JOURNAL OF ECONOMICS TEACHING

Fostering Generative AI Literacy in Economics: A Hands-on Approach

The rise of generative AI tools like ChatGPT has prompted educators to rethink learning activities and assignments. As students will inevitably use such tools, integrating AI into education is essential to prepare them for an AI-driven future. This paper presents a hands-on approach to enhance engagement, critical thinking, and AI literacy. Activities using real-world scenarios, such as song lyrics and news articles, help students apply economic concepts and critically evaluate AI-generated outputs. Despite its challenges, this approach equips students with the skills needed to navigate an AI-driven world responsibly.

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1. Introduction and Background

The rapid rise of Generative AI (GenAI) applications, such as ChatGPT (Chat Generative Pre-Trained Transformer), has created both anticipation and concern in higher education, prompting institutions to evaluate their potential impacts on teaching and learning. While some institutions initially restricted GenAI to safeguard academic integrity (Deshpande & Szefer, 2023; Roose, 2023), others have embraced its transformative potential. Advocates argue that GenAI can enhance creativity, critical thinking, and collaboration while also developing AI literacy—an increasingly necessary skill in today's digital world (Chan & Colloton, 2024; Rose, 2023).

Educators emphasize the importance of guiding students in their responsible use of GenAI, seeing it as a supplement to, not a replacement for, critical thinking and original work. Given that students are already using GenAI tools—even without educator guidance—it is vital for higher education institutions to integrate GenAI literacy into the curriculum. As Nattrass notes, "students are using GenAI and will continue to do so with or without educator guidance" (Prothero, 2024). This reality highlights the need for higher education institutions to prepare students for an AI-driven world. Additionally, the integration of GenAI aligns with industry demands for graduates who are proficient in AI technologies, particularly in fields like business and economics (Ellis, 2023). By incorporating GenAI and developing AI literacy, educators can equip students with the skills needed to navigate an increasingly AI-driven world.

This paper proposes a hands-on approach to incorporating GenAI in economics education. By combining theoretical knowledge with practical applications and critical evaluation of AI outputs, this approach uses traditional active learning strategies to deepen students' understanding of economic concepts and equips them with essential AI literacy and critical thinking skills for success in a technology-driven future.

Numerous studies have shown that active learning, i.e. engaging students in the learning process through various strategies, such as team-based learning, collaborative work, and classroom experiments, are significantly more effective than traditional lecture-based teaching (Bonwell & Eison, 1991; Freeman et al., 2014; Hake, 1998; Hettler, 2015). Specifically, active learning increases student learning relative to their starting knowledge much more than passive teaching through lecturing (Hake, 1998), enhances overall learning outcomes by turning the classroom setting into a dynamic, collaborative environment (Hardman, 2016), improves educational outcomes by significantly raising exam scores (Freeman et al., 2014), and increases cognitive engagement by fostering critical thinking (Bonwell & Eison, 1991).

Additionally, active learning helps students develop critical skills essential for today's workforce (Qablan, 2024). Integrating AI tools can further personalize and enrich the learning experience (Alamri, 2025) and facilitate further development of analytical skills needed for both academic and professional success (Alamri, 2025; Qablan, 2024). In other words, the creative and responsible use of GenAI in classroom assignments aligns with active learning strategies. This paper contributes to the literature by presenting an activity that integrates GenAI into a classroom assignment on price elasticity of demand, providing further evidence of the effectiveness of active learning.

2. Description of the Hands-on Approach

This hands-on approach integrates GenAI into structured activities across economics courses to enhance students' understanding of economic concepts while developing their AI literacy. Using active learning strategies, such as Think-Pair-Share, students collaborate with peers and GenAI tools to complete tasks. The pedagogical literature supports the effectiveness

of active learning strategies in improving student outcomes and fostering critical thinking (Hettler, 2015).

