

# Instructional design with ChatGPT(-4o)

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# Workshop objectives

- **Identify** principles that guide instructional design activities.
- **Discuss** where in the instructional design process to use genAI and on what levels to conceptualize it.
- **Demonstrate** applications of ChatGPT-4o with common instructional design activities.



# Workshop agenda

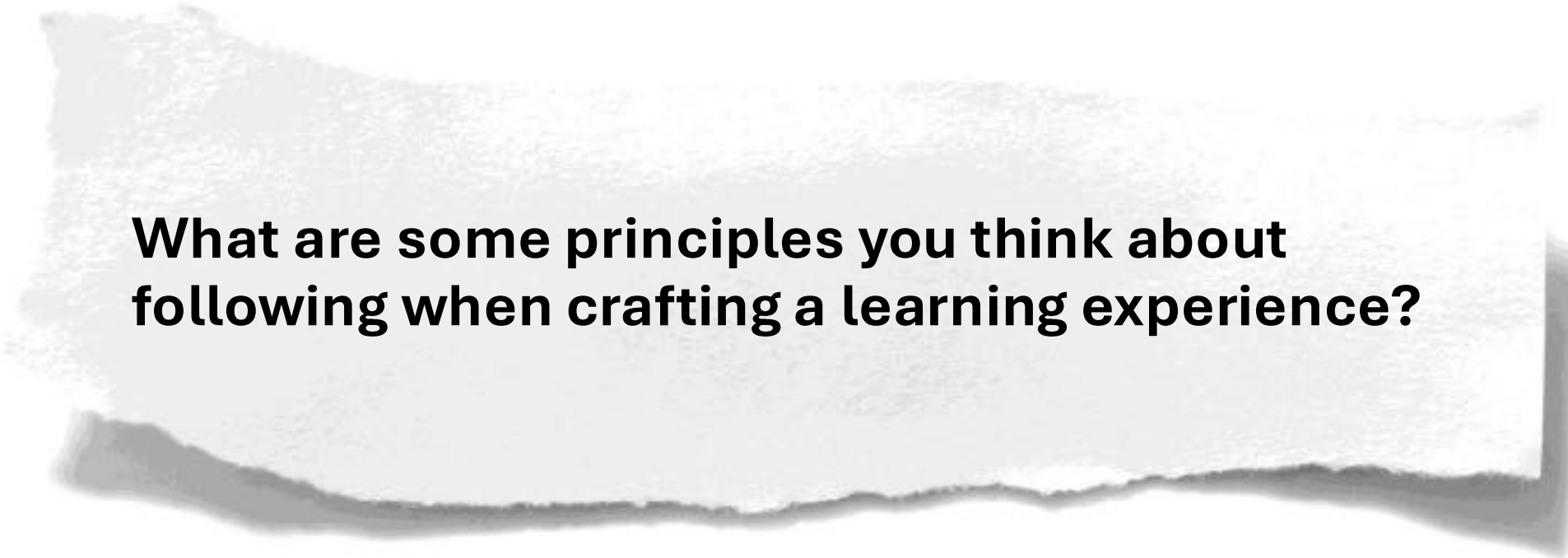
- Part 1: Principles of instructional and learning design
- Part 2: Formulating your plan to apply genAI
- Part 3: Demonstrations in how to apply genAI



# **Part 1: Principles of instructional and learning design**

Start on a high-level of what should guide the conceptual design of a learning experience.

**Let me start with a question...**

A piece of white paper with a torn, deckled edge is centered on the slide. It has a soft drop shadow beneath it, giving it a three-dimensional appearance. The paper contains the following text:

**What are some principles you think about following when crafting a learning experience?**

# Principled perspectives to consider

## Instructional design principles

1. Chunking
2. Labeling
3. Consistency
4. Relevance
5. Integrated visuals
6. Accessibility
7. Engagement
8. Collaboration
9. Feedback
10. Assessment

## Teaching principles

- Journey over destination
- Dialogue over direction
- Meaningful/authentic over rote

# Students look for experiences that are ‘meaningful’

- Connect to something non-theoretical. (e.g. case studies)
- Induce conversation and sharing perspectives.
- Challenge existing notions.
- Provide tested frameworks.





