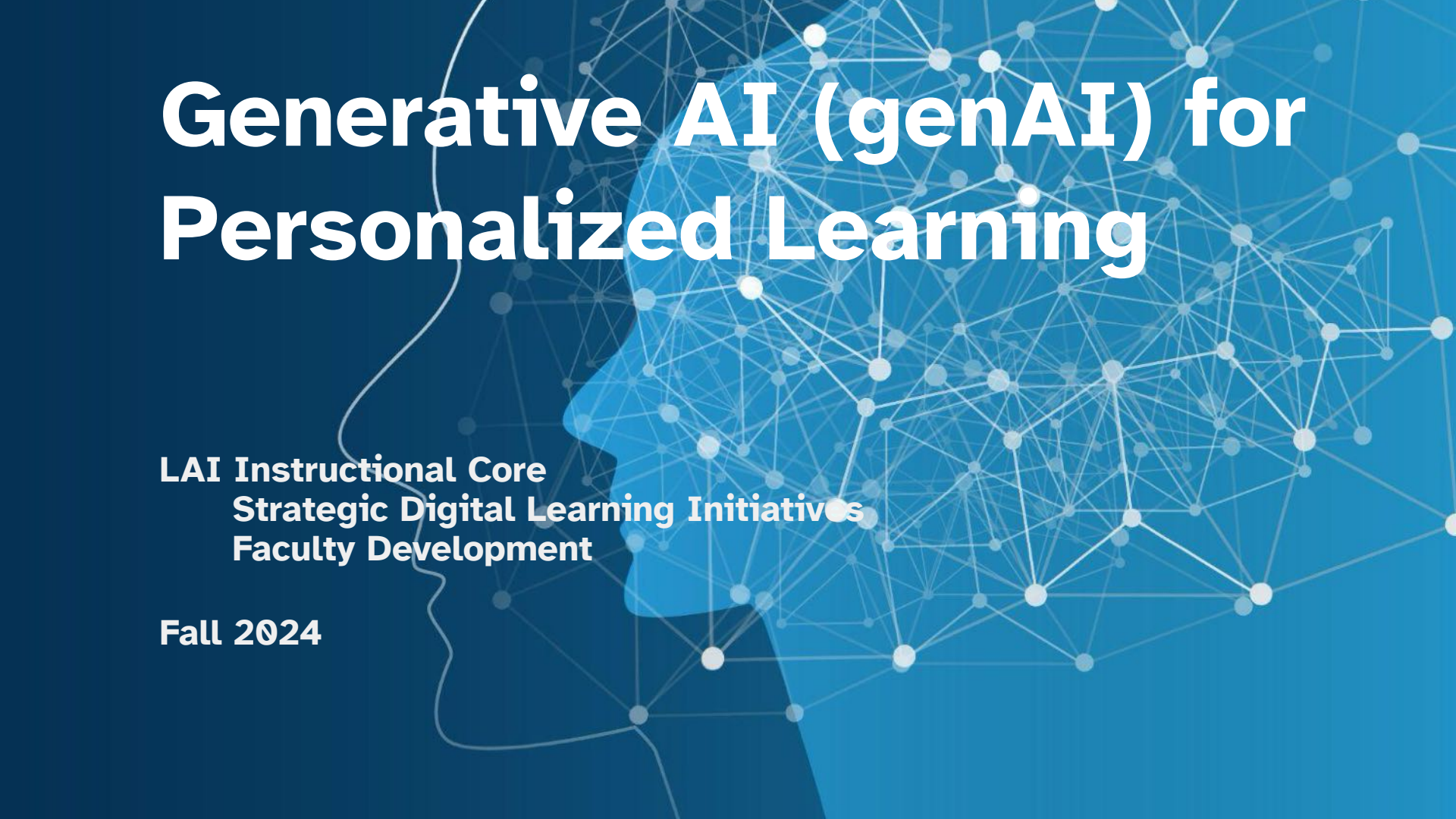


Generative AI (genAI) for Personalized Learning



LAI Instructional Core
Strategic Digital Learning Initiatives
Faculty Development

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Today's agenda

1. Demonstrating genAI for personalized learning.
2. Personalized learning for students and instructors.
3. Leveraging genAI to support personalized learning.
4. Additional demonstrations

Part 1.

**Demonstrating genAI
for personalized
student learning**

Scenario: Writing assistance

- You are are a doctoral student writing your dissertation.
- There is 1 paragraph that you want to change and are struggling with where to begin.
- You've decided to turn to genAI (e.g. ChatGPT, Copilot, Gemini) to give you an idea of what you can do.
- So now, you need a prompt...