Each activity begins with a real-world scenario, such as a news article, song lyrics, or personal experience, that illustrates key economic concepts like opportunity cost, elasticity, or decision-making under constraints. Students first analyze the scenario, identify the economic concept, and respond to guided questions based on their prior knowledge. Next, they use ChatGPT to generate responses to the same questions using a standardized prompt, ensuring consistency and enabling a systematic comparative analysis of the results. Students then critically evaluate the AI-generated responses, analyzing them for accuracy, clarity, and depth. This stage encourages reflection on their own understanding of the economic concepts while analyzing the strengths and limitations of AI-generated content. The activity concludes with a class discussion where students share insights, refine their answers, and consider the broader implications of GenAI in economics and beyond.

A. Steps of a GenAI-Integrated Activity

A typical activity using this approach follows the following steps:

Step 1. Scenario Introduction and Student Analysis:

Students analyze a real-life scenario, identify the relevant economic concept, and answer guided questions independently.

Step 2. Generative AI Integration:

Students use ChatGPT to generate responses to the same questions, using a common prompt to ensure comparability for analysis.

Step 3. Critical Evaluation of AI Output:

Students critically evaluate AI-generated responses, identifying strengths, weaknesses, and areas for improvement while comparing them to their own answers.

Step 4. Critical Reflection and Answer Refinement:

Students reflect on the benefits and limitations of using ChatGPT, refine their answers based on insights, and assess how AI can enhance or hinder economic analysis.

Step 5. Collaborative Discussion and Takeaways:

The instructor leads a follow-up discussion to address misconceptions, reinforce critical evaluation skills, and highlight key takeaways. Students share their observations and compare the strengths and weaknesses of their responses and the AI-generated output.

B. Learning Objectives

The GenAI-integrated activities aim to deepen students' understanding of economic concepts, foster critical thinking, and enhance AI literacy. By the end of these activities, students should be able to:

1. Apply Economic Concepts: Analyze real-world scenarios to identify relevant

economic concepts and apply theoretical knowledge to practical examples.

2. Evaluate AI Outputs: Critically evaluate AI-generated responses, identifying their strengths, limitations, and areas for improvement.

3. Refine Analytical Skills: Integrate insights from AI-generated outputs and refine personal responses to enhance analytical and problem-solving skills.

4. Develop AI Literacy: Understand the capabilities and limitations of AI tools like ChatGPT, and use them ethically and effectively for economic analysis.

5. Collaborate and Reflect: Participate in collaborative discussions to share observations, address misconceptions, and strengthen critical evaluation and reasoning skills.

C. Adaptability

A key strength of this hands-on approach is its adaptability across various economics courses and instructional settings. The structured five-step process provides instructors with the flexibility and guidance to tailor activities to different topics, student proficiency levels, and course formats, including in-person, online, or hybrid modes. Furthermore, the real-world scenarios incorporated into each activity can be easily modified to align with specific learning objectives, current events, or students' interests, making the approach both more relevant and engaging.

This adaptability enables instructors to seamlessly integrate GenAI-based activities into assignments, discussions, or assessments, without requiring extensive course redesign. By allowing for modifications in content, complexity, and delivery, this approach ensures that students across diverse learning environments can effectively engage with economic concepts while simultaneously developing critical AI literacy skills.

3. Sample Activity: Price Elasticity of Demand[1]

In this activity, students learn about the price elasticity of demand through Tim McGraw's song "Just to See You Smile." The song's lyrics depict a man willing to sacrifice his job and home to be with his girlfriend, offering a real-world example of perfectly inelastic demand.

First, students are asked to analyze the scenario through the following questions (Step 1 of the GenAI-integrated activity as listed above: Scenario Introduction and Student Analysis:

a. What is his opportunity cost of moving to Tennessee?

b. What is his opportunity cost of staying in Amarillo?

c. What do the lyrics imply about his willingness to pay to be with her, and how might your response relate to the slope of his demand curve and the price elasticity of demand for spending time with her?

Next, students use ChatGPT to answer the following prompt (Step 2: Generative AI Integration):

[1]The complete activity can be found in the Appendix.

"What does the phrase 'Just to see you smile, I would do anything… I'd never count the cost. It's worth all that's lost. Just to see you smile' imply about his price elasticity of demand for spending time with her?"

