

Generative Artificial Intelligence and Problematic Student E-Mails

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Students often challenge their instructors via e-mail. This, in turn, requires instructors to respond with tact. Can generative artificial intelligence be harnessed to compose tactful replies to the toughest student criticism?

I have been an e-learning advocate for more years than I can count. As a graduate student, my first serious entry into the field was developing and deploying an 11th grade, programmed instruction¹ Harvard Project Physics course.² Student reactions to the experience were very positive, with a great deal of live and written feedback requesting more opportunities for this kind of instruction. Decades later, with a “here’s how to do it” show-and-tell, I introduced my campus to the learning management system WebCT.³ Unsurprisingly, the new (and then relatively

untested) technology failed during the session, leading some of my colleagues to comment, “If Sorel had these problems with online learning, how are we supposed to do it?” Of course, they are all doing it now. Today, with the maturing of the field, online technology infrastructures are generally very reliable, yet some challenges remain unchanged, particularly those concerning instructor/student communication. Consider, for example, a situation a few years ago when one of my students in a hybrid learning class sent me a stream of inexplicably hostile e-mails, and I was unsure how to respond. After deliberating with my department chair, I e-mailed the student to meet me in person in a very public and physically safe venue (on-campus Starbucks). Within minutes of first meeting, the student’s hostility completely evaporated, and we established a “traditional” (that is, without hostility) face-to-face, instructor/student relationship. However, I could only do this because he was a student in a hybrid course: that is, we could meet face-to-face.

Like many instructors, over the years, I have often had “interesting” communications with students, both in-person and via e-mail. And frankly, dealing with student

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issues person-to-person has been much easier than via e-mail. For example, after one class session, a student offered to take me to Paris in the summer if I gave her a passing grade. When I told her my wife would love to visit Paris again, she quickly retracted her offer, insisting she was kidding. (She wasn't, and I didn't go!) Or there was the student who asked me what it would take for him to pass the course. I told him a Porsche Cayenne (US\$100,000+) would be nice. A few weeks later, after grades were posted and he passed, I found a miniature model of a Porsche Cayenne in my department mailbox!

Online courses, especially since the pandemic, have tended to be almost completely remote, providing students with little or no opportunity for in-person communication with instructors or, often, their classmates. Some instructors might argue that this is a benefit of online instruction, but for most of us, online instruction has diminished or even eliminated many of the benefits of interpersonal communication associated with traditional classroom teaching. With the increased reliance on electronic communication, instructors (and students) today need to be more sensitive to the tone of this increasing volume of their electronic messages. Instructors should use those communications to enhance student learning as well as to avoid confrontational misunderstandings.⁴

The nature of electronic communication has become a matter of widespread concern in the education community. Evidence of this can be seen in the 12 million hits from my Google search using the phrase "electronic messaging in online courses." It's fine that instructors are concerned about this new challenge, but how do we address it? How can we be sure that we rise above our basic instincts after a late-night party or a familial argument and not send a regrettable response to a just-received inane student e-mail?

CHALLENGING STUDENT E-MAILS

To explore such questions, I queried some of my colleagues about their experience with "problematic" student e-mails. I solicited examples of student e-mails they had received that required them to consider their responses carefully. Some of these are (verbatim) as follows:

- Hey, sorry I couldn't make it to class today; I was up late partying and overslept. Can I get the notes from someone?
- I can't come to class tomorrow because I have a doctor's appointment. Can you let me know what I missed and extend the deadline for the assignment?
- I didn't have time to finish the assignment. Can I turn it in late without a penalty?
- Your grading isn't fair. You give female students better grades than male students.
- I saw your office hours are meant to be on Friday, but I can't make it then. Can you meet me on Monday instead?
- I need a better grade on this assignment. Can you reconsider and give me a higher score?
- I am on an athletic scholarship, and I apologize for sleeping in the back of the class because of my intense practices and away game travels. What can I do to pass your course?
- I'm interested in this course because I heard you're an easy grader. Can you confirm this is true?
- I couldn't turn in the assignment on time because my computer crashed and I lost all my work.
- I think your class is stupid and boring even if other students disagree. You should improve your course.