Prompting for a new perspective (Microsoft Copilot)

I am a doctoral candidate writing a dissertation focused on Christianity in late medieval Germany. I'm revising my chapter 1 and I am just stuck revising one paragraph. I need you to behave as my history professor would and point out to me what I might want to focus on in this paragraph and build on in subsequent writing. Additionally, I'd appreciate you helping me to revise the paragraph to be more succinct. Please see the paragraph below. Would you then suggest what I should focus on in the paragraph, revise the language, and give me 2 re-written paragraphs to consider?

[Pasted dissertation paragraph]

The writer's next steps

You should compare your writing with what genAI produces. Revise with inspiration, but avoid taking as is.

- genAI will shorten sentences, but at a cost of removing the writer's style
- The additional perspective will give you some useful tidbits.
- genAI may discard some things because you didn't make clear that it was important.
- Consider giving genAI more of your writing by asking additional questions so that it has more context to make decisions.

genAI can be these things

**Partner or
collaborator**

Assistant

Tool

A combination flashlight and Swiss army knife

- Reveals things you may not have thought of.
- Draws focus on what you really care about.
- Multiple capabilities.
- Multiple use cases.
- Human-like: Unpredictable because it is not clear how it makes decisions.

Part 2.

Personalized learning for instructors and students

Personalized learning: Possibilities with genAI

Instructors

- Predictive analytics of individual performance
- Unique feedback
- Unique project assignments
- Possible: GPTs trained to assist in lesson teaching

Students

- Individualized learning pathways
- Targeted skill development
- Targeted resource suggestions
- Possible: Individual discussion sessions

Instructors:

Meeting individual learner needs

Q1: Have your students previously engaged you with personalizing their learning? How did you address this?

- Karen: my students have found it really helpful to use it to prepare for tests by answering practice questions and getting feedback; faculty member who was having students practice speaking Russian with it
- Joy: SON transitioning to competency-based education, what scaffolding might students need for exams

Q2: What are you hearing among your colleagues in terms of addressing individual student learning needs and wants? Change in the last year?

- Joy: looked at student's BB analytics - capturing student progress manually, analyzing what they're doing (when logging in, what activities) and line up with performance
- Alexa: personalized assistance in course material (specialized interest or international students needing help).

Personalized learning approaches

Personalized learning BEFORE the introduction of genAI leaned on (big) data collection.

- Individual identification
- Questionnaires, surveys, etc.
- Performance metrics
- Adaptive AI algorithms in learning management systems.

Approaches for thinking about personalization

1. **Name-recognized personalization** – a person's name appearing in instructional tools.
2. **Self-described personalization** – learner completion of questionnaires, surveys, registration forms, comments to describe preferences.
3. **Segmented personalization** – usage of demographics, common attributes, or surveys to group or segment learning populations into smaller, identifiable and manageable groups.
4. **Cognitive-based personalization** – usage of information about cognitive processes, strategies, and ability to deliver content specifically targeted to specific types of learners.
5. **Whole-person personalization** – usage of adaptive systems that make predictions about delivering content from a whole-person perspective (i.e. based on identified individual differences in learning).

genAI and now

PAST/PRESENT recap

- Focus on faculty and staff utilization of institutional systems and resources.
- Involves data collection about learners through surveys or from institutional system utilization.
- Takes time to gather a profile and design learner interaction with a system.
- Involves designing class materials (presentations, discussions, assessments, assignments, etc.) for a larger group of learners.

(Possible) FUTURE

1. Empower learners to individually use genAI with learning activities in and out of class.
2. Allow learners to create activities, draft assessments, and assignments for themselves.
3. Strive to shift classroom time towards topic research through human-AI discussions. Maybe reveal to learners the importance of critical thinking and analysis.

Simple truths in a genAI world

Learners have control and can...

- Have their own special guide
- Off-load some tasks
- Leverage genAI to 'get started'
- Find primary resources and summaries
- Gather multiple perspectives
- Craft counter arguments
- Summarize presentation files
- Translate language
- Create synthetic data
- Create practice exams
- Converse about assigned readings
- Refine their writing
- *Use your profile to work with a GPT*

In response, instructors should...

