Reflective AI Use in Student Assignments: Reflections from a Graduate Leadership Course

Introduction/need for innovation or Idea

Artificial intelligence (AI) tools are becoming increasingly popular in higher education, and educators are concerned about how these tools affect learning experiences that promote critical thinking among students (Graefen & Fazal, 2023). Many educators fear that students will be less able to think on their own if they are allowed to use AI tools. While some researchers contend that AI tools like ChatGPT can enhance and foster critical thinking (Essel et al., 2024).

Metacognition, first introduced by Flavell (1979), refers to higher-order thinking processes that involve monitoring, evaluating, and regulating one's own cognition. A central component of metacognition is metacognitive knowledge or beliefs about how one thinks and learns. Assignments that require students to reflect on their use of generative AI engage this metacognitive knowledge by prompting them to consider how and why they use AI tools for different tasks. This reflection can also strengthen critical thinking, which scholars have identified as a key facet of metacognition (Flavell, 1979; Martinez, 2006).

To experiment with student use of AI, a graduate leadership facilitation course used a structured spreadsheet to document reflections on using AI in assignments. The students were required to include the AI tool and the prompt used in the output given. Students also included a reflection on the effectiveness of the tool for its intended use, including its strengths and challenges. This approach allows students to slow down and reflect on how AI supported their own critical thinking. This tool could be beneficial for instructors in agricultural education as they consider how to help students use AI responsibly in their courses. This innovative idea supports the value of "Increasing Prosperity through Innovation in AFNR Systems" (AAAE, 2023). By helping students develop better AI literacy and critical thinking skills, we are better preparing them with relevant skills for AFNR advancement.

How it works/methodology/program phases/steps

In a graduate facilitation course, students were required to plan and carry out a leadership facilitation for a group. There were nine components of this assignment: needs assessment, theme/title, objectives/outcomes, instructional plan, interest approach, instructional methods, active learning activity, evaluation, and scholarly references. Students were instructed to use AI for at least five components of the assignment and then as part of another assignment, they were to reflect on how they used generative AI across each component. Students were provided a template where they reported which AI tools were used and the purpose, how the AI tools were used, the prompts used and output given, effectiveness of the tool for the purpose used, strengths and challenges of the AI tools, accuracy and bias of the AI tools, and overall insights and learning from use of the AI tools. The template was in the form of a spreadsheet where they could easily evaluate each of the tools.

Results to date

There were 18 students who completed the course and a total of 156 uses of AI tools across all assignment stages. Students worked with various AI tools, but ChatGPT was by far the most widely used. Other AI tools used include Canva AI, Claude, Copilot, and Gemini. AI tools were used more as a supporting partner for students, rather than as a replacement for their own work. The most common use of an AI tool was for ideation, but the tools were also used for drafting and writing, including rewording for different reading levels, evaluation design, and tailoring their assignments. Students used head to head tool comparisons (i.e. same prompts in Copilot and ChatGPT) to help them pick outputs that better matched their audience. There were 45 mentions of bias being present when using one of the AI tools and 27 that explicitly reported no bias. Bias included AI defaulting to western organizational norms and the use of overly complex vocabulary in youth-centered materials. Student insights also include recognizing when not to use AI such as for drafting a full facilitation plan, because it produced complex results. It appears that this assignment helped students develop their critical thinking skills as they documented and reflected on their use of AI. Students developed AI literacy competencies like iterative refinement, context-rich prompting, bias and accuracy evaluation, and audience-centered adaptation.

Future plans/advice to others

While this assignment was used in a graduate leadership course, it could be easily adapted to other courses. Educators should consider assignments that have multiple steps or components to build in the use of AI. Assignments like this guide students to use AI responsibly. This experience suggests that having students complete their assignments using AI helps promote critical thinking. Educators should include clear guidance on prompt development and steps for checking for supportive sources. Asking students to explain their logic regarding the use of AI, its benefits, and its challenges supports metacognition thus building on critical thinking skills. This can help students reflect and make decisions about the proper and ethical uses of AI. AI is not a replacement for student thinking, but a guide to promote critical thinking.

Students are still anxious about using AI in their coursework due to the diverse views and practices of instructors regarding AI use. It is important for instructors to model the use of AI and also provide students with boundaries of what is allowed and not allowed. In this experience, students were asked to create something first and then utilize AI to tweak things like learning outcomes, questions on an evaluation, and instructions for an activity. It is important to remind students to review the AI output and ensure that it makes sense and flows with the other aspects of the assignment. In regards to building metacognitive skills, instructors play a pivotal role by modeling behaviors, setting clear goals, and structuring reflection on learning processes.

Costs/resources needed

This assignment requires minimal resources. Students need access to a device, such as a laptop or tablet, and a reliable Internet connection to use AI tools and complete the spreadsheets. For this assignment, students could use advanced AI tools or ones that had an expense, but this was not a requirement.

References

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