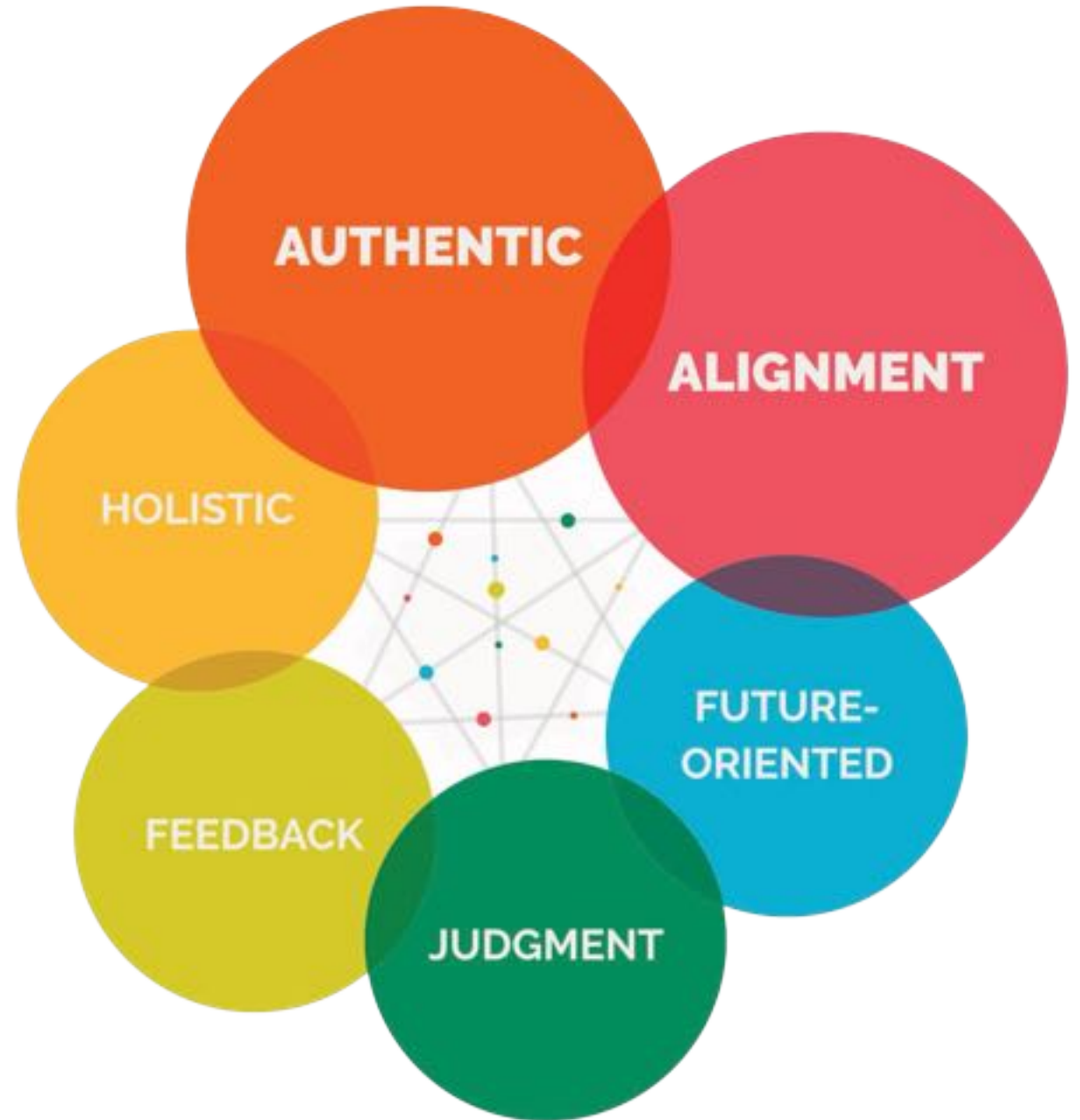
# Great instructional design

Can make the development smooth so that content experts (i.e. faculty) can focus on building human connection through teaching.

