allows post-secondary institutions to increase awareness and potentially challenges the biases in the system.
- In other words, Generative AI needs to be examined not solely for its function, but the way in which learners employ them to support goal-directed learning.



See Villarreal, M. E., & Borba, M. C. (2010). Collectives of humans-with-media in mathematics education: notebooks, blackboards, calculators, computers and ... notebooks throughout 100 years of ICMI. *ZDM*, 42(1), 49–62.

<https://doi.org/10.1007/s11858-009-0207-3>

Values for Ethical AI Development and Use

- Privacy
- Accountability
- Safety and Security
- Transparency and Explainability
- Fairness and Non-discrimination
- Human Control of Technology
- Professional Responsibility
- Promotion of Human Values



Values and image from Fjeld, J., Achten, N., Hilligoss, H., Nagy, A., & Srikumar, M. (2020). *Principles Artificial Intelligence: Mapping Consensus in Ethical and Rights-Based Approach to Principles for AI*. <https://cyber.harvard.edu/publication/2020/principle-ai>

Developing AI Literacy Framework



Opening the Blackbox: Knowing and understanding the purpose and goals of the AI tools, including datasets and training materials.



Setting Learning-Oriented Goals: Apply Generative AI to goal-directed learning with an emphasis on pedagogy



Evaluating Actions and Outputs: Reflecting on the prompt writing and how it shapes outputs of Generative AI.



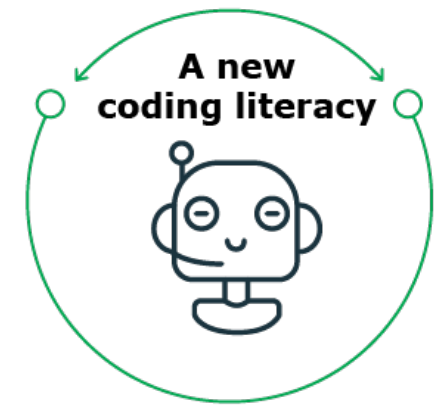
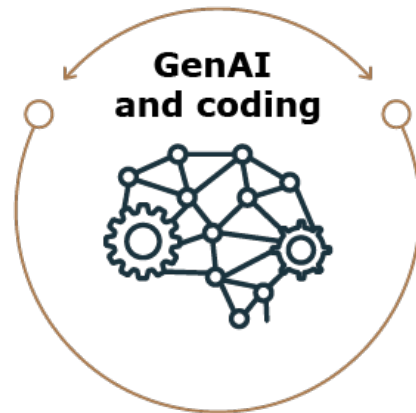
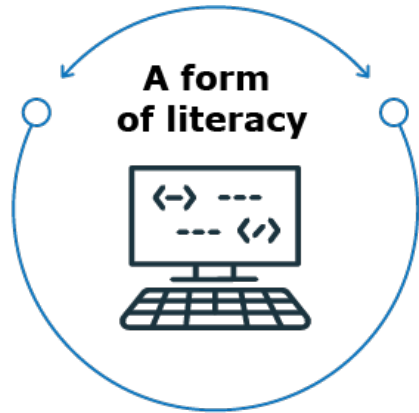
Critique or resistance generative AI systems: Challenge how AI typically creates content to create new meaning or social impacts.


Coding Is (Not) Writing: Coding Literacy in the Age of Generative AI

Robert Brennan, University of Calgary

June 7-9, 2023

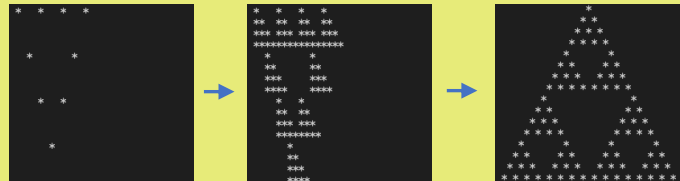
“... once the computer can respond to natural human language, there will be no need to write code”
 (Vee, 2017)






Writing

- programming
- paradigms



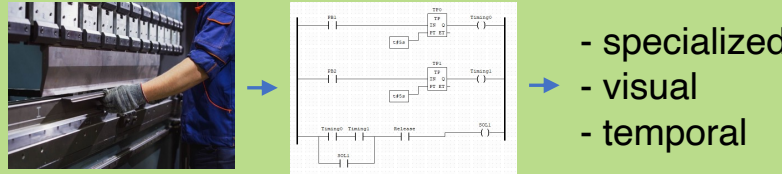
Natural Language Coding

- iterative
- still need coding knowledge




Reading

- debugging
- extending



T & L Tool?

