

The Colket Center Approach to GenAI, Student Learning, and Building Knowledge

Compiled by the Colket Center Offices: Office of Culturally and Linguistically Diverse (CLD) Education, Writing Center, Quantitative Reasoning Center (QRC), Spatial Literacy Center (SLC), and Speaking Center

Colorado College's Motto

Scientia et Disciplina: “Learning Through Hard Work”



Colket Center Approach to GenAI Use

In an academic climate calibrated to challenge all students, the Colket Center facilitates student learning, cultivates intellectual community, and supports students in developing skills they can apply broadly across and beyond the curriculum. To do this, we take an intentional approach to learning that views effort, productive struggle, and sociocultural contexts as crucial components of the learning process and developing knowledge. By valuing the learning process over finished products, learned material and skills are better internalized for future recall and application. With regard to Generative AI, we support use that aligns with these principles. We recognize the [College's philosophy and guidelines](#) for GenAI use and offer observations and strategies for learning that we have seen lead to academic success for students.

WHAT DOES THE ABOVE STATEMENT MEAN FOR STUDENTS?

Based on our current knowledge of GenAI and the learning process, it's probably best to avoid GenAI use in your studies unless your professor has purposefully integrated it into the course.

WHAT ARE THE CONCERNS WITH USING GENAI IN YOUR STUDIES?

Current research does not support using LLMs or GenAI for learning new material or in retaining your existing knowledge or skills.

- **GenAI reduces brain activity and connectivity.** Or as Kosmyna et al. (2025) put it, “Over four months, LLM users consistently underperformed at neural, linguistic, and behavioral levels.” For example, in an essay writing task, LLM users had weaker brain neural connectivity than non-users, as well as a lower sense of ownership and ability to quote from the essay that they had just written.
- **Students who study with GenAI retain less knowledge** than people who study with traditional means (Barcaui, 2025).
- **GenAI use can lead to “metacognitive laziness”** which means allowing GenAI to do all the goal-setting and reflection for you (Dizon et al. 2026). As a result, you are less aware of your learning and cognitive processes.
- **Heavy Gen AI use weakens your intellectual habits**, such as reflection, understanding, and critical thinking. The more that students used GenAI, the lower they scored in these areas (Choudhuri et al., 2026).
- **GenAI use can lead you to erode or lose skills that you already have**, a process known as “**deskilling**.”
 - In the medical field, recent research (Heudel et al., 2026) has shown detrimental effects in radiology, dermatology, gastroenterology, and pathology. For example, doctors who used GenAI to identify cancerous growths during endoscopy became less reliable at identifying those growths themselves (Budzyń et al., 2025).
 - In Computer Science, software engineers who relied on GenAI to complete coding tasks scored worse on a quiz about those tasks than engineers who did the work without genAI (Becker et al., 2025).

Why does this happen? Is there something different about how we engage with AI? Not really. Technologies of all kinds can make learning “too easy.” Prior to AI, Google Maps has led to people being worse at reading and navigating maps (Dahmani and Bohbot, 2020). Relying on technology can reduce our mental engagement to such a point that we are no longer learning but becoming dependent on that technology to think and act for us.

If some technology can inhibit learning, that leads to a new question...

HOW DO WE LEARN?

As stated above, the Colket Center views learning and developing knowledge through two central principles:

- 1) Learning is a result of effort and hard work
- 2) Social interaction facilitates learning

EFFORT AND HARD WORK

In order to learn anything, from schoolwork to a new sport to a new hobby, we need to expend effort. This **productive struggle** is what the CC motto is about: *Learning Through Hard Work*. One way to view this is through a struggle spectrum.



Taking a class on multiplication tables typically would not involve struggle or effort, so you wouldn't learn. At the other end of the spectrum, jumping straight from Algebra to Calc 2 would put you in the far right -- you don't have the foundation to be successful, so no amount of effort or struggle may help you succeed.