After generating the AI responses, students compare them with their own answers, identifying differences and evaluating whether the AI's output aligns with economic concepts learned in class (Step 3: Critical Evaluation of AI Output). For example, ChatGPT often describes the elasticity as "perfectly elastic," which is incorrect; the correct answer is (perfectly) inelastic demand (Step 4: Critical Reflection and Answer Refinement). This exercise leads to an engaging class discussion on the importance of critically evaluating AI-generated content. Students reflect on their experience using ChatGPT, its strengths, and its shortcomings, and develop strategies for validating AI-generated outputs in future applications (Step 5: Collaborative Discussion and Takeaways).

4. Students' Feedback and Lessons Learned

Integrating GenAI into introductory and graduate-level economics courses received overwhelmingly positive feedback. Most students appreciated the opportunity to explore ChatGPT, finding it helpful in grasping economic concepts, while also recognizing its limitations, such as providing vague or sometimes inaccurate responses. Concerns about cheating were minimal, and overall, the use of GenAI was met with enthusiasm. The activities effectively enhanced students' understanding of economic concepts while promoting critical thinking and AI literacy.

The hands-on approach significantly increased student engagement, creating a collaborative and low-pressure learning environment. As one student put it in the course evaluations at the end of the semester, "Teaching about AI was very effective in keeping [students] engaged in the course." Group-based exercises encouraged participation, peer-to-peer teaching, and dynamic discussions on economic topics. This supportive setting allowed students to experiment with GenAI tools without fear of making mistakes or being accused of cheating, while enhancing their interest and involvement. The collaborative nature of these activities also made learning enjoyable and interactive, helping students develop a deeper understanding of the material while building their confidence in using GenAI.

5. Potential Benefits and Challenges

Integrating GenAI tools into coursework offers significant benefits, particularly in transforming passive learning environments into active, student-centered classrooms. This hands-on approach fosters critical thinking and analytical skills while simultaneously building GenAI literacy. Two key features of this method—engaging students in interactive tasks and encouraging critical evaluation of AI-generated outputs—are instrumental in achieving these outcomes. These strategies align with recommendations for higher education institutions to rethink policies and curricula, emphasizing critical thinking, creativity, digital literacy, and AI ethics education (Chan & Hu, 2023).

This approach emphasizes active learning strategies, such as think-pair-share, to encourage student engagement rather than passive listening. Activities like reading, discussing, and evaluating focus on developing critical thinking skills rather than merely acquiring information. By fostering higher-order thinking skills—such as analysis, synthesis, and evaluation—this method creates an environment that facilitates the development of critical thinking skills.

The integration of GenAI tools further reinforces critical thinking by promoting the

evaluation of AI-generated outputs and encouraging the responsible use of AI technologies. This approach fosters essential GenAI literacy skills and supports the development of digital literacy in a technology-driven academic environment. By engaging with GenAI, students gain a deeper understanding of its strengths and limitations, fostering innovation and collaboration. These practices equip students with practical skills to thrive in evolving academic and professional settings, ultimately improving learning outcomes and ensuring readiness for technology-driven workplaces.

Despite these benefits, integrating GenAI into education also presents challenges. A primary concern is the risk of over-reliance on AI tools, which could undermine students' independent critical thinking, problem-solving, and creativity (Chan & Hu, 2023). Students may become dependent on AI to generate ideas, limiting their capacity for original thought. To mitigate this concern, educators should design activities that emphasize the critical evaluation of AI-generated output, exposing their variability in quality and accuracy, and highlighting that AI is not foolproof (Zebua, 2024). This hands-on approach of integrating AI not only helps mitigate potential issues by demonstrating that AI-generated answers are not always reliable but also builds AI literacy, equipping students with the skills to critically assess and effectively utilize AI tools.

Effective integration also requires significant effort from educators to redesign curricula and teaching methods. This redesign includes incorporating AI literacy, addressing ethical concerns such as bias and responsible use, and adapting traditional approaches to align with rapidly advancing technologies (Chan & Colloton, 2024).

