

Exploring Use Cases for Generative AI in Teaching

Teaching and Research in the Age of AI

OFE Workshop Series

November 21, 2024

Peer to Peer Faculty Learning Opportunity

- Christine Kowalczyk, Department of Marketing & Supply Chain Mgt.
- Angela Whitehurst, Academic Library Services
- Michelle Eble, Department of English
- John Drake, Department of Management Information Services
- Mary Jo Nimmo, Department of Advanced Nursing Practice & Education

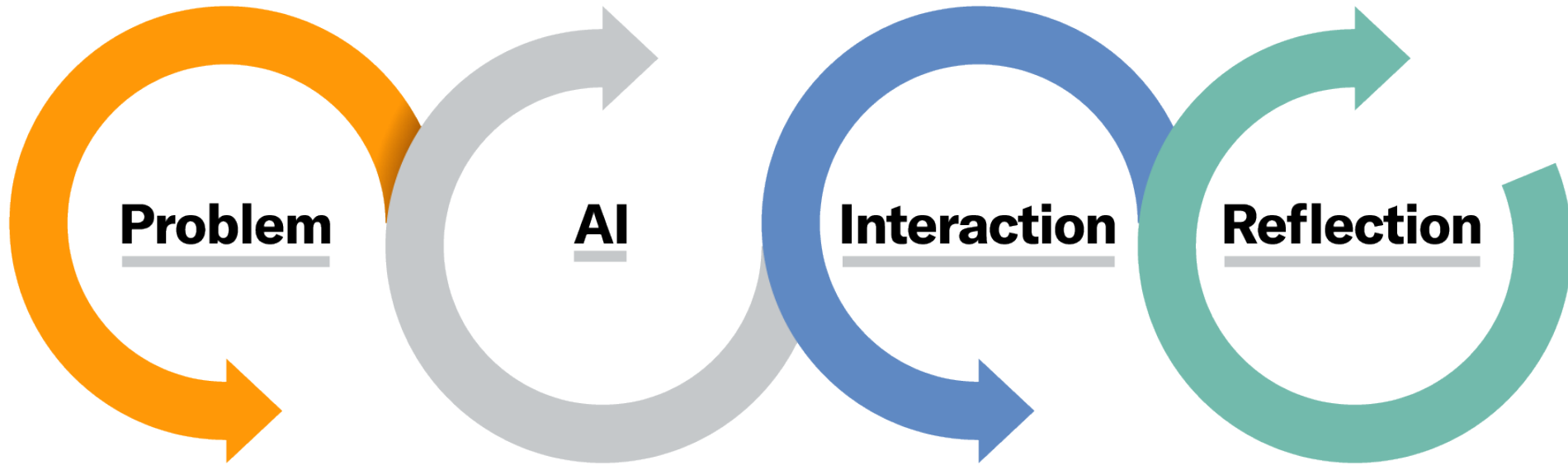
Canvas Assignment to Prepare Learners for a ChatGPT World

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Formulate the problem.

Identify the core problem, its components, and constraints.

Select suitable AI tools.

Explore and identify the most suitable generative AI tools for your problem.

Interact with the AI tools.

Experiment with different ways to interact; critically evaluate outputs and integrate them to tackle the problem.

Reflect on the experience.

Evaluate how the generative AI tool helped or hindered problem solving; reflect on your feelings when collaborating with generative AI.



STEP 5: Team Engagement

Assignment in Canvas

- ▶ Problem formulation (2 points)
 - ▶ Clearly define the problem or challenge to be solved by AI.
- ▶ AI tool selection (2 points)
 - ▶ Explore, compare, and evaluate the AI technologies available to solve your problem.
 - ▶ Choose the best generative AI tools to help solve the problem and state why it was chosen.
- ▶ Interaction (2 points)
 - ▶ Use the generative AI tool to solve the problem.
 - ▶ Draft and revise your AI prompts to solve the identified problem.
 - ▶ Experiment with different prompts and the responses to understand how the generative AI tools can assist with your problem-solving process and results.
 - ▶ Provide your prompts and the AI responses in the text box – not a Word file.
- ▶ Personal Reflection (2 points)
 - ▶ Reflect on your experience with using the generative AI tool to solve the identified problem.
 - ▶ What did you learn about AI prompts and outputs?
 - ▶ What are the opportunities or limitations with AI to solve this problem?
- ▶ Team Engagement (2 points)
 - ▶ Discuss with your team members their AI processes and results.
 - ▶ Decide as a TEAM what content will be used in the team project.
 - ▶ Include the text in the assignment text box.

