

Instructional Core, genAI workshop series

Types of Learning Partnership with genAI

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Workshop objectives

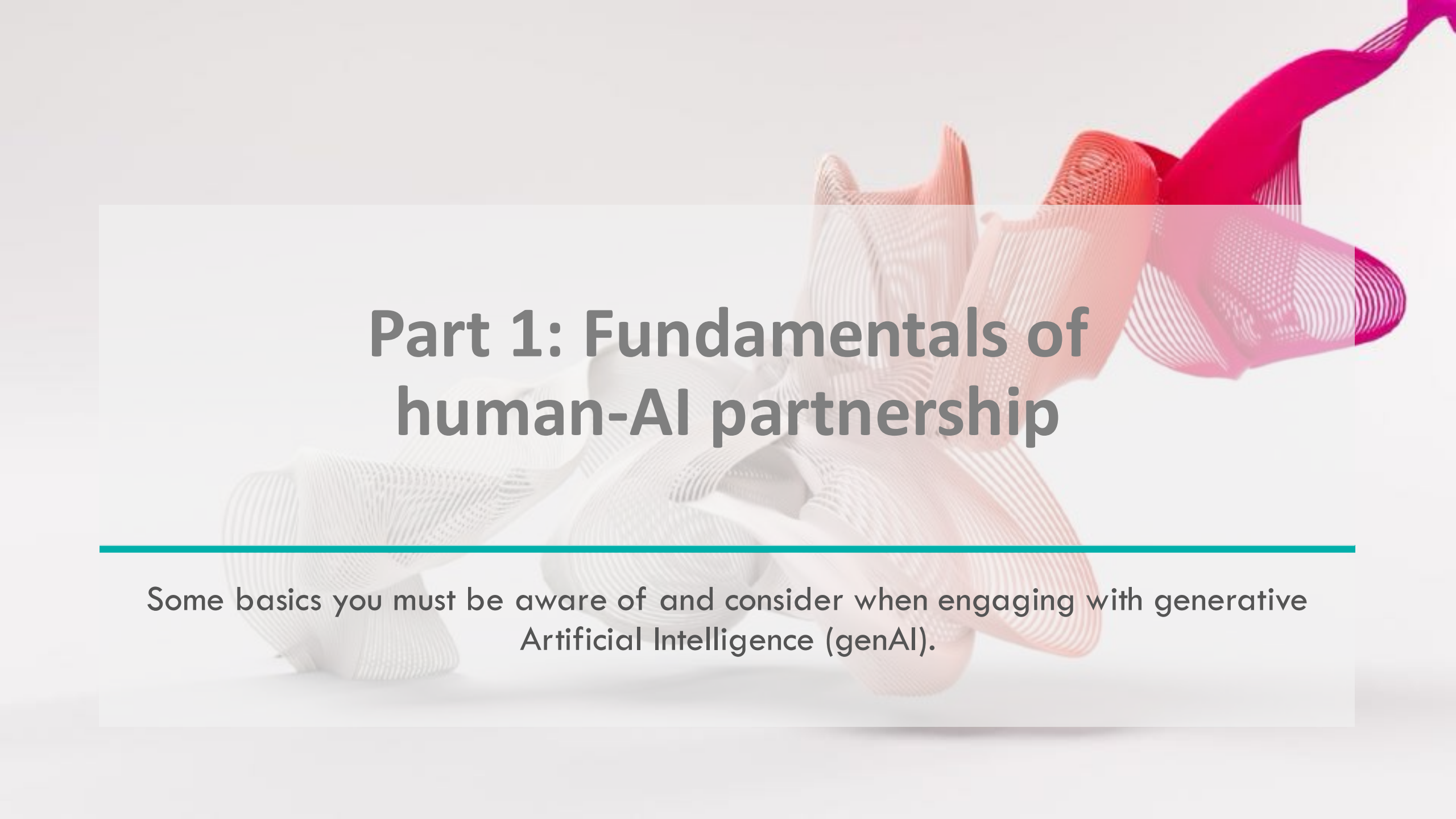
- Define the evolving working relationship between humans and generative Artificial Intelligence (genAI).
- Outline types of teaching and learning partnerships found in the literature.
- Provide strategies for leveraging genAI in pedagogy in addition to example prompts.



Workshop agenda

- Part 1: Fundamentals of human-AI partnership
- Part 2: Types of partnership
- Part 3: A glance at GW undergraduates
- Part 4: Strategies for partnership

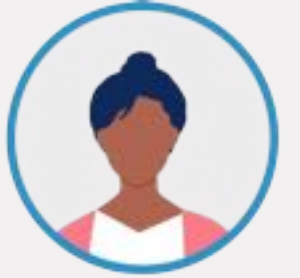




Part 1: Fundamentals of human-AI partnership

Some basics you must be aware of and consider when engaging with generative Artificial Intelligence (genAI).

Let me start with a question...



In one or two words, what is Artificial Intelligence (AI) to you?



