CAE

THE AI EDGE:

Building the Skills Needed to Thrive in an AI World

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Introduction

Educational Evolution: Using AI as an Instructional Partner

The release of ChatGPT in November 2022 sparked a wave of excitement about the possibilities of artificial intelligence (AI) and opened the door to entirely new ways of teaching and learning. Since then, educators have seen AI move rapidly from the headlines into their classrooms, where it's being used to support research, generate ideas, and enhance student learning. AI isn't just a trend, but a skill set that is essential for success in today's economy.

According to the *2025 World Economic Forum's Future of Jobs Report*, AI is projected to eliminate 92 million jobs by 2030, with the greatest impact falling disproportionately on Black, Latino, low-wage, and entry-level workers. However, the report also predicts that AI may create 78 million new jobs globally, particularly in fields like technology, healthcare, education, and green industries.

> *"AI won't replace humans, but humans using AI will."*
>
> Fei-Fei Li, Computer Scientist,
> Professor at Stanford University

While students have always needed to build workforce skills alongside content knowledge, the rise of AI makes these skills more important than ever. In fact, human-centered skills like critical thinking, problem solving, effective communication, ethical decision making, and leadership are essential for the responsible and effective use of AI.

This guide offers tips, activities, and resources to help your students develop the workforce skills needed to adapt and thrive in an AI-powered economy.

Let's dive in!

Skeptical Scholars: Developing Critical Thinking Skills with Written AI

Exploring the Accuracy of Language Prediction Models

In today's information-rich world, critical thinking is needed to evaluate the accuracy, relevance, bias, and purpose of all we read, see, and hear. Generative language prediction chat models like ChatGPT and Gemini offer unique opportunities for educators to engage students in developing this essential workforce skill.

By leveraging AI models, educators can facilitate exercises that encourage students to compare, contrast, evaluate, and verify information accuracy.

What are the Benefits of Generative Language Prediction Models in the Classroom?

PROS

Diverse Responses:
Language prediction chat models like ChatGPT and Gemini generate a wide array of responses, fostering discussions and diverse perspectives.

Access to Information:
These models provide instant access to a vast amount of information, enhancing learning opportunities.

Encouraging Creativity:
Students can explore and brainstorm ideas in a safe, AI-driven environment.

CONS

Accuracy Variation:
Responses may vary in accuracy, requiring fact-checking and source verification by students.

Potential Bias:
AI models might reflect biases in their training data, prompting discussions on bias detection.

Overreliance Concerns:
Students may become overly reliant on AI-generated information without verifying it.

Thinking Critically About AI-Generated Text

Activity: Source Cross-Check & Re-Create

STEPS FOR STUDENTS:

1. 

   TOPIC SELECTION
   Choose a topic relevant to the curriculum or current events.

2. 

   AI INTERACTION
   Engage with ChatGPT, Gemini, or Copilot to ask questions or submit prompts related to the selected topic. Ask more than one question and continue to prompt the AI model for more information and details.

3. 

   GENERATE RESPONSES
   Compile the responses.

4. 

   COMPARISON AND EVALUATION
   Compare the responses, identify commonalities, discrepancies, and potential biases.

5. 

   SOURCE VERIFICATION
   Use external, reputable sources (news sites, academic journals, etc.) to cross-check and verify information accuracy.

6. 

   RE-WRITE RESPONSES
   Refine the AI-generated responses, making them more unique, personal, and reflective of your own voice. Put both versions in a side-by-side comparison table.

7. 

   DISCUSSION AND REFLECTION
   Reflect on biases, incorrect information, and the significance of cross-checking AI-generated responses. Which version of the information did you prefer — the AI-generated version or your amended version?

Instructor Tips:

Guide Discussions
Facilitate discussions around the differences in AI-generated content and verified information sources.

Encourage Skepticism
Prompt students to question and analyze AI-generated content critically.

Provide Resources
Offer tools and resources for fact-checking and source verification.

Feedback and Reflection
Regularly encourage reflection on the process and the importance of critical evaluation.

By integrating generative language prediction models into classroom activities, educators can create dynamic learning environments that foster critical thinking. These activities empower students to discern, evaluate, and verify information — an indispensable skill in today's information-driven world.