Evaluating AI Generated Content: Verifying Citations

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create a bibliography of 10 peer reviewed journal articles about "fire proximity suits" and the materials used to make them



Here is a bibliography of peer-reviewed articles on fire proximity suits and the materials used in their construction:

1. Lattimer, B. Y., & Trelles, J. P. (2011). Thermal analysis of firefighter protective clothing materials. *Fire Safety Journal*, 46(7), 460–465. <https://doi.org/10.1016/j.firesaf.2011.07.001>.
2. Stull, J. O., & Stull, G. A. (2007). Protective clothing for firefighters: Thermal performance of firefighter's protective clothing. *Journal of Occupational and Environmental Hygiene*, 4(5), 365–374. <https://doi.org/10.1080/15459620701276351>.
3. Mandal, S., & Song, G. (2012). Modeling and analysis of heat transfer in firefighter protective clothing. *Textile Research Journal*, 82(18), 1872–1885. <https://doi.org/10.1177/0040517512443305>.
4. Torvi, D. A., & Dale, J. D. (1999). Heat transfer model of flame resistant fabrics in convective environments. *Textile Research Journal*, 69(9), 711–717. <https://doi.org/10.1177/004051759906900912>.
5. Schmidt, A. C., Rossi, R., & Annaheim, S. (2010). Development and testing of thermal insulation materials for firefighter protective clothing. *Journal of Fire Sciences*, 28(3), 234–246. <https://doi.org/10.1177/0734904110362466>.
6. Barker, R. L., & Guerth-Schacher, C. (2008). Performance evaluation of flame-resistant fabrics used by wildland firefighters. *Fire Technology*, 44(3), 297–308. <https://doi.org/10.1007/s10694-007-0047-2>.
7. Zou, D., & Li, J. (2013). Characterization of thermal protective performance of fire-resistant fabrics. *Polymer Testing*, 32(5), 902–911. <https://doi.org/10.1016/j.polymertesting.2013.04.002>.



Example Activity: Library Instruction (ENGR 2070)

❖ Students will be able to locate, evaluate and use information ethically and effectively

- Activity Outcomes

- Evaluate the credibility of AI generated output
- Compare AI output to library resources
- Practice using library databases to locate credible sources

Instructor's Demonstration

- Discuss strengths & weaknesses of Generative AI
- Focus on hallucinations
- Create bibliography using Generative AI tool
- Verify validity of sources using library databases
 - One Search
 - Google Scholar
 - Scopus

Hands-On Activity

- Group work
 - Use group topic
 - Create an AI generated bibliography 3-5 peer reviewed sources
 - Use library databases & Google Scholar to verify
 - Discussion of results (pros, cons, impressions)
- Follow-up
 - Review using library databases to search credible sources
 - Groups use library databases to search for articles

Using Generative AI Technologies to Engage Students in Research Practices

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NotebookLM

<https://notebooklm.google/>

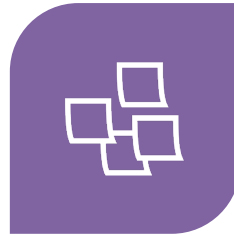
NotebookLM works with the sources that are uploaded to a notebook.