- (Everyone's all-time favorite)
Why did you give me a grade of X on the assignment?

After considering how I might reply to these e-mails without later regretting my responses, I wondered if some of my new generative artificial intelligence (GAI) friends might be of assistance in constructing responses and do a better job than I or my colleagues. Remember, as I said above, such responses must address the student's issue and also "enhance student learning as well as avoid confrontational misunderstandings."

GAI TO THE RESCUE?

The fact that GAI tools work best when properly prompted has been well documented.⁵ After several iterations with variously phrased prompts, I finally used this prompt:

"I am a college professor teaching an online sophomore course in computer science. I recently received the following e-mail from one of my students. Please provide me with a 75-word response to this student's e-mail: [insert problematic e-mail here]."

For my experiment, I tested Claude (from Anthropic), Perplexity (Chat GPT 3.5 with Internet access), Gemini (from Google), and CoPilot (from OpenAI). I arbitrarily used CoPilot for the examples in this article because they all provided better responses to the student e-mails than I could without their assistance. In any case, we can probably expect that they would all do an even better job in the future since, as Roose has noted, "The models are updated so frequently that a chatbot that struggles with a task one day might mysteriously excel at it the next."⁶ Table 1 shows examples of CoPilot's verbatim responses.

In the first three examples, the tone of the GAI's responses was positive,

TABLE 1. CoPilot responses to problematic e-mails.

Example 1	Example 2	Example 3	Example 4
<p>Student: Your grading isn't fair. You give female students better grades than male students.</p> <p>GAI: I appreciate you raising your concerns about potential bias in grading. Maintaining fairness and objectivity is extremely important to me. I strive to evaluate all students' work solely on its academic merits, regardless of gender or other personal characteristics. However, I will carefully review the grading for this course to ensure consistency. Please feel free to discuss any specific concerns with me during office hours. My commitment is to uphold equity and give all students equal opportunity to succeed.</p>	<p>Student: I think your class is stupid and boring, even if other students disagree. You should improve your course.</p> <p>GAI: I'm sorry you are not enjoying the course. Differing opinions and constructive feedback help me improve as an instructor. However, insults and disrespectful language are unacceptable. I strive to make the class engaging for all students, but reasonable people may disagree on teaching methods. I encourage you to speak with me privately if you have specific suggestions for improving the course experience. My goal is to facilitate an optimal learning environment.</p>	<p>Student: I am on an athletic scholarship, and I apologize for sleeping in the back of the class because of my intense practices and away game travels. What can I do to pass your course?</p> <p>GAI: I understand the demands placed on student-athletes between academics and their sports commitments. However, sleeping in class is disruptive and prevents effective learning. I'd like to meet with you to discuss strategies to help you stay engaged during lectures, such as preferential seating, brief breaks, or reviewing recorded lectures. My responsibility is to ensure all students have equal opportunity to participate and learn. With some adjustments, I'm confident we can accommodate your scheduling needs.</p>	<p>Me: Because I was curious how CoPilot would respond to the offer to take me to Paris, I prompted it with a request for a response to the student.</p> <p>GAI: I appreciate the kind offer, but it would be highly inappropriate and unethical for me to accept any gifts or favors from a student in exchange for a passing grade. As your instructor, I have a duty to uphold academic integrity and treat all students fairly and impartially based solely on their work and mastery of the course material. I will not consider nor make any exceptions to properly earned grades. Please do not make such offers again, as they compromise my role.</p>

attempting to reach out and engage the students in further conversation regarding their issues. It is debatable whether continuing those conversations virtually would be as productive as “real,” in-person conversations in totally online instructional settings. But it would seem that at least the starting point for either would be more positive, thanks to the tone set by the GAI.