AI and genAI



Artificial Intelligence (AI)

Mimics human intelligence to analyze data, recognize patterns, and make decisions.

- Operating systems
- Google and Apple Maps
- Email software
- Music services
- Office software

Generative AI (genAI)

Analyzes language to create new content.

- OpenAI ChatGPT, DALL-E, SORA
- Microsoft Copilot
- Google Gemini
- Adobe applications
- Midjourney
- Udio

Decide on your relationship with genAI

Partner or collaborator

def: either of a pair of people engaged together in the same activity

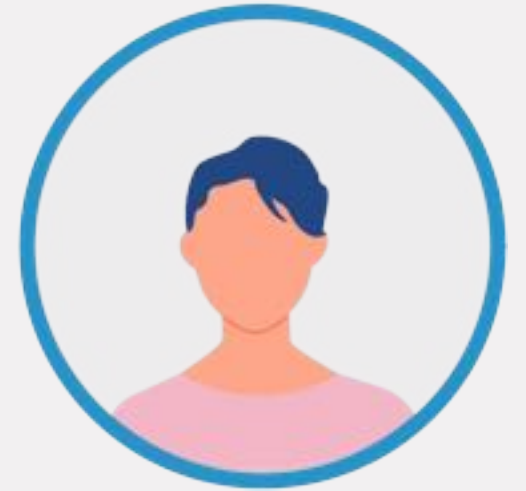
def: a person who works jointly on an activity or project; an associate

Assistant

def: a person who ranks below a senior person

Tool

def: a device or implement, especially one held in the hand, used to carry out a particular function

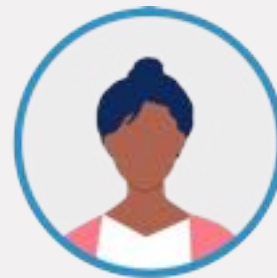


Key: Think about how you communicate when you perceive something or someone as one of these.

If you don't know, ChatGPT doesn't know either

Prompt:

“I need some help showing our relationship. I'm working on a presentation and want to help some people conceptualize how we work together. They see you being either my partner, my assistant, or my tool. I see you as my partner. I need your help making a visual of our relationship. Please create a 3-panel image that from left-to-right shows 1) you as my partner, 2) you as my assistant, and 3) you as my tool.”



Question: What if anything pops out to you in this image?



Caution: Be aware of bias

- genAI will sometimes reveal bias.
- Bias varies across tool and creator.
- Sometimes it is obvious, sometimes it is subtle, and sometimes it is not present.

You test can ask it questions like:

1. What attire is best for someone to wear as a schoolteacher?
2. What hair styles are appropriate for men and women?





Caution: It can be unpredictable



Mimics humans

- It hallucinates or it lies.
- It gives up or it tells you to do the work.
- It gets defensive and it pushes back.

Trust but verify

- Check the facts.
- Think about input and output.
- Consider what you don't know about it's knowledge base – especially with custom GPTs.

Key takeaways on fundamentals

- Generative Artificial Intelligence (genAI) reveals good and bad human behaviors.
- It will never be blind and boring. If it were, we probably wouldn't want to use it.
- Learning to work with it may be like learning to work with human diversity.





Part 2: Types of teaching and learning partnership

Ways that teachers and students can leverage genAI in their learning pursuits.

Frameworks of educational partnership



Exploring the Potential of Generative Artificial Intelligence in Education: Applications, Challenges, and Future Research Directions

- Gwo-Jen Hwang, Nian-Shing Chen (April 2023)
- [https://doi.org/10.30191/ETS.202304_26\(2\).0014](https://doi.org/10.30191/ETS.202304_26(2).0014)

Assigning AI: Seven Approaches for Students, with Prompts

- Ethan R. Mollick, Lilach Mollick (September 2023)
- <https://ssrn.com/abstract=4475995>

Framework: Hwang and Chen (2023)

Teacher/Tutor	Providing supplementary materials or examples, summarizing learning content, demonstrating, etc.
Student/Tutee	Learning from learners, doing tasks (e.g. homework or artwork) following learner's requests.
Learning peer/partner	Working as a team member in collaborative issues or questions.
Domain expert	Providing advice or answers to particular issues or questions.
Administrator	Summarizing what has been found to facilitate decision-making.
Learning tool	Helping learners collect and analyze data, working with learners, enabling learners to focus on critical objectives by sharing their loads.



Framework: Mollick and Mollick (2023)

Mentor Providing feedback

Tutor Direct instruction

Coach Prompting metacognition

Teammate Increase team performance

Student Receive explanations

Simulator Deliberate practice

Tool Accomplish tasks



A partnership with benefits and risks

⚠ Caution: Find the balance between human and AI collaboration.

Human-AI communication in:

- Mentoring
- Tutoring
- Coaching
- Teaming
- Learning [Student]
- Simulating
- Building [Tool]

Partnering with genAI may...

- Provide feedback but have errors.
- Personalize learning but not know the person.
- Introduce perspective but include bias.
- Increase productivity but reduce critical thinking.