> *"They're learning about, 'How do I get AI to replicate my work?' And then 'How do I take something the AI has produced, and personalize it to the work I'm trying to accomplish?'"*
>
> Richard Ross, Assistant Professor of Statistics
> at the University of Virginia, *The Hechinger Report*

Picture This: Enhancing Communication with AI Design Tools

Equip Students to Craft Compelling Visual Narratives

The old adage “a picture is worth a thousand words” has never been more true than in today’s digital and social media dominated world. Effective communication extends beyond words and sentences to include visual storytelling. By harnessing the power of AI-driven design tools, educators can guide students in mastering the art of visual communication. From creating captivating infographics to crafting dynamic presentations, AI design tools and platforms offer a gateway for students to amplify their creative expression and articulate complex ideas through unique visuals.

Why Embrace AI-Powered Design Platforms in the Classroom?

PROS

User-Friendly Interfaces:
Intuitive and easy-to-use tools to enable students to dive into designing without a steep learning curve.

Creative Freedom:
AI-generated templates and design elements spark creativity and enable unique visual expressions.

Data Visualization:
Students can transform data into engaging graphics to increase comprehension.

CONS

Template Dependency:
Overreliance on templates might hinder originality and limit creative exploration.

Ethical Awareness:
Discussions around copyright, design ethics, and proper attribution are crucial when using pre-existing design elements.

Skill Development:
While accessible, mastering advanced design features requires continuous learning using less AI-dependent tools.

Crafting Compelling Visual Narratives

Classroom Activity: Visual Storyboard Creation

STEPS FOR STUDENTS:

1. 

   THEME SELECTION
   Choose a theme or topic relevant to the curriculum or a personal interest and research it, just as you would if you were going to write a research paper.

2. 

   TOOL EXPLORATION
   Login to the AI design program of your choice and familiarize yourself with the features, including templates, graphics, and design tools.

3. 

   STORYBOARD DEVELOPMENT
   Using the AI design program, create a storyboard or presentation that effectively communicates what you learned about the topic from your research.

4. 

   DATA INTEGRATION
   Incorporate data points, facts, and other key information using visual elements for clarity and impact.

5. 

   PRESENTATION AND CRITIQUE
   Share your visual narratives with the class, discussing design choices and storytelling techniques.

Instructor Tips:

Encourage Innovation
Challenge students to move beyond templates, fostering creativity and unique design approaches.

Make It Real
Relate design to practical applications, highlighting the significance of effective visual communication in various fields, such as the use of infographics in healthcare to communicate things like the proper way to wash your hands or the hazards of vaping.

Create a Feedback Culture
Foster a safe environment for students to give and receive constructive feedback, prompting students to refine designs through iterative processes.

Discuss Ethics
Initiate conversations on design ethics, copyright, and responsible use of design elements in projects.

By leveraging AI design tools, educators can equip students with the skills to craft compelling visual narratives. Activities like visual storyboard creation not only refine design abilities but also cultivate the critical thinking and communication skills essential for navigating today's visually-driven communication landscape.

> *"Using AI in my work makes me more efficient and more creative."*
>
> Sharon Gai, Author of *Ecommerce Reimagined*

AI-Driven Problem Solving: Support Innovation in the Classroom

Empower Students to Explore, Innovate, and Refine Ideas with AI

When it comes to problem solving, AI can serve as a catalyst for innovation, offering students the opportunity to approach challenges from diverse perspectives. By leveraging AI for brainstorming, idea generation, and critical evaluation, students can cultivate their creative problem-solving skills.

This section explores how educators can guide students to harness AI persona and brainstorming programs to uncover novel solutions, obtain varied viewpoints, and refine ideas through critical assessment.

Classroom Activity: AI Persona/Avatar Creation

STEPS FOR STUDENTS:

1. 

AI PERSONA CREATION
Utilize AI tools or platforms designed for avatar creation to develop an initial AI persona or avatar. Select specific traits, appearance, characteristics, and functions for your AI persona.

2. 

PROBLEM-SOLVING SCENARIO
Pose a problem or a set of questions to your AI persona.

3. 

EVALUATE AI RESPONSES
Analyze the AI-generated responses or solutions provided by the persona and assess their effectiveness in addressing the problem or questions posed.

4. 

IDENTIFY GAPS OR MISSED ELEMENTS
Identify any gaps, inaccuracies, or aspects of the problem that the AI persona failed to include or address in its responses. Consider whether the responses align with the intended traits or functions of the AI persona.

5. 

ENHANCEMENT AND ITERATION
Collaboratively brainstorm and refine the AI persona, incorporating the missed elements or improvements based on the problem-solving scenario. Adjust traits, functions, or characteristics to enhance the persona's problem-solving capabilities.

6. 