ChatGPT may be able to support this.

6 principles of learning design  
(Bound and Chia, 2019)

1. Authenticity
2. Alignment
3. Holistic
4. Feedback
5. Judgement
6. Future-oriented





# Authenticity and alignment

## Authenticity

- Focus on performance in the real-world
- Peer sharing with complex case studies and problems
- Practice that requires technical knowledge and skills, with communications

## Alignment

- Learning outcomes, assessment, readings, and activities support one another
- Develop deep understanding through problem-solving
- Addressing 'know-how' and 'know-why'

Bound, H. & Chia, A. (2019). The six principles of learning design. Institute for Adult Learning: Singapore



# Holistic and feedback

## Holistic

- Integration of knowing, doing, thinking, and feeling
- Development of 'soft-skills' with technical knowledge and skills
- Defining all that it is to be in the profession

## Feedback

- Giving and receiving input from peers
- Formative and self-assessment
- Should be a discussion

Bound, H. & Chia, A. (2019). The six principles of learning design. Institute for Adult Learning: Singapore



# Judgement and future-oriented

## Judgement

- Active engagement in one's own learning
- Practice making judgements about self and others
- Ownership of learning

## Future-oriented

- Ability to face unknowns beyond the current experience
- Skills of inquiry including questions and data collection
- Big picture thinking

Bound, H. & Chia, A. (2019). The six principles of learning design. Institute for Adult Learning: Singapore

## **Part 2: Formulating your plan to apply generative Artificial Intelligence (genAI)**

Decide on the role of genAI in instructional design and consider potential applications.

# If you're teaching, then you're likely doing some instructional design

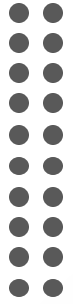
## Probably doing these things...

- Writing learning objectives
- Researching and pulling in content
- Ideating learning activities
- Conducting discussions
- Crafting assessments (+scoring)
- Working with EdTech
- Managing individualized needs

## Working with an ID or ChatGPT

- Another perspective
- Accessibility compliance (disabilities; legal; organizational)
- EdTech innovator
- Systems thinking
- Role player
- Addressing (personalized) student needs
- *Organizational support*

***But you still need to run the course, and you still need to keep it up-to-date.***



# Humanity in instructional design

The struggle is that only a human can shape and react to a human learning experience.

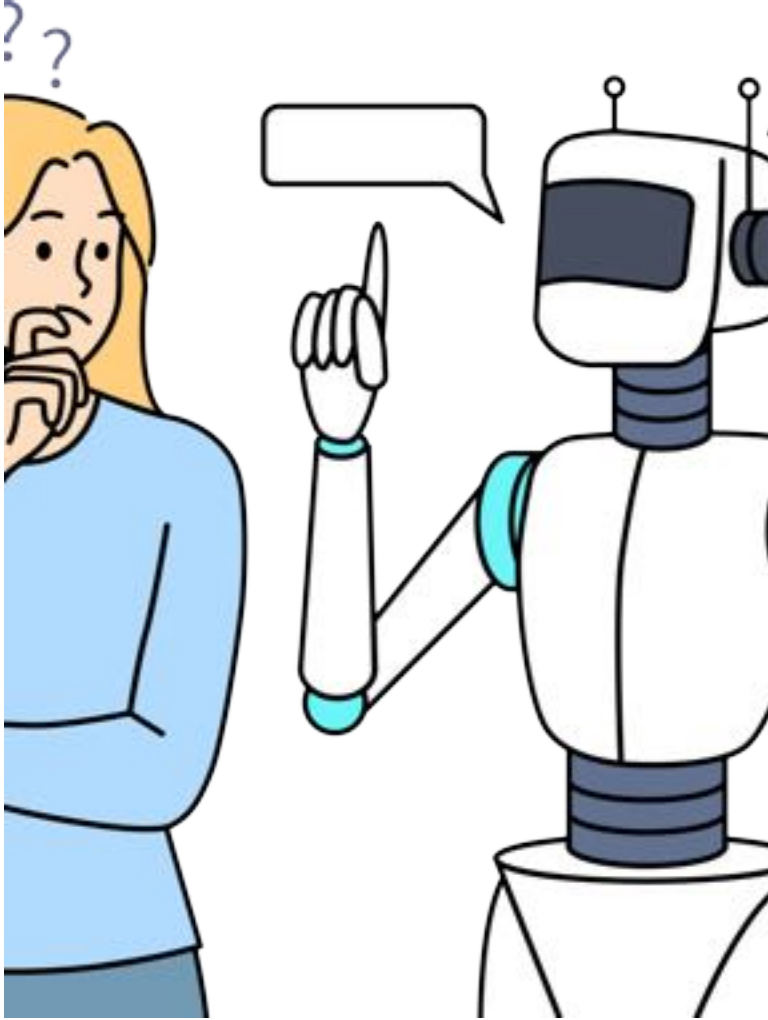
## Instructional design by a human can...