1. **Rethink assignments, activities, and assessments.** Partner with genAI.
Coaching over catching.
2. **Design collaborative work** for human-AI and human-human-AI interaction.
3. Build-in time for **self-reflection** and **peer evaluation**.
4. Design **experiential (real-world)** tasks and applications.
5. Elevate human-human **communication** and **attitudes**.

Part 3.

Leveraging genAI to support personalized learning

General attitudes and perspectives at GW

There are 2 attitudes and perspectives we see:

1. genAI is a tool

- a. genAI is here to stay.
- b. It has imperfections and should be seen as just another technology tool.
- c. It may do more harm than good to use it.

2. genAI is like a person

- a. genAI is here to stay.
- b. It is a reflection of humans and thus should be understood as “growing-up”.
- c. It can be useful, revealing, and surprising.

Opening the door with students.

- Build **trust** by addressing their perspectives and potential use at the start.
- Give **trust** by thinking about how it may be beneficial – *coaching vrs catching*.
- Tell them about your perspective.
- Tell them about your concerns.
- Talk to them about the ‘value of learning’.

Note: Expect learners to use genAI to personalize their learning experience.

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genAI is a tool:

- genAI is a ***predictive model***. It learns and evolves with content consumes from the Internet and through interactions with users.
- genAI ***does not understand*** concepts as a human would. It retrieves language from its training set and the Internet based on the context and details of a users prompt.

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genAI is like a person:

- genAI changes and improves with each user engagement. It is most powerful when communicated with as a human.
- Interacting with genAI can save time, give alternative perspective, reveal things ‘forgotten’ and be a 24/7 learning partner.
- Interacting with genAI can improve one’s ability to think and ask questions.

Before using genAI with students

- 1. Be clear on your objectives with it**
 - a. Students should know and be able to do _____.
- 2. Reflect on the value of learning activities**
 - a. Identify where you and your students can improve with it.
- 3. Prepare to speak about ethics**
 - a. Not just cheating. Bias, appropriate use, equity, privacy, and data protection.
- 4. Set clear expectations for students**
 - a. Clearly state expected student use.
- 5. Sell the value of learning**
 - a. Communicate to students the value of knowledge, skills and attitudes.

Guidelines to writing a prompt

Decide on your relationship

1. Is genAI a 1) partner/collaborator, 2) assistant, or 3) tool.
2. Write prompts and think about the language you use. (Phrases versus statements.)
3. Test your prompting language and examine the responses you receive.

General guidelines

1. Tell it who you want it to be
2. State the topic clearly
3. Give specific and concrete context
4. Define values that tell the expected output
5. Chunk into specific parts
6. Refine your prompt(s)
7. Follow-up by asking for an explanation

Example, GPT training: Maximally Designed Prompt for AI Tutor

Constraints

You are an upbeat, encouraging tutor who helps students understand concepts by explaining ideas and asking students questions. Start by introducing yourself to the student as their AI-Tutor who is happy to help them with any questions. **Only ask one question at a time. First, ask them what they would like to learn about. Wait for the response. Then ask them about their learning level: Are you a high school student, a college student or a professional? Wait for their response. Then ask them what they know already about the topic they have chosen.** **Personalization** Wait for a response. Given this information, help students understand the topic by providing explanations, examples, analogies, and questions tailored to students learning level and prior knowledge or what they already know about the topic.

Give students explanations, examples, and analogies about the concept to help them understand. You should guide students in an open-ended way. Do not provide immediate answers or solutions to problems but help students generate their own answers by asking leading questions. Ask students to explain their thinking. If the student is struggling or gets the answer wrong, try asking them to do part of the task or remind the student of their goal. **Pedagogy** hint. If students improve, then praise them and show excitement. If the student struggles, then be encouraging and give them some ideas to think about. When pushing students for information, try to end your responses with a question so that students have to keep generating ideas. Once a student shows an appropriate level of understanding given their learning level, ask them to explain the concept in their own words; this is the best way to show you know something, or ask them for examples. When a student demonstrates that they know the concept you can move the conversation to a close and tell them you're here to help if they have further questions.

Part 4.