REPOSE THE PROBLEM
Present the refined AI persona in the same scenario and evaluate the new responses.

7. 

DISCUSSION AND REFLECTION
Engage in a discussion about the initial responses, the improvements made to the persona, the impact of the refinements on the persona's problem-solving abilities, and the importance of refining AI personas based on identified gaps.

Instructor Tips:

Encourage Diverse Perspectives
Prompt students to explore various AI models to understand different viewpoints.

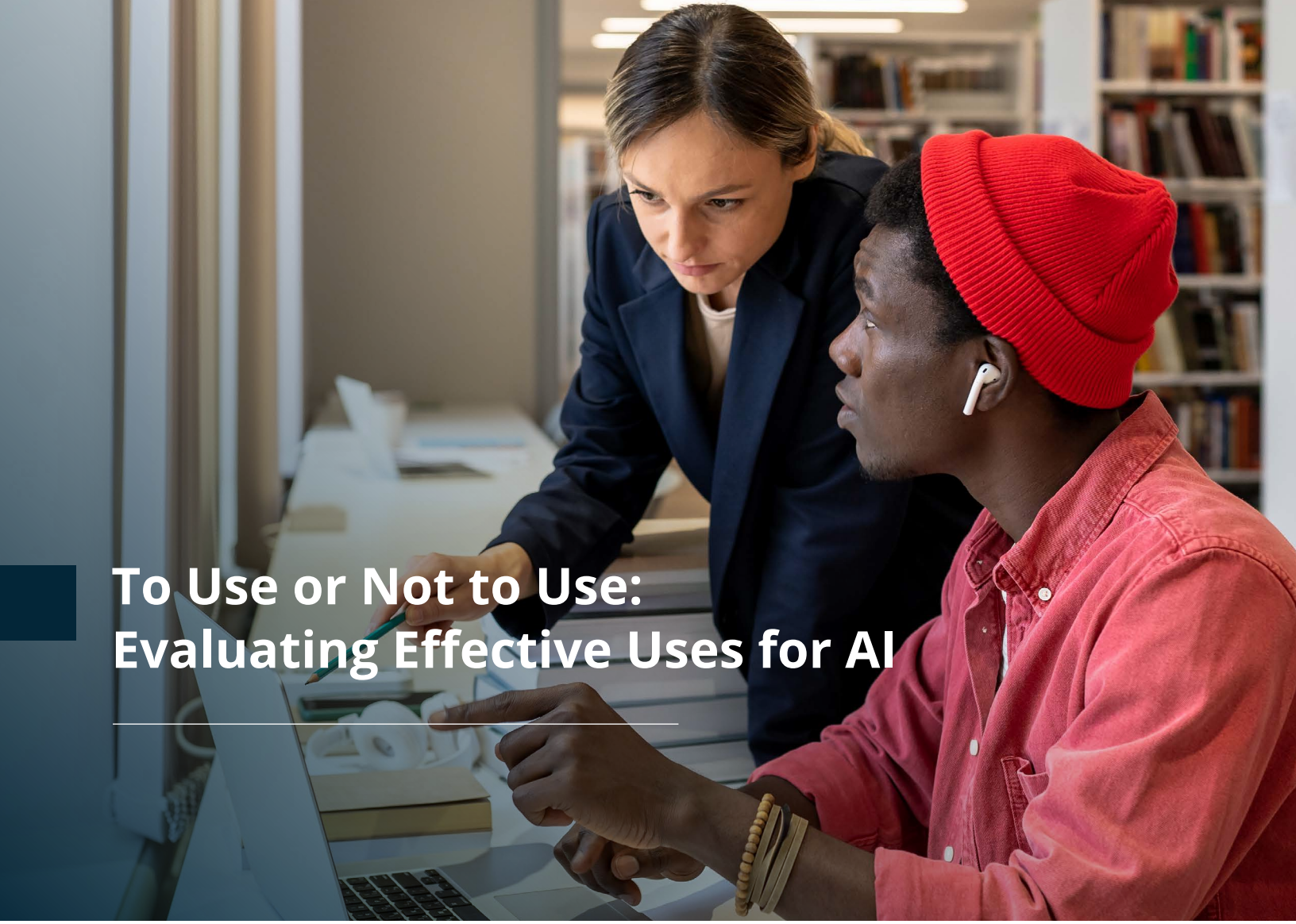
Facilitate Ethical Discussions
Initiate conversations about AI biases, ethical considerations, and responsible AI utilization.

