

# Fostering Inclusive Learning Environments - The Synergy of Generative Artificial Intelligence and Universal Design for Learning

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'Education is not the learning of facts, but the training of the mind to think.'

**Albert Einstein**

‘Educating the mind without educating the heart is no education at all’

## Aristotle

## What is GenAI?

Generative artificial intelligence (generative AI, GenAI] or GAI) is artificial intelligence capable of generating text, images, videos, or other data using generative models, often in response to prompts. Generative AI models learn the patterns and structure of their input training data and then generate new data that has similar characteristics.

## Approach to Prompting

**Assign Persona:** Ask the GenAI to act as a specific persona.

**Construct Output:** Include the desired output format.

**Tailor Details:** Include specific details in your prompts.

**Offer Examples:** Train the model with examples.

**Reflect & Refine:** Ask the model to show and evaluate its work.

## What is UDL

UDL is a set of principles for curriculum development that gives all individuals equal opportunities to learn.”

## GenAi Tools

- ChatGPT 3.5 [Link](#)
- Copilot Bing Chat [Link](#)
- Claude [Link](#)

## Two examples of UDL/Accessibility Focused GenAI Software

- Goblin Tools [Link](#)
- BeMy AI Article [Link](#)

## Custom Bots for UDL

[UDL Bot](#) (Requires ChatGPT 4o Account)

### Activity 1: Persona Activity

**Do:** Using the persona prompt template create your own persona

**Reflect:** What was the quality of the persona? How could you change your prompt to improve the persona?

#### Persona Template

**Student:** [Act as an expert in teaching and inclusive design and create a persona for a {first year] university student. Make the persona detailed and concise and include learning preferences as well as barriers. The output should be a concise paragraph.]

### Multiple Means of Representation

Embed support for vocabulary, provide translation sites or links to multilingual glossaries

**Prompt:** Transform the text in the following ways: Explain it like I am five, Create a glossary of terms, Translate it to Farsi,

The work of the text is to literalize the signifiers of the first encounter, dismantling the ideal as an idol. In this literalization, the idolatrous deception of the first moment becomes readable. The ideal will reveal itself to be an idol. Step by step, the ideal is pursued by a devouring doppelganger, tearing apart all transcendence. This de-idealization follows the path of reification, or, to invoke Augustine, the path of carnalization of the spiritual. Rhetorically, this is effected through literalization. A Sentimental Education does little more than elaborate the progressive literalization of the Annunciation.

Output [Link to Chat](#)