- Match appropriate theory with human and environmental conditions.
- Analyze existing products to match with contexts.
- Identify ethical, legal, and bias dimensions.
- Generate human solutions to human learning problems.



**So, let's take a step back...**

**Do you see places to apply generative  
Artificial Intelligence (genAI) in your  
instructional design?**



**High-level**

**Thinking partner**

# ***What is the center of my learning environment?***

- **Learner-centered** – individual information processing
  - How can AI help me plan activities and collaboration?
- **Knowledge-centered** – connecting prior and incoming information
  - How can AI generate activities that activate prior knowledge and bolster knowledge acquisition?
- **Assessment-centered** – acquiring necessary information
  - How can AI provide guidance, create questions, and generate feedback?
- **Community-centered** – sharing of information
  - How can AI help design environments to promote social interactions?



**Low-level**

**Task oriented partner**

## ***In what ways of design and delivery can I use help?***

- Assessing student assignments
- Assisting in administrative tasks
- Creating images or visualizations
- Creating simulated or synthetic datasets
- Creating tutoring or student guide resources
- Designing course materials
- Developing personalized lesson plans
- Recording audio for lectures

# Using ChatGPT can be high and low level

You should strive to approach integrating genAI at a high-level. But start with the low-level.  
Use it for both for your benefit and for the students benefit.

## Some benefits for faculty

- Alternative perspectives
- Research identification for new content
- Faster drafting of pedagogical ideas
- Accelerated design

## Some benefits for students

- Modeled use for professional life
- Knowledge of acceptability
- Accelerated learning
- Unemotional

## **Part 3: Demonstrations in how to apply generative Artificial Intelligence (genAI)**

Straight-forward ways of using genAI for instructional design with ChatGPT-4o.