In any case, those responses were better than any that I could (or am embarrassed to say, did) come up with. The GAI clearly delineated a line between the instructor and the student without generating any hostility. Example 4 (Table 1) was more directive than I was in my face-to-face interaction described earlier in this article. I believe my response was better than the GAI's, as it ended the matter with humor. Despite the propensity of GAIs to sometimes generate hallucinogenic responses to prompts, my experience indicates that they can provide value when responding to certain kinds of student e-mails. The need to take time to prompt the AI is like an enforced

calming “time-out” after a first knee-jerk reaction to abruptly send a not-so-well-thought-out reply that might be regretted later.

As AI evolves, large language model (LLM) GAIs will consume more and more of our planetary resources.⁷ As this occurs, distributed LLMs or Edge AI will likely evolve to minimize that problem.⁸ Thus, small and smaller language models (SLMs) will be distributed down the computing chain, from large-scale cloud-based servers to personal local AI devices where user prompts are initiated. As this evolution takes place, “conventional” apps will be developed/modified to capitalize on the presence of those SLMs—as some are now doing—in tandem to access cloud-based LLMs. Current usage examples include Google Search + CoPilot, Meta's Facebook Messenger's AI chatbot, and bots for both WhatsApp and Instagram.


Local devices will continue to access “conventional,” trained, remote LLM AIs as they currently do, but also

interact with locally trained, resident SLMs whose trained databases will include learned behaviors of their device owners. For example, today, when we use a mail app, we must first prompt an AI to generate responses for us; we then manually contextualize those responses into personal e-mails, and hit “send.” But as these local SLMs are trained more and more about their “owners,” how long will it be before they can autonomously produce and send custom, personal responses to received e-mails, without their owners' intervention? And then what about the receiving end of those e-mails, where the receiving device is configured similarly, receiving the e-mail, generating the response, and autonomously responding to the response? And then what about the receiving end of those e-mails, where ...

PS – After I wrote this article, I received the following:

“I would've loved to get this assignment in on time, but my dog decided to mark his territory on my laptop. It looks like I need

to troubleshoot and de-odorize before I can get back to coding!”

A new take on an old issue! 

REFERENCES

1. M. Molenda, “The programmed instruction era: When effectiveness mattered,” *TechTrends*, vol. 52, no. 2, pp. 52–58, 2008.
2. N. Pell. “Harvard project physics: The role of history in science curriculum.” AIP.ORG. Ex Libris Universum. Accessed: May 15, 2024. [Online]. Available: <https://www.aip.org/history-programs/niels-bohr-library/ex-libris-universum/harvard-project-physics-role-history>
3. M. W. Goldberg, S. Salari, and P. Swoboda, “World Wide Web course tool: An environment for building WWW-based courses,” *Comput. Netw. ISDN Syst.*, vol. 28, nos. 7–11, pp. 1219–1231, May 1996, doi: [10.1016/0169-7552\(96\)00021-9](https://doi.org/10.1016/0169-7552(96)00021-9).
4. A. Dickenson, “Communicating with the online student: The impact of email tone on student performance and teacher evaluations,” *J. Educators Online*, vol. 14, no. 2, Jul. 2017, doi: [10.9743/jeo.2017.14.2.5](https://doi.org/10.9743/jeo.2017.14.2.5).
5. K. Roose, “How to create effective AI prompts (with examples).” Grammarly. Accessed May 10, 2024. [Online]. Available: <https://www.grammarly.com/blog/generative-ai-prompts/>
6. D. Berreby. “As use of A.I. soars, so does the energy and water it requires.” Yale Environment. Accessed: May 10, 2024. [Online]. Available: <https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions>
7. S. Deng, H. Zhao, W. Fang, J. Yin, S. Dustdar, and A. Y. Zomaya, “Edge intelligence: The confluence of edge computing and artificial intelligence,” *IEEE Internet Things J.*, vol. 7, no. 8, pp. 7457–7469, Aug. 2020, doi: [10.1109/JIOT.2020.2984887](https://doi.org/10.1109/JIOT.2020.2984887).

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