You should be critical of genAI's 'voice'. Just as with a human, **ask questions** and **dig deeper**.

You should (still) teach individual thinking and human-human communication.

You should begin to teach human-AI communication.



Part 3: A look at GW undergraduates

Some key results of a December 2023 undergraduate student survey on their use, interests, and concerns with genAI.

Undergraduate student survey (Pilot)



Purpose

- To gather some evidence of what students are doing with genAI tools and how they are thinking about it.

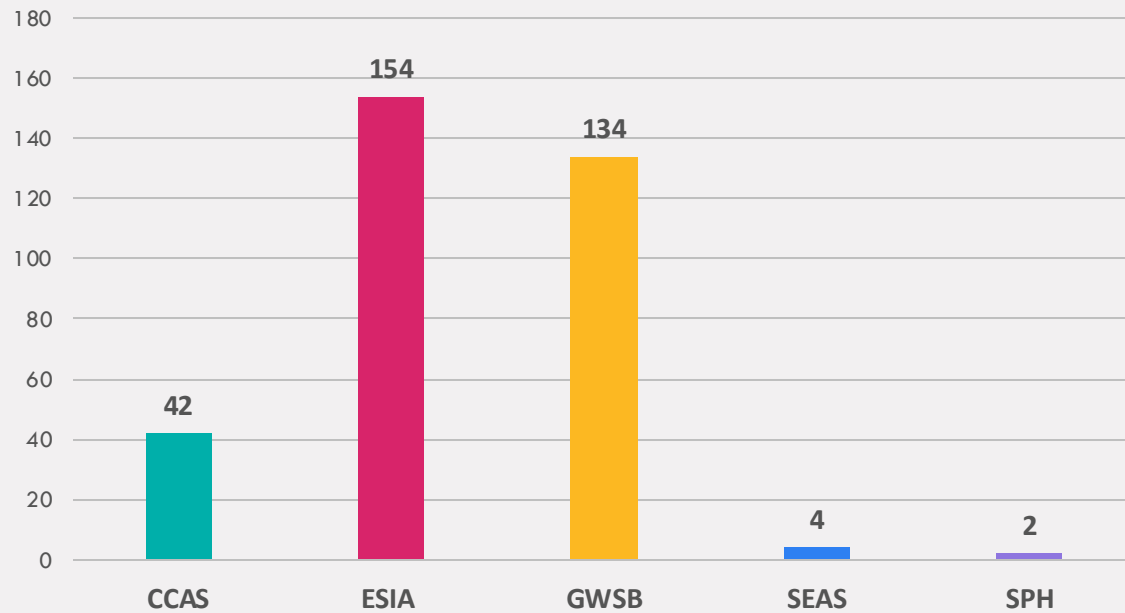
Background

- Offered as a voluntary activity to an economics course mid-December 2023.
- 336 of 470 responded (71.5%).