## **Course and module levels**

# **Learning objectives**

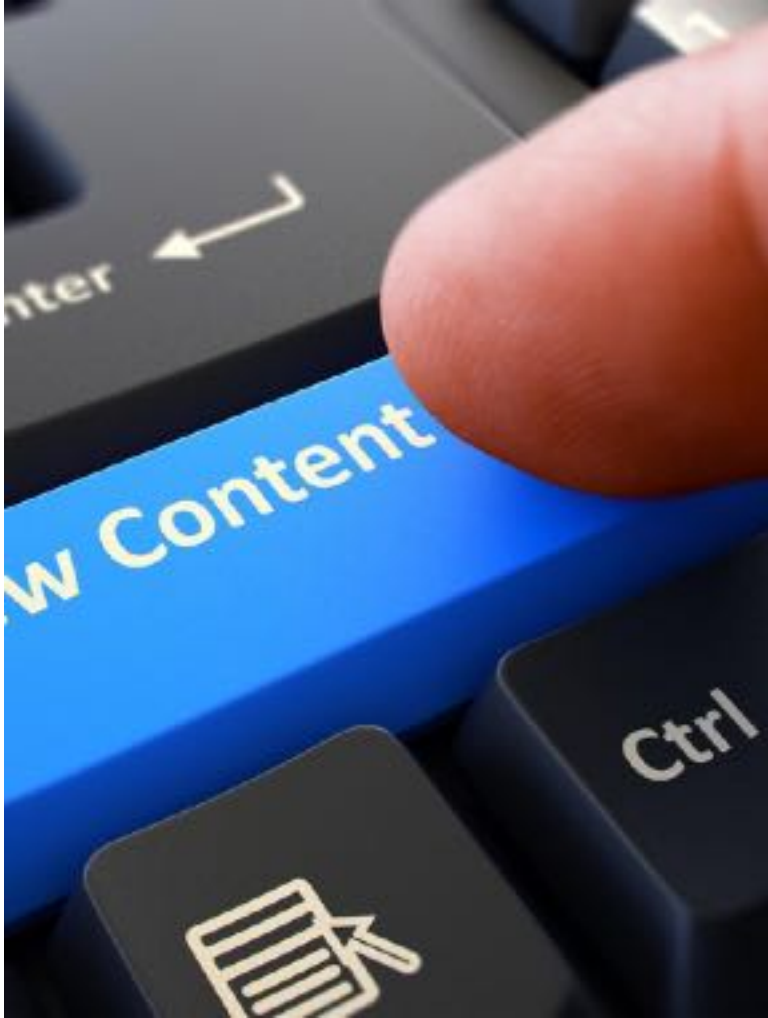
Prompt: “I am revising a course for undergraduate students and starting with course-level learning objectives. Broadly, the course is on the topic of digital media marketing. Many of my students have completed some relevant courses. My course has the following topics organized by module: 1) Introduction to digital marketing; 2) Digital marketing strategy; 3) Content marketing; 4) Social media marketing; 5) Search engine optimization; 6) Search engine marketing and pay-per-click; 7) Email marketing; 8) Analytics and data-driven marketing; 9) Influencer and affiliate marketing; and 10) Emerging trends and future directions in digital media marketing. Based on this, will you please create up to 8 course-level learning objectives. Be sure to not use unmeasurable words such as understand, appreciate, study, be aware, know, cover, learn, or realize.”



**Course, module, activity**

## Outlining ideas

Prompt: “I want to build on the digital media marketing course that I’m revising. One of the more important topics in the course is analytics and data-driven marketing. In this module I introduce the students to 3 key strategies for collecting data, how best to organize it, and how best to share it. For example, a project for this topic is to analyze a data-set from political consulting company on green energy, then organize and present their analysis through an individually designed infographic. I don’t want to completely change this activity, but I need to see a different outline of how it can be done. Can you give me 2 outlines for this activity? You can change the topic of the data set.”



**Course, module, activity**

## Content refresh

Prompt: “I am teaching a course this term to undergraduate engineering students in the mechanical engineering program. In my course, we design and build small flying drones and purpose them for various needs. I want to refresh my instructional content leading up to the course project. In particular, I need ideas for contexts and conditions for small drone use. These can be for government and business services. Will you please outline for me a series of drone applications that I should consider in my content refresh? Give me some details about each such as who would use it, why they would use it, and unique features.”



**General brainstorming,  
attached to pedagogical  
strategy, inter-  
disciplinary**

## Learning activities

Prompt: “I am teaching a course this term to undergraduate engineering students in the mechanical engineering program. I’ve updated my content and now want to focus on learning activities. I aim to create an authentic learning experience that has students design, develop, and propose a humanoid factory robot. I’m doing 2 things in particular. One, I’m bringing in 2 experts from industry to speak about industrial processes. And two, I’m planning to partner with faculty from the university writing program to help students practice writing and communicating a business proposal. I need your help ideating this learning activity. Can you please provide a 14-week plan for an activity that includes all of these elements? Please identify a track for design and development of the robot, along with a track for creating a business proposal to sell the robot.”



