AI honor roll

As ChatGPT dominates technology-related discussion, educators must decide how they wish to interact with AI in the classroom.

By Sarah Bakeman

Courtney McNeill learned how to handle academic dishonesty while she was student teaching.

Pull the student aside. Reassure them of the importance of the assignment. Give them a chance to redo it.

College classes taught the 2022 Bethel grad how to be an educator in the language arts area. But McNeill also learned that kids try to be sneaky – a theme that has remained as she teaches seventh and eighth graders at Scott Highlands Middle School. Efficient students might copy word-for-word from the internet while craftier students digitally edit their names onto peers' assignments.

"I tell my [students] all the time, even with using their phones in class, that I know all of the tricks," McNeill said.

When McNeill started class on a late-February Friday, she asked her students if they knew about ChatGPT. Despite their sneakiness, only half raised their hands. Since its November 2022 launch, ChatGPT has amassed over one million users. It is an artificial-intelligence-driven natural language processing tool that can generate human-like responses.

And McNeill isn't hearing about the chatbot from her students. Instead, she and her fellow teachers casually discuss what it could mean for the future during their prep time and lunch breaks.

"It's a new thing that's going to be a part of our society," McNeill said. "I would hate to put a block to it, so it's figuring out how to use it as a tool without it being the only thing they're using all the time."

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Brian Turnquist remembers the excitement he felt in 1997 when IBM Deep Blue, a chess-playing expert system AI, defeated world chess champion Gary Kasparov in a six-game match. It was the first time AI beat a human player, ending the era of human world champions. From that point on, computers would always win.

At the time, Turnquist was earning his Ph.D. in Mathematics at the University of Maryland. As a member of the computer science community, Deep Blue signified advancements in the field of artificial intelligence.

Then a computer program solved a mathematical problem humans had been working on for 60 years. An AI beat the world champion of Go, a game with even more permutations than chess.

Those outside of the computer science community were not as excited as Turnquist. In fact, they were shaken.

"When the realization comes that no matter how good you are, you'll never beat a computer program, it's a shock," Turnquist said. "Gary Kasparov described it as a shock to his identity. This is part of the visceral reaction people have."

In a way, the current conversation surrounding ChatGPT is nothing new for Turnquist. Rather, it's the resurgence of a career-long tension between the public and artificial intelligence.

After finishing graduate school in 1997, Turnquist went on to be a computer science professor at Bethel, teaching the AI class every time it was offered. His 2016 sabbatical research project centered around artificial intelligence. More specifically, Turnquist was interested in applying AI to the real world, not just academic papers.

This led him to anomaly detection: a form of AI that learns about established patterns in order to detect abnormalities. This can be implemented in industrial equipment in order to prevent workplace accidents. On the internet, it's used for cybersecurity. In hospitals, radiologists can use it to find abnormalities in CT scans.

When his sabbatical came to an end, Turnquist felt like he was just getting started.

"I just asked the administration, 'Can you give me a little more time to work on this? You don't have to pay me, just give me a little more time,'" Turnquist said.

Ultimately, Turnquist decided to take a leave of absence from Bethel, accepting a role as the chief technology officer of BoonLogic, a software company centered around machine learning. There, he specializes in anomaly detection. He's still in this position today, meaning it's been a seven-year leave.

"My current status might still be

leave of absence," Turnquist said. "It's possible, but I don't know. Maybe they kicked me out."

Just as Turnquist works to improve anomaly detection, researchers at OpenAI, the laboratory behind ChatGPT, are working to improve their own chatbot.

According to Turnquist, ChatGPT is in its infancy. It's subject to mistakes. It learns from humans, so its responses are prone to biases and stereotypes. It asserts bodies of texts as fact, when, in reality, they're riddled with inaccuracy.

When fed a trigonometry word problem, Turnquist has found ChatGPT generates text. But it is "complete nonsense" that ChatGPT "states like a real answer."

"It's ironic because people trust computers to do math," Turnquist said. "ChatGPT doesn't know, apparently, when it's hallucinating. It can make up a good fake story ... but it doesn't come across saying, 'This is a made-up story.' It tells you like it's a Wikipedia article that's been researched. This is one of the dangers."

While these problems are evident now, undesirable behaviors from the AI are being weeded out as more people use it. According to Turnquist, it will continue to get better, but the question is whether or not the platform will reach a plateau.

"Will there be a point where we've done everything we can and it's still not good enough? Then you have to understand that it's good for this and it's okay for this, but don't use it for this," Turnquist said.

Turnquist is familiar with the visceral public reaction that often ensues after advancements in the field of AI. While he does not relate to those who are shaken, he also does not dismiss technologies such as ChatGPT for their current-day flaws.

"With Gary Kasparov, at that time people were saying, 'I believe that maybe a chess program could eventually beat a grandmaster, but it'll never beat a world champion,'" Turnquist said. "Well, it did ... ChatGPT is a baby right now, and it will get better."

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In addition to being sneaky,

McNeill has learned that children are justice-based. For every unit she starts or assignment she gives, there's the inevitable, "Why do we need to learn this?"

Now that AI has the potential to generate written assignments for students, McNeill prioritizes explaining the importance behind everything that happens in the classroom.

In those casual lunchtime conversations between teachers, students using ChatGPT to cheat hasn't been the only concern. They've also discussed ChatGPT's ability to write full lesson plans, begging the question, "Why do we need to write our own?"

"It's a great resource to have, but you don't want that to take over the knowledge you are bringing to the table as an educator," McNeill said. "It's using it as a tool, but not as a way of creating a final product."

The next unit for McNeill's seventh grade class is dystopian literature. She'll have her students read books and then find a current-day article that shows parallels. Some are reading a science fiction book entitled "Scythe," which details a society led by a benevolent artificial intelligence called the Thunderhead.

While ChatGPT and the field of AI aren't at the "Scythe" level, McNeill hopes to show her students that fiction books and the dystopian genre have real-world meaning.

Although science fiction tends to see artificial intelligence through a pessimistic lens, Turnquist sees it through his own Christian worldview.

"AI is morally neutral like money is morally neutral," Turnquist said. "What matters is what you do with it. And once you've done something with it, you have a moral responsibility for [using] it in that way."
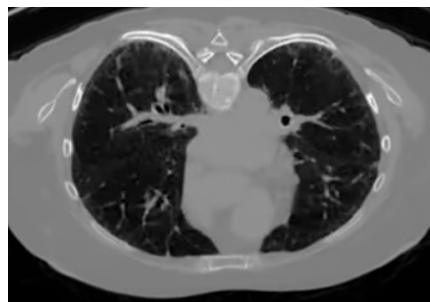
English teacher Courtney McNeill covers influential authors during a first-period class with her eighth-grade students. McNeill utilizes a "workshop" model featuring short instruction time and large amounts of guided time to do assignments, ending with time to share. "Education is changing with this new workshop model," McNeill said. "Because so much time is guided practice, you don't give them as much freedom and time to cheat." | Photo submitted by Courtney McNeill

Brian Turnquist's role at BoonLogic allows him to develop anomaly detection, a form of AI that identifies inconsistencies within patterns. His work can be applied to lung CT scans. The grayscale scan is what radiologists typically use, without AI assistance. | Photo submitted by Brian Turnquist

The colored scan showcases AI at work – it highlights similar tissue without expert training and points out abnormalities. Anomaly detection has many other real-world implementations, such as cybersecurity and industrial equipment safety. | Photo submitted by Brian Turnquist