

GenAI Learning Lab – Topic 8: Exploring NotebookLM

How to use the platform to support your research of academic topics

Michael Turingan

MSc

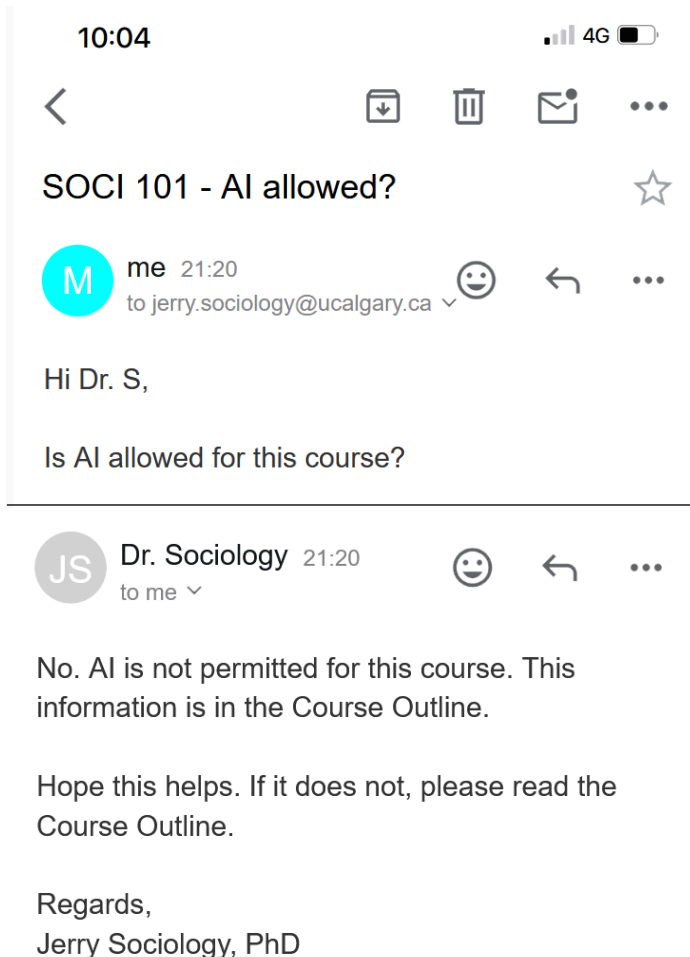
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Before Using GenAI:



- Ensure use of AI is permitted for your course!
- Not sure where to find this info?
 - → Check your assignment outline
 - → Consult the Course Outline/Syllabus
 - → Ask your professor



Exploring NotebookLM

- 1) Intro to NotebookLM
- 2) Considerations When Using NotebookLM
- 3) Take Home Message



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A Guide to Indoor Rock Climbing ...



J of App Behav Analysis - 2020 - ...



Just Started Climbing? Watch Thi...



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rock climbing

4 sources

These sources offer a **comprehensive introduction to rock climbing**, covering everything from fundamental indoor techniques to the complexities of outdoor traditional climbing. The **YouTube transcripts** provide practical advice on **essential gear, safety protocols, and common mistakes** for beginners, such as improper footwork or failing to manage rope drag. Complementing these guides, the **academic study** demonstrates how **expert video modelling and feedback** significantly improve the technical accuracy of novice climbers. Together, the materials emphasize the importance of **proper instruction, consistent practice, and safety awareness** for anyone entering the sport. They also highlight the **ethical responsibilities** of climbers, including environmental preservation and gym etiquette. Ultimately, the collection serves as a **holistic roadmap** for progressing from basic bouldering to advanced mountain adventures.



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For each source, extract the purpose and key points.

Source 1: "10 Beginner Trad Climbing Mistakes to Avoid" (Noah Kane Video)

- **Purpose:** This source aims to **demystify traditional (trad) climbing** for newcomers by sharing lessons learned from five years of experience, with the goal of making the sport feel **safe, accessible, and fun** while addressing common pitfalls 1 2 .
- **Key Points:**
 - **Gear Investment:** Trad climbing requires a significant financial commitment, typically at least \$1,000 for a "double rack" of cams, nuts, and alpine quickdraws 3 4 .
 - **Route Selection:** Beginners should avoid "sandbagged" old-school grades and focus on **G-rated, well-protected routes** (often crack climbs) that offer abundant gear placement opportunities 5
 - **Skill Development:** The "gold standard" for learning is **mentorship** from experienced members and ground practice to master the mechanics of active (cams) and passive (nuts)

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• Key Points:

- **Gear Investment:** Trad climbing or traditional climbing is by far my favorite form of rock climbing While bouldering and sport climbing continue to skyrocket into the mainstream tread climbing remains more niche offering an alternative climbing lifestyle that is more focused on adventure and exploration Holy iguana T climbing opens up a whole world of outdoor rock climbing and brings you to some of the most beautiful and wild destinations in the world But the gear is expensive and complicated and intimidating And there exists I think a little bit of a culture of gatekeeping within trad climbing that wards off many newcomers from even wanting to try the sport out I started tread
- **Route Selection:** Beginner climbing is often for school grades and focuses on easier routes (often crack climbs) that offer more opportunities 5
- **Skill Development:** The importance of **mentorship** from experienced climbers to master the mechanics

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NotebookLM

- Defining Feature:
 - Responses are **grounded in the sources *you* provide** (up to 50 sources per notebook for free version)
 - This way, ***you* can select the scope** of the AI output