**Analytic, holistic,  
checklist, single-point  
for activities**

## Assessment rubrics

Prompt: “You are an economics professor with expertise in labor and technology. You have studied, researched, and consulted on this topic. One topic in your undergraduate course is the impact on labor with new technologies in emerging economies. Focusing on this broad topic, I need your help crafting a comprehensive assessment rubric for a digital portfolio activity in my course where students select an emerging economy and tell a story of technological impact. The rubric should delineate specific evaluation criteria, concentrating on critical thinking and inquiry. Please allocate weighted percentages to each of evaluation criteria to signify their relative importance. Additionally, please structure the rubric in a table, detailing the descriptors and corresponding point values for each level of performance.”



# Image generation

Go to: <https://copilot.microsoft.com/images/create>

Prompt: “I’m teaching an earth sciences course and the topic this week is on significant meteorological events. I want to create an image of a city scene that shows the damage of each intensity level of tornado – EF1, EF2, EF3, EF4, and EF5. Will you please create an image of small business district with 5 distinct panels representing each intensity level?”

**Fill-in for stock, hard to find, discussion purposes**



**Gathering details on  
others points-of-view**

## Alternative perspectives

Prompt: “I am teaching a business communications course and looking to challenge my students with crafting communications for a company of their choosing within various business sectors. I will ask them to do this working with you. To this end, I crafting an example of how to communicate on the benefits of adapting to electric vehicles (EV) as if I were communicating for an EV company. What I want to do in my messaging is appeal to those who are skeptical or EV’s or green technology in general. But I don’t fully understand their perspectives and want to know those first. Can you help provide those alternative perspectives and tell me about them?”



## **In-person and learning management system**

# **Discussion questions**

Prompt: “I will soon be teaching an undergraduate course on epidemiology. For 2 modules we will address social factors that impact a societal response to following medical guidance during a pandemic. Some of the factors that I discuss are 1) trust in authorities; 2) public awareness and education; 3) cultural and social norms; 4) economic conditions; 5) political and ideological beliefs; 6) previous healthcare experience; and 7) media influence. I would like your help generating a pool of discussion questions that I can use in a learning management system. Questions can focus on 1 topic or have students address 2 topics at the same time. Can you please generate a list of 10 questions for me?”

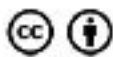
# In conclusion

Feel free to contact me at [jason\\_torres@gwu.edu](mailto:jason_torres@gwu.edu)  
and/or the Instructional Core at [instructioncore@gwu.edu](mailto:instructioncore@gwu.edu)

# Bloom's Taxonomy Revisited

Use this table as a reference for evaluating and making changes to aligned course activities and assessments (or, where possible, learning outcomes) that account for generative Artificial Intelligence (AI) tool capabilities and distinctive human skills.

All course activities and assessments will benefit from **review** given the capabilities of AI tools; those at the **Remember** and **Analyze** levels may be more likely to need **amendment**.



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|            | RECOMMENDATION | AI CAPABILITIES                                                                                                     | DISTINCTIVE HUMAN SKILLS                                                                                                                      |
|------------|----------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| CREATE     | Review         | Suggest a range of alternatives, enumerate potential drawbacks and advantages, describe successful real-world cases | Formulate original solutions incorporating human judgement, collaborate spontaneously                                                         |
| EVALUATE   | Review         | Identify pros and cons of various courses of action, develop rubrics                                                | Engage in metacognitive reflection, holistically appraise ethical consequences of alternative courses of action                               |
| ANALYZE    | Amend          | Compare and contrast data, infer trends and themes, compute, predict                                                | Critically think and reason within the cognitive and affective domains, interpret and relate to authentic problems, decisions, & choices      |
| APPLY      | Review         | Make use of a process, model, or method to illustrate how to solve a quantitative inquiry                           | Operate, implement, conduct, execute, experiment, and test in the real world; apply creativity and imagination to idea & solution development |
| UNDERSTAND | Review         | Describe a concept in different words, recognize a related example, translate                                       | Contextualize answers within emotional, moral, or ethical considerations                                                                      |
| REMEMBER   | Amend          | Recall factual information, list possible answers, define a term, construct a basic chronology                      | Recall information in situations where technology is not readily accessible                                                                   |