ACTS AS RESEARCH
AND WRITING
ASSISTANT



ENHANCES
READING &
COMPREHENSION



FACILITATES
NOTE-TAKING

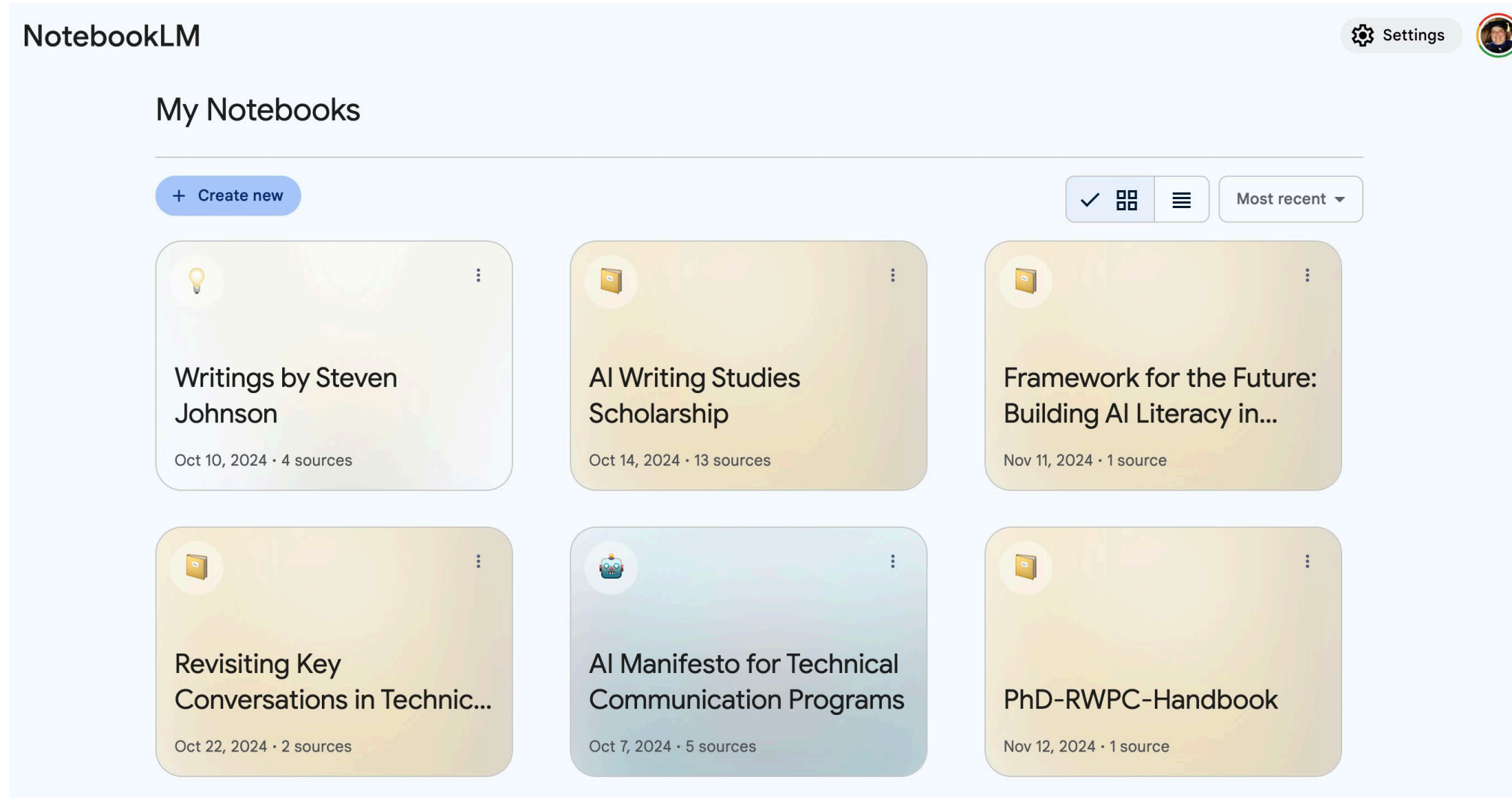


PRODUCES
STUDY GUIDES



GENERATES AUDIO
SUMMARIES

NotebookLM Website Interface



Screen Capture of Michelle Eble's NotebookLM with the first six notebooks.

Using Curated Information with NotebookLM



1. Upload your sources.

Websites
YouTube Videos
PDF files
Copied text
Google Docs and Slides



2. Create resources from sources.

Notebook Guide
Study Guide
FAQs
Table of Contents
Timeline
Briefing Doc



4. Converse with your sources.

Ask the suggested questions
Formulate your own questions



3. Generate an Audio Summary (Deep Dive)

Customize based on a specific source
Focus on a specific topic.
Target a specific audience.



Resources

Teaching Writing in the Age of AI

<https://bit.ly/engagingai>

“...the rise of AI has ushered humanities-based skills into the very center of the tech world right now.” –Stephen Johnson

“Revenge Of The Humanities”

[Adjacent Possible Substack](#)

Using Generative AI for Writing Feedback

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Using GenAI for writing feedback

- Background
- Prompt engineering
- Confirmation

Background

- MBA course where students read a business case
- Goal is to analyze the situation, develop a recommendation, and write a convincing report supporting that recommendation
- Use DECIDE model to structure
 - Define the problem
 - Establish criteria
 - Consider the alternatives
 - Identify the best alternative
 - Develop and implement the plan
 - Evaluate and monitor the solution

Prompt engineering

1. Simple prompt: “Provide feedback for improving this case analysis.”
2. Complex prompt: “Pretend you are an instructor in an MBA course on information systems. Provide actionable feedback on the following case analysis. This feedback should be concrete, specific, and straightforward. Use an encouraging tone to fix the shortcomings of the analysis. The body of the analysis should start with an executive summary. Then, the remainder of the analysis should use the DECIDE model to structure the arguments, showing strong support and justification for 1) identifying the root problem or opportunity, 2) selecting the criteria, 3) evaluating each alternative against each criteria, and 4) suggesting how to implement.”
3. Custom GPT – Given complex instructions on how to act. Trained on lecture transcripts, assignment instructions, and grading rubrics.