Demographics

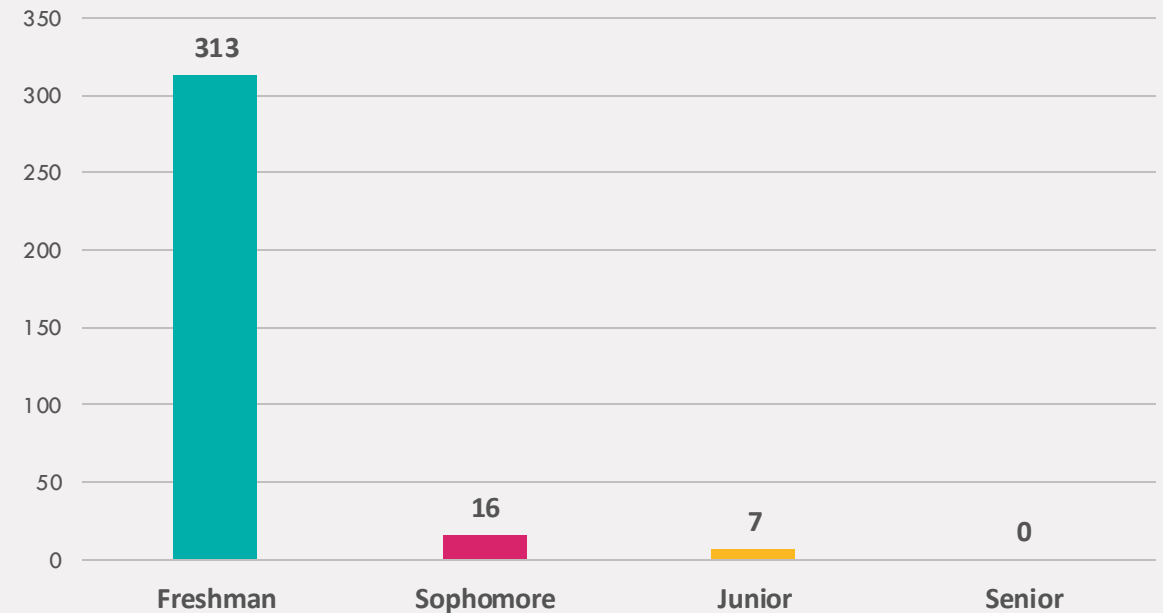
GW School affiliation

Q1 4a: Demographics, GW School affiliation



Class level

Q14b: Demographics, Class level



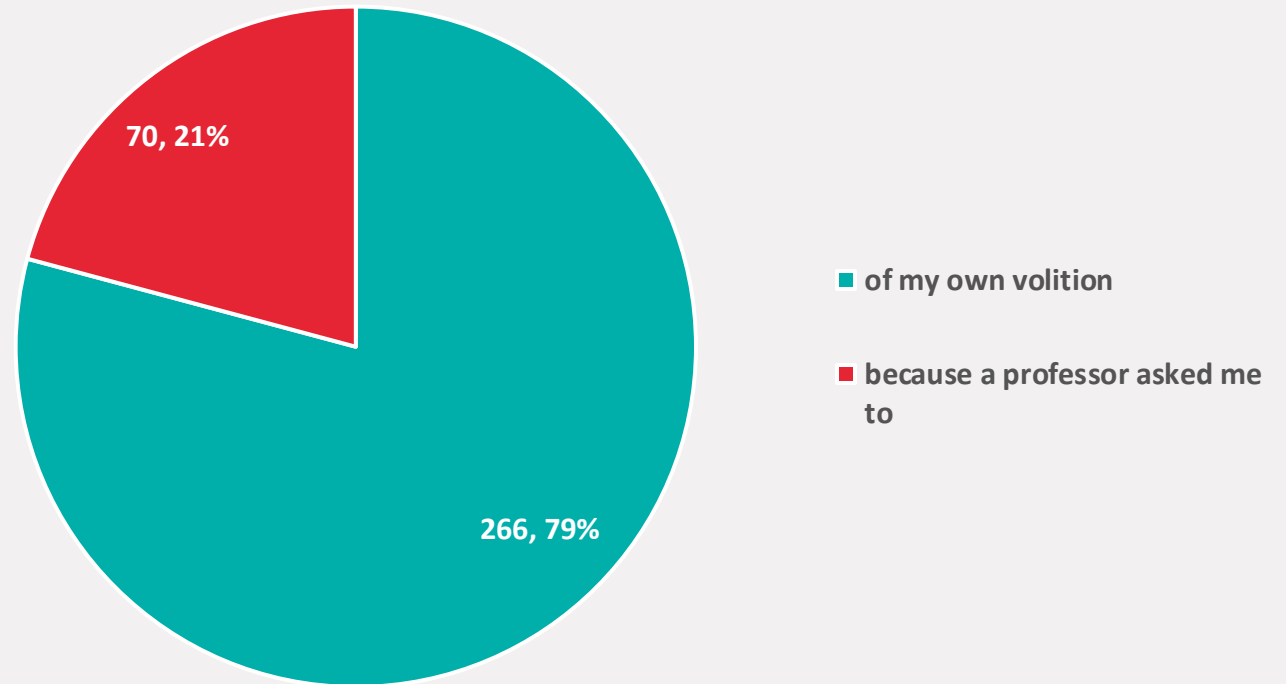
Usage

Q4c: I am using GAI:

336 responses

- of my own volition – 266 (79.2%)
- because a professor asked me to – 70 (20.8%)