However, integrating GenAI raises ethical and practical considerations. AI tools may inadvertently reinforce biases present in the data used to train the model, which can affect cognitive development and perpetuate stereotypes. Other challenges include concerns about academic integrity, data privacy, and the need for equitable distribution of AI resources, particularly in resource-constrained settings, which could exacerbate existing inequalities and underscore the need for equitable access and support (Zebua, 2024). Ensuring equitable access to AI resources and addressing these ethical challenges are critical for successful integration.

The urgency of embracing GenAI in education is underscored by its rapid proliferation in academic and professional contexts. As experts point out, institutions must adapt curricula and teaching methods to keep pace with evolving AI technologies while preparing students to navigate an AI-driven future responsibly (Prothero, 2024). This adaptation includes promoting AI literacy alongside discipline-specific knowledge, while equipping students to critically evaluate AI-generated content. It also aims to address disparities in resources and access to ensure equitable and effective education for all. Through thoughtful integration, GenAI can foster creativity, collaboration, and innovation, preparing students to thrive in a technology-driven world while effectively addressing its challenges.

6. Implications and Conclusion

Integrating Generative AI (GenAI) into education has profound implications for teaching, learning, and workforce preparation. GenAI offers transformative potential by enhancing critical thinking, creativity, and digital literacy among students. By engaging with AI tools, students gain hands-on experience evaluating AI-generated content, distinguishing reliable information, and leveraging AI for innovative problem-solving. These skills are increasingly essential in a technology-driven world, where competencies such as adaptability, collaboration, and ethical decision-making are in high demand. Additionally, GenAI has the potential to alleviate student anxieties about career readiness by equipping them with future-proof skills and fostering interdisciplinary learning.

This paper outlines a hands-on approach to integrating GenAI into economics education, emphasizing the development of critical thinking, AI literacy, and a deeper understanding of economic concepts. By engaging with GenAI tools like ChatGPT, students gain practical experience in validating AI outputs, refining their reasoning, and applying theoretical knowledge. Structured activities, such as the elasticity example, illustrate how GenAI can transform the learning experience, equipping students with the skills needed to excel in a rapidly evolving technological landscape.

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Appendix. Sample Activity and Discussion: Price Elasticity of Demand

This activity introduces the concept of price elasticity of demand using a relatable example—a song lyric. Students are guided to identify the concept within the lyrics of the song. They then use GenAI to answer questions and critically analyze the AI's output. By integrating Generative AI (GenAI), students critically engage with both their own and AI-generated insights to deepen their understanding of economic principles. We ask the following questions:

Step 1: Scenario Introduction and Student Analysis

Read the lyrics of Tim McGraw's song "Just to See You Smile." The song tells the story of a young man willing to give up his job and home to be with his girlfriend in another city.

Answer the following questions independently:

a. What is his opportunity cost of moving to Tennessee?

b. What is his opportunity cost of staying in Amarillo?

c. What do the lyrics imply about his willingness to pay to be with her, and how might your response relate to the slope of his demand curve and the price elasticity of demand for spending time with her?

Step 2: Generative AI Integration

Use ChatGPT to generate answers to the same questions and document ChatGPT's response for later comparison. Use the following prompt to ensure consistency:

"What does the phrase, 'Just to see you smile, I would do anything… I'd never count the cost. It's worth all that's lost. Just to see you smile,' imply about his price elasticity of demand for spending time with her?"

Step 3: Critical Evaluation of AI Output

a. Compare your answers with ChatGPT's response, and identify similarities and differences between your response and ChatGPT's.

b. Does ChatGPT provide additional insights, or does it miss key economic concepts?

c. If the AI response is incomplete or incorrect, revise the prompt to guide it toward a better answer. Document any improvements.

Step 4: Critical Reflection and Answer Refinement

a. Does ChatGPT's response align with economic principles like opportunity cost and price elasticity of demand?

b. What strengths and limitations did you observe when using ChatGPT for this activity?

c. Based on your insights, refine your original answers to improve clarity and depth.

Step 5: Collaborative Discussion and Takeaways

a. Share your observations on ChatGPT's strengths and weaknesses compared to your answers.

b. Discuss key lessons learned about opportunity cost and demand elasticity.

c. Explore strategies for using AI tools effectively and responsibly in economic problem-solving.