Confirmation

- To what extent did the feedback explicitly reference the assignment components in writing the case analysis?
 - 50% said most or all
- To what extent did the feedback clearly indicate what was done well and what specifically can be improved?
 - 72% said most or all
- To what extent was the feedback accurate?
 - 81% said most or all
- To what extent did the feedback indicate appropriate prioritization of essential features given the current state of the case analysis?
 - 61% said most or all

Artificial Intelligence – A Case Study in Graduate Finance



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Department of Advanced Nursing Practice and Education

How I got here

- Spring 2024 given a new class
 - Healthcare, Finance, Economics – Masters Level
- Assignment -Executive Summary - Comparative Analysis of International Healthcare Systems to the US
- Did a short video about how to use AI
- Pre and Post Survey

Assignment

- Graduate MSN Finance and Economics
- Executive Summary - Comparative Analysis of International Healthcare Systems
- Six characteristics
 - Universal Coverage
 - Funding Mechanism
 - Access to Care
 - Quality of Care
 - Cost Control
 - Healthcare Outcomes



Assignment

Group Project –

Instructed to have a Leader place the information into an AI LLM generator

The rest of the group used the LLM-generated information and validated whether or not (with citations) the information was correct (not hallucinations) and then compared it to the US system.

Survey

- Pre-Survey 5 Questions (n=39):

- Use of Generative AI – 26 out of 39 had never used AI
- Familiarity with AI and LLMs – On a scale of 1 – 100, the score was 21.3, showing low familiarity
- Belief in AI's Ability to Interpret Financial Data – "Might or might not" 19 respondents "Probably yes" followed closely by 13 respondents.
- Comfort with AI in Financial Decision-Making Responses indicate a general unease with relying on AI in financial decisions, though opinions ranged from "Extremely uncomfortable" to "Somewhat comfortable." Top Response: "Somewhat uncomfortable" (17 respondents).
- Ethical Concerns about AI in Finance - Most Common Response: "Probably yes" (15 respondents), indicating a significant portion have ethical concerns. Responses varied broadly, showing a mix of opinions on ethical implications.

Survey

- Post Assignment-Survey 5 Questions (n= 21):
 - Perceptions of AI's capabilities changed – Yes = 16, No = 4 and Maybe = 1
 - Confidence in Integrating AI – Yes = 17, No = 2, Maybe = 2
 - Consider Using AI – Yes = 17, Maybe = 4
 - Ethical Concerns Using AI – Probably Yes = 8, Probably Not = 2, Might = 7, Definitely Yes = 1, Definitely Not = 3
 - Open-Ended Comments : Positive Learning Experience, Concerned with the use of AI, Skepticism Towards AI Integration,



Lessons Learned

- Need to have a lecture on the use of AI before the assignment.
- The assignment needed to specify how I wanted them to use AI.
- Have an assignment to place the chat and make it part of the overall assignment grade
- Get more specific in the rubric about the Chat document and the reference to Chat in the final summary
- Will probably use Co-Pilot for the links to scholarly resources and student conversations are (I believe) protected within our institutions Microsoft account.

The Faculty Guide to Getting Started With Gen AI

**20 Activities and 9 Lesson Plans Developed in
Collaboration by the University of Texas at Austin
and Grammarly**

<https://go.grammarly.com/facultyguide>

Activities

- 1 Brainstorm Presentation Topics Activity
- 2 Course Feedback Activity
- 3 Biosketch and CV/Résumé Activity
- 4 Changing Audience Activity
- 5 Additional Explanations Activity
- 6 Creating Group Norms Activity
- 7 Create an “About Me” Activity
- 8 Brainstorm Research Idea Activity
- 9 Annotated Bibliography Activity
- 10 Word Counts Activity
- 11 Student Learning Outcomes Activity
- 12 Professional Email to Employer Seeking Internship Activity
- 13 Action Items Activity
- 14 Create a Cover Letter Activity
- 15 Introduction From an Outline Activity
- 16 News Article for College, School, or Unit Public Website or Newsletter Activity
- 17 Keywords for Research Activity
- 18 Presentation Script Activity

19 Coaching Conversation Activity

20 Changing Tense Activity

21 Activity Template

Lesson Plans

1 AI Ethics and Responsible Use

2 Argumentative Essay

3 Brainstorming a Needs Statement Use

4 Building Confidence

5 Communicating Complex Information

6 Brainstorm Lesson and Group Evaluation of Generative AI Output

7 Leadership Lessons Analysis

8 Pre-writing With Multilingual Learners

9 Statements of Teaching Philosophy

Discussion
Thanks for participating!

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