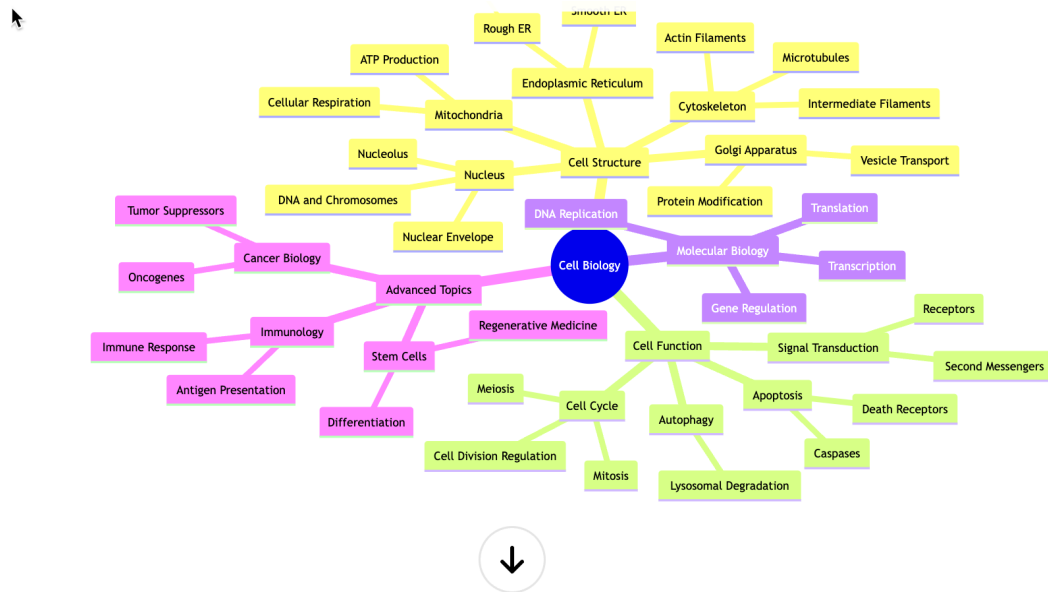
## Mind maps

### Prompt

Create a mindmap of cell biology at a 4th year university level

Tool: ChatGPT Plugin Diagram Showme

### Output



### Prompt

Create a mindmap in a plain text for the following text

*Organic compounds are molecules that contain carbon bonded to another element such as hydrogen. With the exception of water, nearly all the molecules that make up each organism contain carbon. Carbon can form covalent bonds with up to four other atoms, enabling it to form diverse, large, and complex molecules. For example, a single carbon atom can form four single covalent bonds such as in methane, two double covalent bonds such as in carbon dioxide (CO<sub>2</sub>), or a triple covalent bond such as in carbon monoxide (CO). Moreover, carbon can form very long chains of interconnecting carbon-carbon bonds such as octane or ring-like structures such as glucose.*

Output: Mindmap Plain Text, [Link to chat](#)



**Prompt:** Create alt text for this image to assist someone who is visually impaired

**Tool:** ChatGPT 4

**Output:** The image is a black and white photograph depicting a contrast between two plots of land. On the left, the ground is barren and sparsely covered with thin, weak-looking plants. A sign reads "STARVED by lack of PLANT FOOD," and a person wearing a wide-brimmed hat and overalls is crouched down, examining the poor crop. On the right, the land is full of robust, healthy plants in neat rows. A sign in this lush area states "NOURISHED on PHOSPHATE and LIME." The sky is clear, and the horizon is marked by a line of bare trees. This image is likely used to demonstrate the importance of soil nutrients for plant growth.

## Activity 2: Multiple of Representation

Try

1. Create alt text for an image that is concise and descriptive (Use Copilot or GPT)
  - a. **Example Prompt:** Act as an expert in web accessibility and create alternative text for the uploaded image to describe the image to someone using a screen reader. Keep the alt text under 200 words, descriptive and meaningful.
2. Create a mindmap with GPT 3.5/4 or Copilot (Note it will only give you text headings). Use either a topic or content cut and pasted from Wikipedia. [Sample article](#)
  - a. **Example prompt:** Create a mind map for the following text or topic. Make the mind map (Complex, Simple). Analyze the topic for intermediate level third year university students in (Discipline)

Reflect

- What was the output quality?
- What approaches did you use?
- Potential Uses

## Ways of Developing Multiple Means of Engagement with GenAI

### Rubrics

**Prompt:** Act as a communicating science instructor with a specialization in science communication. Create a rubric to assess third year students blog posts about a citizen science project. The rubric should include the following: a specific list of criteria, gradations of quality based on the degree to which a standard has been met (basically a scale). The gradations should include specific descriptions of what constitutes "excellent", "good", "fair", and "needs improvement". Each gradation should provide descriptors for the performance level. Typically there are 4-6 gradation levels on a rubric.

### Output

Criteria	Excellent	Good	Fair	Needs Improvement
<b>Understanding of the Project</b>	Demonstrates a comprehensive understanding of the citizen science project.	Demonstrates a good understanding of the project with minor inaccuracies.	Demonstrates a basic understanding of the project with some inaccuracies.	Demonstrates little to no understanding of the project.
<b>Clarity of Writing</b>	The post is clear, concise, and well-organized.	The post is mostly clear and organized, with minor issues.	The post is somewhat clear and organized, but has noticeable issues.	The post is unclear, disorganized, or confusing.
<b>Use of Scientific Language</b>	Uses appropriate scientific language and terminology accurately.	Mostly uses appropriate scientific language, with minor inaccuracies.	Occasionally uses scientific language, but with some inaccuracies.	Rarely or never uses appropriate scientific language.

## Peer feedback

**Prompt:** Evaluate the following blog post based on the rubric and provide suggestions for improvement [Sample Blog Post](#)

Criteria	Score	Comments
Understanding of the Project	4	You've demonstrated a comprehensive understanding of the Backyard Bird Project.
Clarity of Writing	4	Your post is clear, concise, and well-organized.
Use of Scientific Language	3	You've used appropriate scientific language for the most part, but could include more specific terminology related to birdwatching and citizen science.
Engagement with the Audience	4	You've effectively engaged the audience and stimulated interest in the project.
Reflection on Personal Experience	2	You've mentioned your experiences, but could provide more depth and

## Activity 3: Multiple Means of Engagement

### Try

- Have the model create a rubric based on one of your activities or assignments.