- others' code
- new languages
- debugging/extending



Social Context

- valued skill
- participation

Coding Literacy

- coding skill important despite the trend towards more abstract programming languages
- new approaches to coding ... “natural language coding”
- potential for more accessibility to coding, but with this potential for risks

'This Was Indeed a Godlike Science': Frankenstein, Artificial Intelligence, and Undergraduate English Assessment

Jason Wiens, University of Calgary

June 7-9, 2023



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Jason Wiens:

- *Frankenstein* has particular relevance in considering the ethical uses and implications of generative AI
- proposed collaborative assessment would ask students in groups to generate essays on *Frankenstein* and AI, then collaboratively annotate the essay through Perusal
- these annotations could take the form of rebuttals, expansions, modifications, tangents, departures, or any other response to and from the generated essay's arguments
- assessment would be designed to cultivate AI literacy while developing their own arguments about the novel's relationship to contemporary debates about AI
- significant scholarship exists on *Frankenstein* and AI which could also be engaged with by students
- both the novel and Mary Shelley's biography share interesting overlaps with the operations of generative AI as well as debates around its use

Future-Proofing Comprehensive Academic Integrity: The Ethical Use of Artificial Intelligence for Teaching, Learning, and Assessment

Sarah Elaine Eaton, Beatriz Moya & Bibek Dahal
University of Calgary

June 7-9, 2023

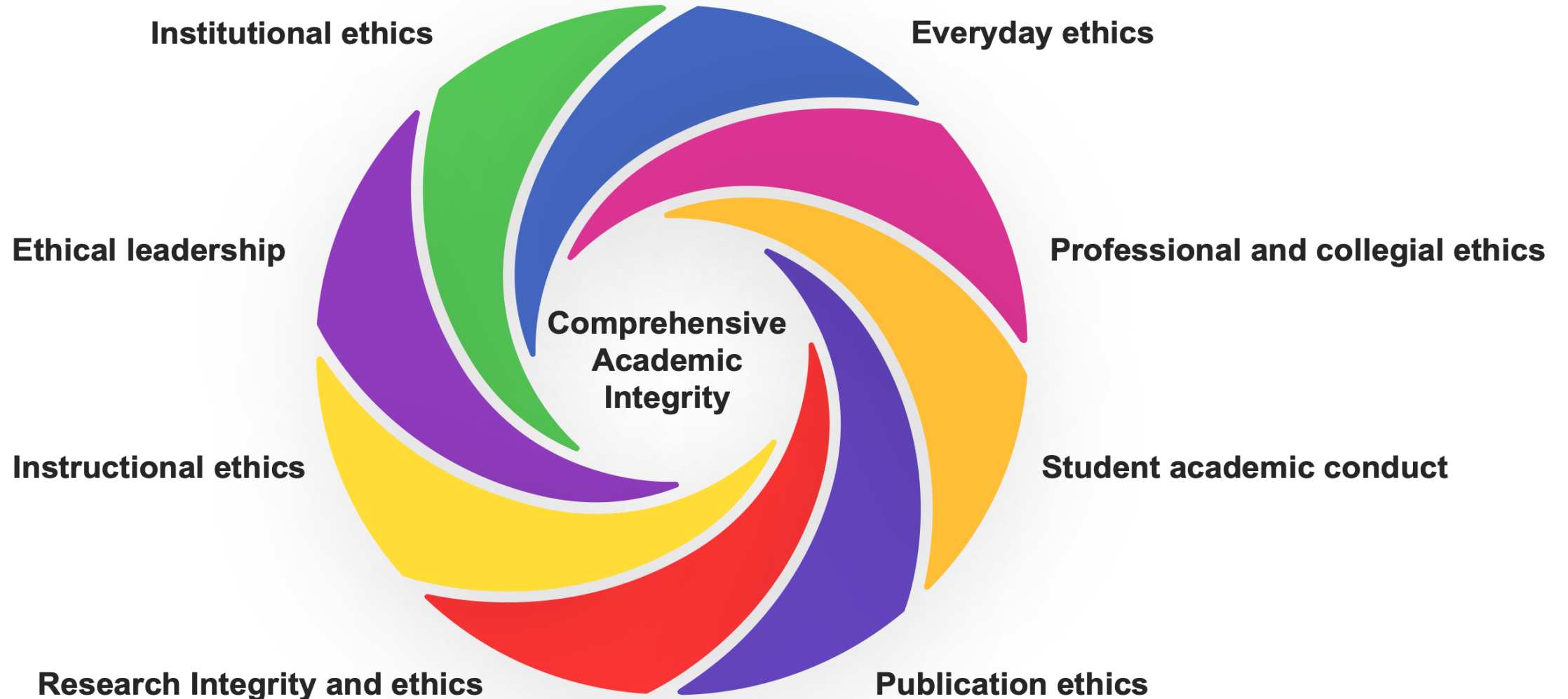


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Future-Proofing Comprehensive Academic Integrity



Q&A

30 minutes

June 7-9, 2023

Break time!

Reconvene at 13:00 MDT

June 7-9, 2023

Using SoTL Research to Support Educators to Understand How Artificial Intelligence Tools Can Be Effectively Used in the Classroom

Melanie Hamilton, University of Saskatchewan

June 7-9, 2023

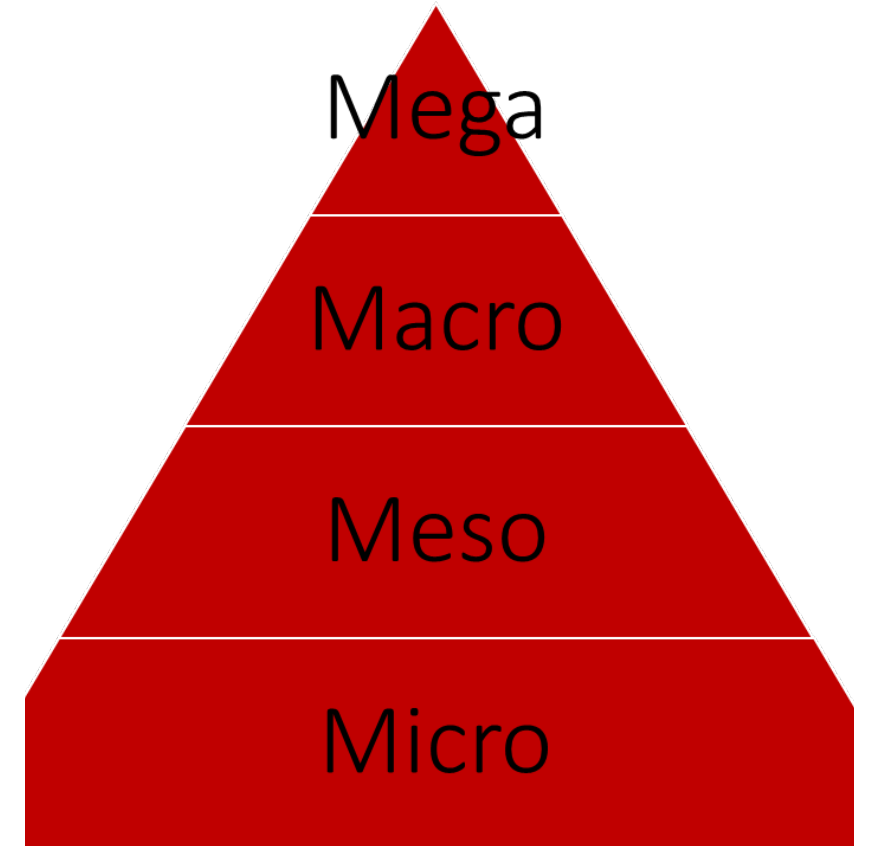
Melanie Hamilton:

SoTL research can play a crucial role in helping educators to understand how to successfully integrate teaching practices, learning outcomes, and the impact of innovative approaches on student learning.