No matter how hard you work, the big picture of learning and developing knowledge combines 3 key elements:

1. working to remember and recall many times what you've learned so far (i.e., repetition, retrieval)
2. continually connecting old material with new material (i.e., interleaving)
3. varying what you learn by applying in new contexts (i.e., transfer)

Combining and using these three elements, the big picture is that "learning" occurs as facts, information, and skills become consolidated as knowledge in long-term memory (for more on this, talk to QRC Director Steve Getty or check out Brown, Roediger, McDaniel, 2014). That knowledge is retained and built as you use content to think, critically evaluate and problem-solve in different contexts.

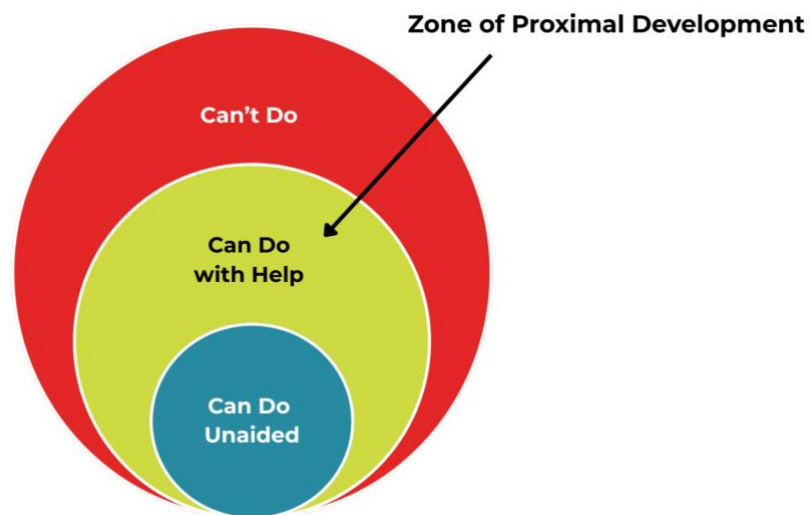


Consider genAI again. You'll see that genAI can interfere with all three of these key elements of knowledge creation. If you are underperforming mentally and not retaining information, you will find it difficult to build knowledge.

SOCIAL INTERACTION FACILITATES LEARNING

Can you learn on your own? Of course you can. But one of the reasons we go to school is because **interacting with others takes our learning to the next level.**

The Zone of Proximal Development is an excellent visual model for how learning works in social contexts.



We have a much greater capacity for learning when we involve other people, whether those people are family, friends, classmates, peer tutors, college staff, professors, or other professionals working in their field. This is not just because these people may have more knowledge or experience than us, or a unique perspective that challenges our knowledge. It's because they have developed behaviors and processes that help us learn.

When you work with a professor or go to a tutor, you don't just see the final products they make. **You see them engaging in behaviors that you can replicate**, whether that's the kind of questions they ask of a text, the way they write out an equation, or how they interact with a certain technology. This gives you a **model** for how to approach learning (Svinicki, 2004).

Ultimately, the reason collaborative learning can be successful is because you have more information; it stimulates creativity; and it enhances information recall because participants are actively involved in the process. In addition, students are more satisfied with the outcome (Beebe & Masterson, 2003).