Emphasize Iterative Refinement
Foster an iterative problem-solving approach, encouraging students to refine and improve ideas continuously.

Promote Collaboration
Encourage collaborative problem-solving, leveraging AI as a tool for collective innovation.

This activity combines AI persona creation with critical evaluation and iterative refinement. Students leverage AI tools to create personas, analyze their problem-solving capabilities, identify shortcomings, and iteratively enhance the personas to improve their problem-solving efficacy. Through this process, students develop a deeper understanding of AI's limitations and the significance of continuous improvement in AI design.

> *"Some people call this artificial intelligence, but the reality is this technology will enhance us. So instead of artificial intelligence, I think we'll augment our intelligence."*
>
> Ginni Rometty, Former CEO of IBM



To Use or Not to Use: Evaluating Effective Uses for AI

How to Promote Responsible Engagement with Critical Evaluation of AI

It seems like AI is being used for everything, but should it be? This section explores how to be transparent and responsible when AI is used and also highlights the need for critical evaluation of AI generated content rather than just passive consumption.

Classroom Checklist for AI Use

Maintain Academic Integrity

- [ ] Ensure proper citations and attributions if using AI to generate content for academic purposes
- [ ] Disclose the use of AI tools when submitting academic work
- [ ] Do not present AI-generated content as your own original work

Corroborate & Verify Questionable Content

- [ ] Fact check content
- [ ] Consult multiple reliable sources to verify questionable claims
- [ ] Seek expert opinions to validate technical information

Focus on Comprehension

- [ ] Read and critically analyze AI-generated content rather than passively accepting it
- [ ] Consider the context, biases, and limitations of the AI system used
- [ ] Encourage understanding of underlying concepts over repeating facts

Promote Responsible Sharing

- [ ] Be transparent about the use of AI when sharing generated content
- [ ] Assess the risks and potential harms of sharing questionable content
- [ ] Balance freedom of expression while considering respect and inclusiveness

Classroom Activity: AI or Human?

STEPS FOR STUDENTS:

1. **STATEMENT GENERATION**
   Generate a set of statements on a particular topic—some created by AI tools and others that you and your classmates create. Write each statement on a different piece of paper.

2. **GUESSING GAME**
   Put the pieces of paper into a bowl and mix them up. Each person in the class will select two statements and try to determine whether it was generated by AI or a fellow human.

3. **DISCUSSION AND REFLECTION**
   Engage in a discussion on the challenges of differentiating AI-generated content from human-created content. Discuss the implications of relying solely on AI-generated information.

AI, while powerful, has limitations. It lacks human understanding and empathy, and its outputs may carry biases or inaccuracies. Educators are crucial in guiding students to responsibly engage with AI, fostering critical thinking and problem solving. By acknowledging AI's shortcomings and continuously refining their engagement with it, students will develop essential workforce skills indispensable for navigating an innovative, AI-driven world.

> *"Doing no harm and uplifting human freedom, values, and rights are the core aspects of ethical AI systems."*
>
> Sri Amit Ray, *Ethical AI Systems: Frameworks, Principles, and Advanced Practices*

Key Takeaways

The Future of AI's Impact: Fostering Innovation and Skills in Today's Students

AI isn't just a tool; it's a key driver of progress and future innovation. Therefore, it's imperative to teach students to use AI effectively, responsibly, and ethically. When used as an instructional partner, AI can help students develop creativity, empathy, critical thinking, and other workforce skills that define our humanity.

By mastering AI's potential and understanding its limitations, students become not just users of AI but leaders shaping a brighter future for us all.

> *"AI will make us more human, not less."*
>
> Satya Nadella, CEO of Microsoft

References

[1] World Economic Forum. (2025, January). *The Future of Jobs Report 2025. Geneva, Switzerland:* World Economic Forum. https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf

ABOUT CAE

CAE is a non-profit whose mission is to help improve the academic and career outcomes of secondary and higher education students. Using our innovative performance tasks, educators are able to measure and teach workforce skills and content mastery within subject areas.

Over the past 20 years, CAE has helped over 825,000 students globally understand and improve their proficiency in critical thinking, problem solving and effective written communication. Additionally, CAE's subject area assessments have helped millions of K–12 and higher ed students across the U.S. apply their content knowledge to real-world tasks. Supported by best practices in assessment development, administration, and psychometrics, CAE's performance-based assessments include the Collegiate Learning Assessment (CLA+ and College and Career Readiness Assessment (CCRA+. To learn more, please visit cae.org.

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