

Artificial Intelligence, Real Anxiety

How should educators use AI to prepare students for the future?

By MICHAEL B. HORN

IN A LITTLE MORE THAN A YEAR, freely available artificial intelligence technology has evolved from generating half-right passages of slightly awkward text to creating artistic original images, generating error-free computer code, and even passing an MBA exam at the University of Pennsylvania's Wharton School. If a user-friendly computer assistant like ChatGPT can already do all of that, AI seems poised to upend traditional work practices and hiring patterns—even when it comes to knowledge-economy jobs.

There are signs that high school and college students around the world are anxious about AI and this uncertain future. While educators fret about plagiarism, cheating, and how to use AI to improve instruction, students are wrestling with more fundamental questions about what they are learning and why. They are looking at the fast-changing world and wondering if their coursework is properly preparing them for the workplaces of tomorrow.

"We've seen an increase in... nervousness around students. All of us have moments in school when we're like, 'When are we ever going to use this?'" said Keeanna Warren, CEO of the Purdue Polytechnic High School network of university-affiliated charter schools. "And so now with ChatGPT, students are asking themselves about that with everything. 'You're teaching me to write an essay? When am I ever going to use this? You're teaching me to make a presentation? We're never going to use this.' And then they take it to the next level, 'What am I going to do?'"

At a recent panel discussion at Harvard University about students' perspectives on generative AI, law student Yusuf Mahmood said he has serious concerns about how well the school is preparing future lawyers to use AI tools for work, especially at big firms. Musicology graduate student Siriana Lundgren said that introductory-level research courses need to change to keep pace with AI's rapid rise.

High school students share these same worries. Sam Cheng, a junior at Design Tech High School in Redwood City, Calif., said in an interview that AI is just one more technology causing schools to be out of step with what students need. "This problem has been around for a really long time of students feeling like school isn't preparing me for the real world," Cheng said. AI, in his view, only adds to that pervasive problem.

Attitudes and Impacts

Despite common assumptions to the contrary, students don't appear to like or use AI more than parents and teachers. A 2023 survey by the Walton Family Foundation found that 61 percent of parents and 58 percent of K–12 teachers report favorable views of ChatGPT compared to 54 percent of students aged 12–17. Teachers are more likely to use ChatGPT than students, at 63 percent compared to 42 percent.

Recent graduates report feeling threatened and worried by the rise of AI, according to the 2023 edition of the Cengage Group's annual "Employability Report." Among 1,000 graduates who had finished a degree or non-degree program in the past month, roughly 46 percent said they felt threatened by AI, and 52

percent said it made them question their preparedness for the workforce.

Meanwhile, workers are voicing the same worries. A 2023 Gallup survey found that 22 percent of U.S. workers are concerned that technology will make their jobs obsolete. That's a rise of 7 percentage points since the 2021 survey, in a measure that had changed little since Gallup started tracking it in 2017. It's striking that the increase is due almost entirely to a rise in anxiety among



college-educated workers, which suggests that those trained for the knowledge economy don't feel all that secure.

Although many believe that AI will likely be most powerful when it complements humans, not replaces them, students aren't wrong to ponder whether schools are preparing them for the futures that will still exist when they leave school. According to the McKinsey Global Institute, because of generative AI "almost 12 million occupational changes will need to take place between now and 2030, with over 80 percent of those jobs falling into four occupations: customer service, food service, production or manufacturing, and office support."

While students worry about tomorrow, their teachers are applying AI in the classroom today (even if that's just to check for cheating or plagiarism). But schools have not yet grappled with the broader issue of whether or how curriculum should change.

"I'm concerned that my schools aren't embracing AI or teaching us how to use it," said Jared Peterson, a senior at Allen High School in Allen, Tx. "For example, all eight of my teachers have warned us that we can't use AI for any of our schoolwork. Only one of the eight has encouraged us to experiment with AI, but not on schoolwork. ... [And] one of my teachers did a presentation

on both the benefits and the dark side of AI technology, but focused more on the dark side of AI.”

The Question of Curriculum

Some forward-looking educators, however, believe that the opportunities associated with AI—and the influence those opportunities should have on curriculum—are more important topics of conversation.

According to Martin West, academic dean at the Harvard Graduate School of Education and editor-in-chief of *Education Next*, when generative AI burst onto the scene, faculty at his school identified three areas to tackle. First, define a policy on appropriate use to address concerns about cheating. Second, redesign assignments to give students experience using AI in productive ways. And third, consider how course learning goals need to change. Harvard faculty believe that students should be prepared for a professional world where AI use is not just permitted, but expected.