COLKET CENTER CONSIDERATIONS REGARDING GenAI USE

- **Support your cognitive processes, don't replace them** – Think of your brain as a muscle – you need to exercise your brain in order for it to get “stronger” and for you to get “smarter” and build knowledge. For example:
 - Make your own flash cards and notes, and don't have genAI do it. Flash cards aren't just for testing your memory. The process of making the cards is where you synthesize content for assessments of your learning. The same applies with notetaking (Van der Weel & Van der Meer, 2024). Be mindful of the **process**, not just the **product**.
 - Use self-testing and quizzes from your course to support recall and transfer. This helps you see your progress, where you might be falling short, and best next-steps.
 - Get a blank sheet of paper and try to recall and organize your knowledge without textbooks or notes. This is a useful exercise to see what you have learned and what gaps you may still need to work on.
- **GenAI may help for a broad, quick overview**– Just as you might use Wikipedia to get a quick overview of a new topic, or to remind you of material you learned before, genAI can help you get your feet wet. However, your instructor is likely the best resource to recommend professional papers, books or other credible published sources that a research librarian can help you locate.
- **Avoid using genAI for a process (like coding or analyzing data) unless you already have mastery of the foundational skills and concepts** – If you have not mastered basic skills and had opportunities to practice thinking through ideas for yourself, it is difficult to recognize the limitations of inaccurate responses from genAI. Despite the confidence exuded in a genAI response, the tool is not infallible. Never accept an AI-generated result without checking it against official resources, documentation, or literature. If you do not have sufficient foundational skills to critically evaluate genAI output, then don't use it.
 - Beware of overconfidence in genAI outputs. Higher confidence in genAI is associated with less critical thinking (Lee et al., 2025). Build your own knowledge, skills, and confidence before turning to genAI.
- **Keep it social** - Use genAI with another person. Using genAI by yourself can lead to a closed feedback loop – GenAI is trying to give you the answers you want, rather than the ones that would actually help you grow. Put another person in the loop to break that cycle and critically evaluate what genAI is saying.

WHEN YOU ARE TEMPTED TO USE AI...

- **Are you looking up sources?** Do a regular Google search – without the GenAI Overview. Research shows that using traditional web search methods improves learning: (Shah & Bender, 2022; Melumad & Yun, 2025).
 - *Pro-level:* Talk to the research librarians! Also, check with your instructor regarding the reference list you've compiled.
- **Are you summarizing readings?** Reading and synthesizing material is an essential skill, not just in college, but in life. Beware of giving that skill over to AI. Carve out time for reading.
 - *Pro-level:* Talk to tutors or staff in Colket, the Advising Hub, and Accessibility Resources about reading strategies that will increase your speed and comprehension without sacrificing your cognitive development.
- **Are you brainstorming?** Don't let GenAI short-circuit or constrain your important human skills and attributes – curiosity, creativity, critical thinking, innovation, effort and resilience, or situational agility (see section on homogenization of writing). Professors want to see *your* ideas, not reworked ideas generated by a bot.
- **Are you studying?** Studying requires effort and concentration, and should be difficult. If you're using GenAI to make it easy, such as generating GenAI summaries, you are short-circuiting a key part of the learning process. You can also study in groups, so you reap the benefits of peer learning. Your instructor might also have study tips from their experience teaching that course.
 - *Pro-level:* Go to Colket for help with study strategies.
- **Are you handling data?** Don't rely on GenAI to do it all for you. If you don't know the basics behind the data, you won't know how to write useful prompts or how to assess the output GenAI gives you.
 - *Pro-level:* Go to the QRC and SLC.
- **Are you running out of time?** We all have experienced a time crunch just before an exam or a project is due. But if you rely on GenAI to finish work now, what will happen when you're not short on time? Will you still use genAI? Research suggests you will (Kosmyrna et al., 2025). Don't get caught in the habit. You don't get stronger by skipping your workout. You won't build knowledge if you bypass learning.
 - *Pro-level:* Have an honest conversation with your instructor regarding possible solutions.
 - Go to Colket for help with your academics. Consider academic coaching from the Advising Hub to help with time management.
- **Are you writing?** Some research has shown writers successfully using GenAI for spell check, idea generation, and critiquing or honing arguments (Sanz-Tejeda et al., 2026). However, beware of letting GenAI do all your thinking for you. GenAI has been shown

to homogenize ideas, writing styles, and cultural expression, so you end up writing about the same idea as your peers in a similar voice (Chayka, 2025). Your writing is an important part of your identity and can uniquely express what you bring to the table. That's what your professors want to see reflected in your work.

- *Pro-level:* Go to the Writing Center. If you are a CLD writer, you can also go to the CLD office or meet with CLD certified tutors in the Writing Center.
- **Are you preparing for a speech?** Anxiety plays a large role in attitudes around public speaking. The audience for your speech will be human, so practice with and get tips from a human to raise confidence and enhance your credibility.
 - *Pro-level:* Go to the Speaking Center.

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