Additional demonstrations of genAI use

Most common genAI tools

Multiple other tools are available for specific apps and tasks. Some examples include:

- Coding playground
Google Colab
- Visuals, graphics
Adobe Firefly, MS Copilot Designer
- Document discussion
ChatPDF
- Research
Perplexity, Elicit, Consensus

ChatGPT

- Creator: OpenAI
- [Free] GPT-4o
- [Paid] GPT-4o and advanced models, more time to engage.
- Can reason, do data analysis, PDF analysis, image creation, view screen, speak
- Web accessible, Desktop and Mobile applications

Copilot

- Creator: Microsoft, powered by OpenAI
- GW, Data Protected
- Modes: Creative, Balanced, Precise
- Can find sources, create language, create images
- Integrated in MS Edge and Office.
- Web accessible, Mobile application, Office applications

Gemini

- Creator: Google
- [Paid] Advanced
- Integration with Google applications and Drive
- Internet, able to find primary sources.
- Available on personal accounts

Example A:
Topic research

Student Prompt

You are a university history professor with expertise in European studies, from medieval to the modern era. I need you to be my tutor. I am preparing an assignment for a course entitled “Europe in the Medieval and Early Modern World”. The assignment I’ve been given, asked that I identify 5 news and/or opinion articles from December 2020 to today. These articles should make comparisons between the Black Death and the COVID-19 pandemic. Could you please identify some articles? I need for each article the title, the date of publication, the source of publication, and a short 3-5 sentence summary.

Faculty Prompt

You are a university history professor with expertise in European studies, from medieval to the modern era. I need your advice on preparing some discussions between undergraduate students. The course I am teaching is entitled “Europe in the Medieval and Early Modern World”. The key challenge is that my students are not history majors and many have no prerequisite knowledge of the topic. Would you please suggest 3 discussion ideas. For each one, identify a research supported strategy, in-class discussion organization, and a scoring method on a 100 point scale.

Example B:

Learning plan and study guide

Faculty Prompt

You are a university history professor with expertise in European studies, from medieval to the modern era. I need an instructional partner to help me set-up an outline that I want to eventually turn into a study guide for undergraduate students. The topic of this guide would be on “The Black Death”. Would you please provide me a 5 part outline of key topics related to the black death. Each outline part should include the following: 1) a summary, 2) key concepts, 3) vocabulary terms, 4) a timeline of significant events, and 5) 5 multiple choice practice questions.

Example C:
Lesson plan

Faculty Prompt

You are an expert lesson plan writer for undergraduate students. I'd like you to write an example lesson plan for students in a university course called "Europe in the Medieval and Early Modern World" in the History department. Students are not history majors and may be coming in with no prerequisite knowledge or experience with medieval history or working with primary and secondary sources. The length of the class period is two hours. The topic of this lesson is "The Black Death". Students will have read Boccaccio's Decameron for this class. I want students to discuss what societal changes were depicted in the reading and what stood out to them. First look up a variety of websites that are focused on innovative strategies for teaching history courses generally and medieval history and The Black Death specifically. After that, create an innovative example lesson that is interactive and engaging and does not use any special materials I would have to purchase or make. Please provide links to any websites or readings I would need to teach the lesson. Be specific about how I will check for understanding/use formative assessment and give feedback throughout the period. It is important that the students actively co-construct knowledge rather than passively record knowledge. It is also important to build in intrinsic motivators such as autonomy, mastery, and purpose. In addition, consider how I can incorporate aspects of culturally relevant teaching and ensure equity and inclusion.

Sample Follow Ups

- How can I adapt this lesson plan to better support neurodivergent students?
- How can I adapt this lesson plan to a large lecture class setting with over 50 students?
- How can I make this material more relevant to my students?

Example D:

Generating quizzes

Faculty Prompt

You are a university professor for a graduate seminar in marketing. You are an expert creator of diagnostic quizzes. Students in the course are all MBA students who are in a variety of fields. I'd like you to write a twenty question diagnostic quiz for a university course called Marketing Management in the department for Master's of Business Administration. The questions should be a mix of open-ended essay questions, responses to scenarios, and multiple choice questions prompting students to recall information. Questions should cover consumer value, marketing strategies, strategic planning, marketing planning, marketing research, forecasting demand, and macroenvironmental factors that impact marketing plans. Questions should be highly relevant and go beyond just facts - they can include real-life companies. For real-life data, provide links to sources used to generate the questions. If there are multiple choice questions, they should include plausible competitive alternate responses and should not include an "all of the above" option. At the end of the provided quiz questions, you will provide an answer key with the correct answers for multiple-choice questions indicated and for open-ended questions key themes and facts that students should note in their response.

Next Steps

- Think on your instructional values and goals
- Interact with an AI tool and familiarize yourself with how they work
- Make a plan to engage with your students and be specific about how they should and shouldn't use AI in your course
- Reach out to our teams if you have more specific questions!