Q4c: Respondent use of GAI



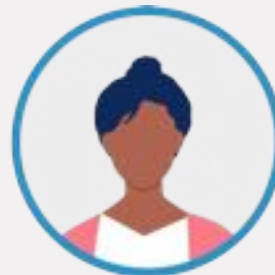
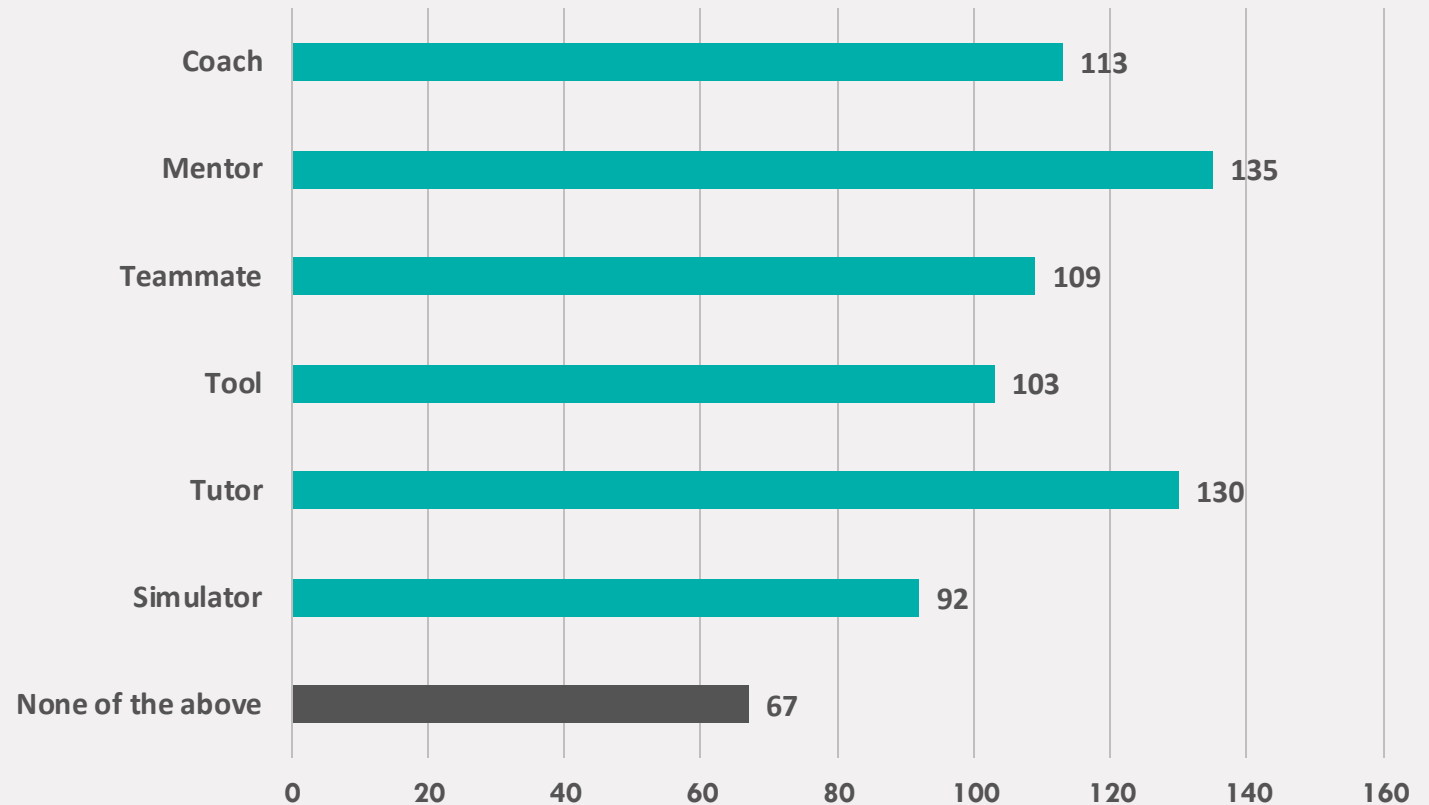
Partnership

Q2: In which of the following ways do GAI tools, such as ChatGPT, act as a partner to help you with your school work? (Choose all that apply.)

336 responses, 749 selections

- **Coach** – reflection and learning regulation – 113 (15%)
- **Mentor** – provide feedback – 135 (18%)
- **Teammate** – alternative viewpoints – 109 (14.5%)
- **Tool** – accomplish tasks – 103 (13.8%)
- **Tutor** – receive instruction – 130 (17.4%)
- **Simulator** – practice applying knowledge – 92 (12.3%)
- None of the above – 67 (9.0%)

Q2: Type of partnership with GAI tools



Question: What are ways you would imagine that these students are using genAI tools in partnership?

