Generative AI in the classroom: Can students remain active learners?

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BACKGROUND
Active learning (AL) is important for positive learning experiences and outcomes. Generative Artificial Intelligence (GAI) brings both opportunities and challenges for AL [1]. It can:

- Enhance AL by: providing personalized, interactive and empowering pedagogical sequences.
- Compromise AL by: leading to over-estimation of one’s own competencies, confirmation of inadequate beliefs, passiveness, impaired curiosity and critical-thinking.

GAI tools can lead to negative impacts on AL because they lack (or have unclear) pedagogical stance in their behaviors.

GAI CHALLENGES ACTIVE LEARNING
Some properties surrounding the use of GAI:

- “Easy” access to information
- Continuous assertive stance
- Steerability and social overhype

Challenge for the ability to “work” for information:
Over-reliance on GAI for learning new information
Passiveness and loss of AL strategies
Bigger risk for transfer of wrong/biased information [2]

Challenge critical-thinking (CT) & self-reflection (SR) skills:
Overestimation of GAI and one’s own knowledgeability
Undermining of CT and SR abilities

PEDAGOGICAL GROUNDING OPPORTUNITIES

Training level:
* Training data contains explicit educational principles.
* Human annotators with educational background for fine-tuning.

Application level:
Controlling the types of interactions to be allowed for use (e.g. by educators/ EdTech designers).

Usage level:
Training the skills that allow students and teachers to have an informed use, analysis and interpretation of GAI.

ROLE OF GAI LITERACY
Students and teachers should have access to appropriate knowledge and training that helps them:

- Have a realistic representation of GAI’s agency and knowledgeability
- Understand the efficient strategies that lead GAI to better behaviors
- Have a more active and informed use of GAI

ROLE OF METACOGNITIVE (MC) TRAINING
GAI literacy training may not be sufficient for promoting AL with GAI and its relevant skills. Some MC-related skills are also needed [3]:

- Active knowledge-acquisition cycle with GAI:
  - Evaluate one’s own knowledge
  - Recognize a need for information
  - Formulate the need for information to GAI
  - Evaluate the efficiency of GAI’s response
  - GAI gives an information
  - Need for MC monitoring skills
  - Need for MC evaluative skills
  - Need for GAI literacy skills

DISCUSSION

- Using GAI in the classrooms still raises questions for AL, mainly because of the lack (or unclarity) of a pedagogical stance.
- Using GAI to promote AL requires effort from all stakeholders: AI and EdTech communities, educational psychologists and educators.

References