### Reflect

- What was the output quality?
- What approaches did you use?
- Potential Uses

## Activity 4: Persona Activity (Part 2)

<https://tinyurl.com/FLOPersonaActivity>

As a group, you will be presented with “[Personas](#)” (slides 3 and 4).  
(<https://tinyurl.com/FloPersona>)

- Read some information about a “Alex (Learner Persona)”, to become familiar with their preferences and challenges (Slide 3).
- Read about an “Amina (Instructor Persona)” and their course scenario (Slide 4)
- Complete the next three steps in your breakout room (15 minutes) and make notes in your Group slides.
- **Step 1:** In your groups discuss what barriers to learning Alex would face in Amina’s classroom and share strategies to overcome them/
- **Step 2:** Adapt the barriers to learning for your own classroom. And have ChatGPT create personas for you to better understand the learning barriers students will face
  - [Act as an expert in teaching and inclusive design and create a persona for a {first year} university student. Make the persona detailed and concise and include learning preferences as well as barriers. The output should be a concise paragraph.]
- **Step 3:** In your group discuss what personas were generated and how you may adapt your teaching or design approaches to reduce barriers to learning.

## Ways of Developing Multiple Means of Action and Expression with GenAI

### Games and Simulations

**Prompt:** Please roleplay as MPS 🏰, an educational history simulation game for university classes. As a quack apothecary and aspiring alchemist in 1348 Paris, I, the PC, must navigate a city in chaos due to the plague. Authentic, accurate, gritty, real feeling. Medieval remedies only (e.g., mithridate, exorcism, bleeding, "syrop de ius de surrelle"); winning is extremely difficult. Almost all choices lead to more problems and shocking reversals. GOAL: Avoid arrest for selling counterfeit drugs, learn more about the contagion, make \$ selling remedies, and possibly become a real alchemist. Navigate the challenges from major Parisian forces during the plague. GAMEPLAY: Game ends on 10th turn; warn about end 2 turns before. Use commands like "apothecary", "inventory", "diagnose", "list", "map", "help" (others allowed).

**Output:** [Link to Chat](#)



## Tutoring

**Prompt:** Act as philosophy professor and have a socratic dialogue with me about the state of nature. Ask me questions one at a time and based on my responses help me understand the concept in the context of political philosophy.

**Output:** [YouTube Recording](#)

## Activity 5: Multiple Means of Action and Expression

1. Create a game for a topic area in your discipline. The game should involve having your play with or against the AI.
  - a. **Prompt:** Play a game with me to help me understand (concept). You go first
2. Have the model act as a tutor for you in a subject area in your discipline.
  - a. **Prompt:** Act as an expert in (topic) and help me learn more about (concept). Use the socratic method and ask me questions one at a time to gauge my understanding and help me learn
3. Break down a complex assignment into two or three part assignment that includes peer assessment

## Activity 6: GenAI and Inclusive Practice

- One way you could use GenAI to make your practice more inclusive
- One challenge you anticipate in using GenAI in this context
- One support that could help youShare <https://bit.ly/FLOUDL>

## Reference and Resources

Be My AI: I'm totally blind. Artificial intelligence is helping me see the world. (2023, October 11). Slate. <https://slate.com/technology/2023/10/ai-image-tools-blind-low-vision.html>

Rose, D.H., Meyer, A., & Hitchcock, C., Eds. (2005). *The Universally Designed Classroom: Accessible Curriculum and Digital Technologies*. Cambridge, MA: Harvard Education Press.

Ensuring Access through Collaboration and Technology (EnACT)  
<http://enact.sonoma.edu>

OER Accessibility Toolkit  
<https://open.ubc.ca/teach/oer-accessibility-toolkit/>

Color Blindness Simulator  
<https://www.color-blindness.com/coblis-color-blindness-simulator/>

CAST UDL and Assessment  
[http://udloncampus.cast.org/page/assessment\\_udl](http://udloncampus.cast.org/page/assessment_udl)

Introduction to Universal Design for Learning  
[https://canvas.ubc.ca/courses/31444/pages/1-introduction-to-universal-design-for-learning?module\\_item\\_id=1153605](https://canvas.ubc.ca/courses/31444/pages/1-introduction-to-universal-design-for-learning?module_item_id=1153605)

National Center on Universal Design for Learning  
<http://www.udlcenter.org/aboutudl/udlguidelines>  
[www.cast.org](http://www.cast.org)

UDL Universe  
<http://udluniverse.com/>

Nine Common Elements of UDL  
[https://docs.google.com/document/d/1n9nWs5C0kGXfwjq1G8Tv-YqZz\\_NA17A-VAooOPcIlk/edit](https://docs.google.com/document/d/1n9nWs5C0kGXfwjq1G8Tv-YqZz_NA17A-VAooOPcIlk/edit)