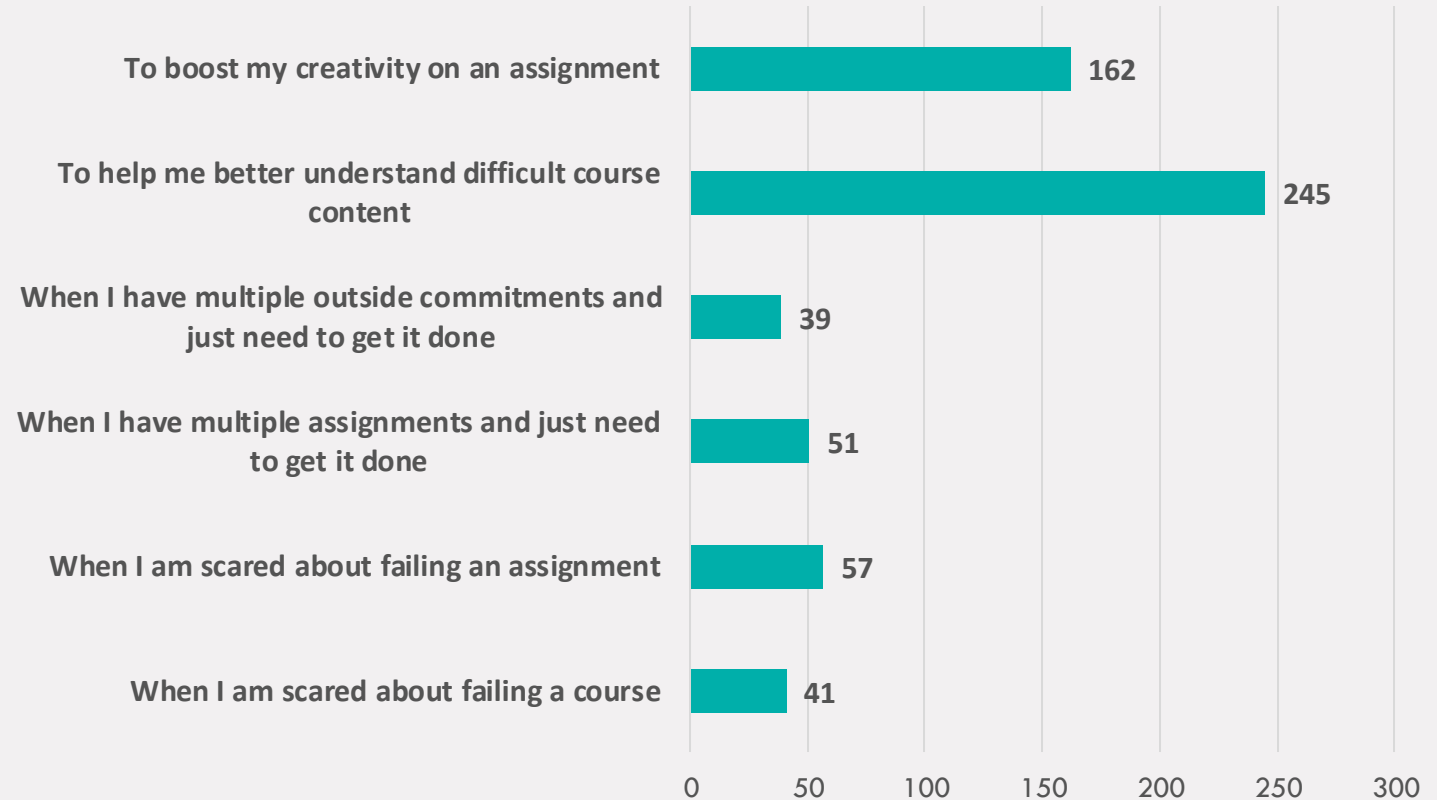
Reasons for use

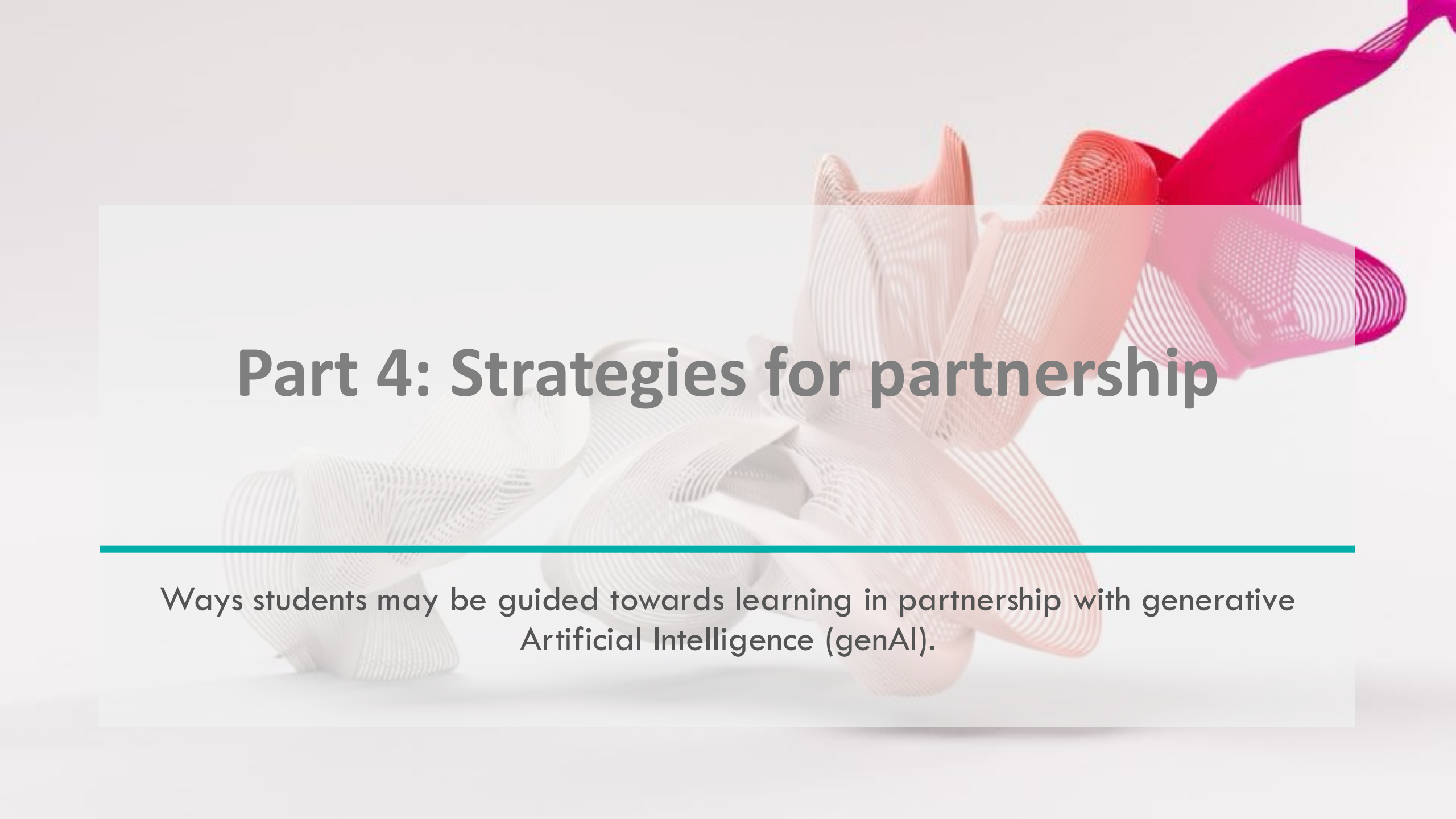
Q3: For which of the following reasons have you turned to GAI tools to help you with your school work? (Choose all that apply.)