By conducting research on students' needs, preferences, and supports related to AI integration, educators can begin to identify best practices for effectively incorporating these technologies into the curriculum.

SoTL and AI

- SoTL can be targeted at all four levels of 4M
- *“instructors, staff, and learners in developing the necessary skills, knowledge, and behaviors to model and implement strategies that promote academic integrity in their teaching, learning, research, assessment and academic practices”* -Kenny & Eaton, 2022, pg. 578



Micro-Level Support

Faculty need a safe space to learn about academic integrity topics and how they are impacted



Exploring pedagogical practices

Assessing learning outcomes

Examining student experiences

Assessing ethical and equity considerations

Sharing best practices and lessons learned

Epistemic Bias against Artificial Intelligence: Perceptions and Implications for Assessment and Evaluation

Rahul Kumar & Michael Mindzak,
Brock University

June 7-9, 2023

Assigned Marks

	Human			AI			Unsure		
Passage	Mark	n	σ	Mark	n	σ	Mark	n	σ
1 - Human	81.56	27	12.52	65.86	7	9.41	67.00	6	10.47
2 - Human	83.75	24	7.69	74.67	6	9.24	74.14	7	5.21
3 - Human	80.00	22	9.01	70.46	13	9.68	80.20	5	10.48
4 - AI	75.48	21	9.55	70.71	7	5.09	76.00	7	8.00
5 - AI	80.41	17	10.51	77.70	10	10.18	74.70	10	8.43
6 - Human	80.96	26	8.98	81.00	7	6.73	78.00	6	6.60
Average	80.36			73.40			75.01		

Epistemic Bias against Artificial Intelligence (EB)

Proposed Working Definition

“When (human) individuals believe that Artificial Intelligence has been involved in creating, designing, altering, or representing a given output, then they are more likely to perceive, assess, or evaluate such an output as inferior to human-generated one.”

Conclusion

1. Need empirical verification/confirmation
2. Conceptualize other details of “Epistemic Bias against AI” (EB)
3. Refine/alter the Current Options available as they evolve
4. Would EB shift the scale toward Optimism or Skepticism?

A Case for LLM AI Literacy for Postsecondary Instructors

Allyson Miller, Toronto Metropolitan University

June 7-9, 2023



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Allyson Miller:

- Degree level expectations (DLE)
- GAI LLMs call into question fundamental pillars of PSE
- Why DLEs exist
 - Job readiness AI is rapidly permeating private and public sector jobs
 - Society readiness
- The challenge
 - entrenched curriculum that prepares students for a workplace that may not exist when students graduate
 - assessment methods that link to DLEs that (may) no longer prepare students for their careers
 - anxiety around their own role as well as student anxiety re the marketability of the skills they're developing

(AI)2 – How Will Artificial Intelligence Challenge the Way We Think about Academic Integrity? (Virtual)

Nick Milne, Deakin University

June 7-9, 2023

AI² – GenAI and Academic Integrity

- This is not about how we incorporate GenAI, but rather what the incorporation means to how we view academic integrity
- Takes a policy and application perspective
- Raises questions, doesn't propose answers

AI² – GenAI and Academic Integrity

- Definitions of academic misconduct – professional, ethical and validity in assessment
- The role of intent in academic integrity decision-making - where does poor academic practice fit
- How do we consider poor fact checking skills – issues around falsification and fraud
- How do we consider outsourcing and contract cheating in light of the arguments in favour of GenAI

Q&A

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**Thank you
for attending today's event.**

For more information on our project contact:

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University of Calgary

seaton@ucalgary.ca

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Images

- Artificial intelligence: <https://pixabay.com/photos/artificial-intelligence-ai-7450797/>
- Press Brake: <https://www.mac-tech.com/cnc-folder-vs-press-brake-the-difference/>