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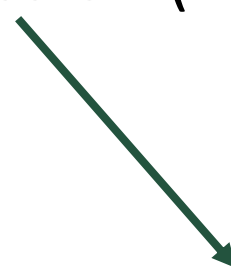


Considerations

- 1) NotebookLM uses a language model to digest and then summarize materials
 - Language models are prone to:
 - **hallucination** (making things up), and **omission** (leaving things out)



e.g. fabricating claims that are not found in any of the sources



e.g. stating only two of a paper's six key findings

Considerations

- 1) NotebookLM uses a language model to digest and then summarize materials
 - Language models are prone to:
 - **hallucination** (making things up), and **omission** (leaving things out)

Mitigate by:

Explicitly prompting the AI to **extract** rather than **summarize** information from sources (*e.g.*, “extract the findings word-for-word and don’t paraphrase”)

Mitigate by:

Telling the AI your specific **context** and **purpose** in your prompt (*e.g.*, “I am a biochemistry major interested in the methodology of RNA sequencing...”)



Considerations

- 2) NotebookLM can facilitate **complacency** and **cognitive offloading**
 - **How to manage this?** Integrate the following into your workflow:
 - Critically select inputs
 - Critically evaluate the output

INPUT (source)

Current/Up to date?
Reliable (peer-reviewed, minimally biased, etc.)?
Accessible by the AI? (AI can't "watch" videos or access content behind a paywall)
Purpose?
Valuable to understanding your topic?

OUTPUT (AI summary, video, etc.)

Accurate (faithful to source)?
Too broad? Too narrow?



Considerations

- 3) The more sources you input, the **greater potential for omission** of crucial information (and the more work you must do to ensure crucial information hasn't been missed)
 - There is a tradeoff between breadth of sources covered and confidence in the summary of these sources



Image created with Google Gemini

Considerations

- 3) The more sources you input, the **greater potential for omission** of crucial information (and the more work you have to do to ensure crucial information hasn't been missed)
 - There is a tradeoff between breadth of sources covered and confidence in the summary of these sources



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Mitigate this by:

- **triage**: critically selecting only the most useful sources from the start
- **chunking**: asking the LLM specific questions about *subsets* of your sources
 - e.g. “Extract the purpose and findings of the three articles about enzyme function.”



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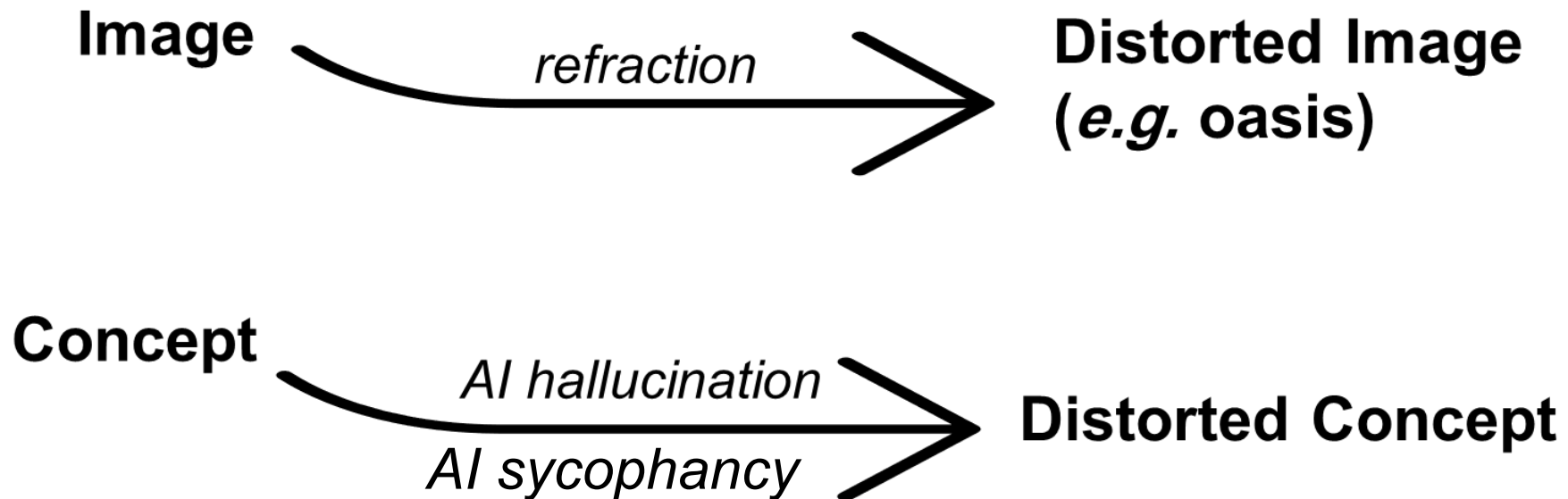
Don't Let GenAI Lead You Astray

- NotebookLM (and all generative AI) is a strong asset to the university student **if used *wisely***
→ **if not used wisely**, it is certainly a liability!



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Additional Resources

- UCalgary Centre for Artificial Intelligence Ethics, Literacy and Integrity: [CAIELI](#)
- AI for Summarizing | UCalgary SSC: <https://ucalgary.ca/news/using-ai-summary-reviews>
- Evaluating Sources | UCalgary SSC: [Evaluating Sources](#)



References

- LiveScience, *Mirages*
 - <https://www.livescience.com/physics-mathematics/how-do-mirages-work>



Thank You for Your Attention!

Questions?

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