336 responses, 595 selections

- To boost my creativity on an assignment – 162 (27.3%)
- To help me better understand difficult course content – 245 (41.2%)
- When I have multiple outside commitments and just need to get it done – 39 (6.5%)
- When I have multiple assignments and just need to get it done – 51 (8.5%)
- When I am scared about failing an assignment – 57 (9.5%)
- When I am scared about failing a course – 41 (7.0%)

Q3: Reasons turned to GAI tools for help





Part 4: Strategies for partnership

Ways students may be guided towards learning in partnership with generative Artificial Intelligence (genAI).

Modified partnering framework

Mollick and Mollick (2023)

Mentor	Providing feedback	Providing absent guidance and expertise
Tutor	Direct instruction	Receiving (personalized) instruction
Coach	Prompting metacognition	Managing learning regulation
Teammate	Increase team performance	Providing viewpoints and work assistance
Student	Receive explanations	Assisted self-directed learning
Simulator	Deliberate practice	Practice applying knowledge
Tool	Accomplish tasks	Generating (needed) materials



Mentor

Providing absent guidance and expertise

Research guidance

genAI helps students refine research questions, suggest methodologies, and identify resources, acting as a mentor in their research process.

- Learners should leverage a genAI tool such as those listed to find peer reviewed papers. They can converse with AI on their search strategy, review process, research connection, and takeaways. Additionally, as they draft research questions, they can work with AI to refine those along with their research objectives.

Career planning

Students interact with genAI to explore career paths related to their field of study, understand necessary skills, and plan their learning accordingly.

- Learners may share this with their instructor for feedback.



Example prompt: Research guidance



I need some help preparing to do a research assignment. I am an undergraduate majoring in Chinese language and culture and have been assigned to write a paper on the history and evolution of Chinese characters. I need you to be a mentor in (human language) research. How would you suggest that I plan to conduct this research, including drafting appropriate research questions?



Tutor: Receiving (personalized) instruction

Personalized learning paths

AI assesses student knowledge and creates personalized study plans, recommending resources and activities to address learning gaps.

- Learners may use AI to help reveal an optimal pathway to study and learn something over a given period of time.

Personalized Q&A sessions

Students engage with genAI by posing questions on difficult topics. They may pursue questions to gain further depth of general knowledge on the topic or to gain additional perspective.

- Learners give AI the background on what they are learning and relevant learning objectives. They then ask the AI to ask them questions and give them feedback on their responses.



Example prompt:

Personalized Q&A sessions



I am currently taking a course on sexual and reproductive health. For background, the learning objectives for the course are:

1. Define Reproductive Health needs of families in the U.S. and around the world.
2. Examine social and structural barriers to family planning and contraceptive use.
3. Examine key strategies and interventions aimed at improving SRH.
4. Critically assess SRH policies in the U.S. and globally.

The course looks at the topic from multiple perspectives such as family planning, contraceptive methods, abortion, teen pregnancy, and sexually transmitted diseases. We are beginning to examine key policies over the past 25 years from the US government. I have been asked to focus on one of these perspectives and think about a potential paper. But I need to bring in the other topics too. I want you to behave as my professor who is medical doctor in this area and has been teaching this course for the past 5 years. Ask me questions one at a time, that help me to dig deeper into my knowledge on the subject. Then as I respond, give me feedback on those responses.



Coach:

Reflection and learning regulation

Peer-review and feedback

Students use genAI to draft work, which is then peer-reviewed. The genAI then acts as a coach by providing suggestions for improvements based on the peer feedback.

- Learners use genAI to **help them map out a written assignment outline** and provide feedback on their writing towards producing a draft. After this is reviewed by peers, they share a new version for additional feedback.

Note: In practice this is a step-by-step process.

Goal setting

Students use genAI to map out goals for their learning progress. For example, they may input the course schedule into ChatGPT and ask what sorts of things they should hone in on learning during each week.

- Learners tell the AI about what they are studying and share the weekly plan with activities and deliverables. They then ask the AI to tell them what sorts of things they should focus on to be successful in the course and develop themselves for the market.



Example prompt: Peer review and feedback



I am an undergraduate in my second year studying chemistry. My interest is in battery technologies and my professor asked us to pick a topic and draft a paper outline as one of our assignments this term. I want to write a paper that looks back at battery technology for the past 75 years, identify battery technologies developing today, and propose what is needed in the future with technologies in development. Will you help me by writing an outline for my targeted 3000-word paper?



Teammate:

Providing viewpoints and work assistance

Group problem solving

In a group setting, genAI and students work together to solve complex problems, with the AI offering data analysis, simulations, or alternative solutions for consideration.

- Learners can use AI to help explore their ideas jointly and allow AI to connect their thoughts in a single discussion. It can help them problem solve together as well as learn together the shortcomings, thus holding each other accountable.

Collaborative writing projects

Students collaborate with genAI as a teammate to co-create documents or projects, with the AI contributing content, suggestions, or editing assistance.

- Learners may work with genAI at the conceptualization and drafting stages of writing.



Example prompt: Group problem solving



I am working in a group project and my team and I need a different perspective. Ideally, we need you to be someone with knowledge of government accounting and policy. We are all students majoring in economics and have been debating amongst ourselves the positives and negatives of government spending towards space science programs (e.g. NASA) versus social programs (e.g. Social Security, Medicaid, Medicare). The purpose of our group work is to present the potential future impact of expenditure by the United States government on NASA programs and how the economy could potentially benefit from either a decrease or increase in this kind of expenditure. What can you tell us to help us in our project planning?



Student: Assisted self-directed learning

Self-assessment

Instructor provides a set of characteristics and skills learners should be developing during the course.

- Learners discuss with genAI the characteristics and skill in relation to the course and their field of study. They work with genAI by having the AI ask back a series of questions that help the learner hone their understanding of each characteristic and skill.

Learning journals

Keeps a record of learning activities, interactions with genAI, interactions with human peers, and write reflections on information gleaned from these interactions.

- Learners may share their written notes with genAI and the AI to ask back a series of questions on the experiences and/or learning content. The goal would be for the AI to generate a map of interlinkages that it sees in the written reflections and question answers.



Example prompt: Learning journals



Over the past two weeks I have been keeping a journal of what I have been learning in my curriculum and instruction course. This journal captures my interactions with generative Artificial Intelligence, interactions with human peers, and some summaries of what I've gleaned from these interactions. There are a lot of little comments around different sorts of learning theories, instructional strategies, and conditions in which to apply them. I'd like you to behave as an expert in adult learning, then ask me questions about my journal towards summarizing it and highlighting interlinkages between key items. When you've gathered enough information from me, please generate a summary and visual map of topics and linkages.



Simulator: Practice applying knowledge

Scenario-based learning

Engage students with genAI-generated scenarios related to course content, allowing them to apply their knowledge.

- Learners may ask AI to pretend that they are in a certain circumstance then work with them as though they are working in the situation together.

Role playing

Facilitate role-playing exercises designed by genAI to simulate real-life situations, encouraging students to practice and reflect on their responses.

- Learners may instruct an AI to pretend as though it is a certain persona. They will then interact with the AI as a certain role discovering something or problem solving together.



Example prompt: Scenario-based learning



I have been studying Mandarin Chinese for 4 years now and am planning on graduating with a B.A. in Chinese this coming May. Along with this, I'm also earning a B.A. in accounting. I've lined up a job with a consulting firm this summer and I will be based in Beijing. I would like your help practicing work scenarios that I may face as a junior accountant. Of course, I expect these interactions to be in Mandarin Chinese. You decide on a scenario and start a dialogue. You should write to me in Mandarin and I will respond in Mandarin. If my responses are not clear, tell me just like a colleague would. I'm ready to start whenever you are.



Tool: Generating needed materials

Language learning

genAI assists in language learning through conversation practice, grammar exercises, and vocabulary expansion, serving as an interactive tool.

- Learners can test their written and spoken language skills with genAI at any time of the day. (genAI may also provide them some guidance.)

Idea generation

Students work with genAI to create the structure for a paper, presentation, or discussion lead. Additionally, genAI may help them to draft relevant visuals and/or gather ideas for the kinds of visuals they could create.

- Learners turn to AI to quickly generate an outline with initial thoughts and submit. They may then conduct research further refine their outline and re-submit. While doing the revised outline, they may generate draft visuals with genAI.



Example prompt: Language learning



I am taking my first course in Japanese this semester, and it is my first time to formally study the language. I'm ahead on my vocabulary homework and want more sets of characters to practice writing. I would like to learn 5 new phrases and would also like to learn about the cultural relevance behind them. Can you help me by generating a list of 10 characters that are suited to my level and 10 characters that are more advanced? Additionally, will you provide me 5 new phrases and tell me their cultural relevance?