This last priority is ultimately the most important, West said, but it is also the most daunting, which shouldn’t be much of a surprise. After all, rethinking standards and curriculum was fraught even before AI. Just witness how hard it is to alter the K–12 history curriculum or the heated debates in California around what is taught in math.

Yet this is precisely the conversation that needs to take place, said Paul J. LeBlanc, president of Southern New Hampshire University, one of the largest universities in the country. In a recent essay written with Forward College founder and CEO Boris Walbaum, LeBlanc noted that machine learning will be used for many procedural jobs, such as basic accounting and administration, but workers whose work surpasses results from AI will prosper. “Therefore, universities must drastically raise the cognitive bar for students. Less accumulating knowledge and more metacognition: that is, the fundamentals of interacting with knowledge. Learning will move from worrying about what one knows to how one knows it.” In *Inside Higher Ed*, LeBlanc wrote that the threat posed by AI to high-paying, seemingly secure knowledge economy jobs calls for a paradigm shift and wholesale changes across institutions. “Curricula across a wide range of fields are being rendered out of date at this very moment; we just don’t know in what ways yet.”

Not everyone agrees. If the widespread availability of knowledge means that learning knowledge is no longer important, wouldn’t the emergence of tools like Google and Wikipedia more than two decades ago already have caused that shift? After all, as technology writer Ben Thompson has observed, “It’s important to keep in mind that ChatGPT is a large language model, not a knowledge repository. It has no knowledge of right or wrong, or truth or untruth; it is simply predicting the next word.”

Or, consider this perspective from computer science professor Charles Lee Isbell Jr., an interactive AI expert

who is University of Wisconsin–Madison provost and vice chancellor for academic affairs. In response to those who point out that occasionally ChatGPT “hallucinates” and starts “making things up,” he noted: “It’s always making things up. It just so happens that the things that it makes up sound reasonable most of the time.”

And as E.D. Hirsch has previously argued, Google clearly didn’t end of the importance of mastering knowledge. “The Internet has placed a wealth of information at our fingertips,” Hirsch wrote. “But to be able to use that information—to absorb it, to add to our knowledge—we must already possess a storehouse of knowledge.” The ability to think critically relies on having factual knowledge in a given domain.

This observation points to a middle ground of how curriculum may need to change.

New Roles for Knowledge and Experience

One of the biggest changes in work will be knowing how to work alongside generative AI tools, according to Ryan Craig, an author and managing director of Achieve Partners, an education-focused investment firm. To do that, workers will have to know which prompts and questions will generate the right outcomes. And knowing what to ask will require subject-matter expertise. Or, as Craig said in a recent blog post:

If your job’s in claims management, you need to have some understanding of how the insurance industry works and its lexicon. If you’re a digital marketer, you need to know industry-standard platforms, tools, and metrics. Underscoring all this is an ability to understand the subject matter. As specialized LLMs [large language models] evolve for every industry and job function (and likely for each industry-function pairing), experience and pattern recognition will become even more important.

But subject-matter expertise won’t be enough. Individuals will also need to learn how and when to ask the right questions. And that requires a sense of why they are asking the questions they are and what problems they are trying to solve.

Craig’s argument boils down to this: given the rapidly changing nature of work, traditional academic learning from static content is unlikely to make the grade. Instead, academic learning needs to become much more tightly integrated with real work experience given the unpredictable interdependence between the two right now. He noted that a 2023 IBM report on AI predicted, “AI won’t replace people, but people who use AI will replace people who don’t.” Craig concludes: “As a result, keeping students penned in classrooms will impede career launch. While digital transformation has already put a

premium on learning-by-doing, AI will make work experience mandatory for every learning journey.”

What does that mean in the classroom? According to Cheng, the California high-school junior, it’s less about teaching “how to use AI” and more about how to take the information and skills that they’ve learned and use them with AI to think critically, creatively, and consciously. “Then even when we’re out of school, even when new technology comes around, we’ll have a toolkit for how to interact with it,” he said.

Beckett Miller, a senior at Design Tech, concurred. “It’s important to have enough knowledge about things and how things work,” he said. But then he argued it’s important to learn how to use tools like AI with conscientious intention. He cited the example of using ChatGPT to help him iterate far faster on an essay he was writing, which ultimately helped him deepen and clarify his thinking, as well as improve the communication of his ideas.

To create opportunities that are connected more tightly with the workplace, high schools could source projects from actual employers as part of the curriculum through companies like Riipen, which pairs college students and curriculum-related internships and jobs. Schools also could allow students to take part in curated internships and externships as part of the regular

school year, like the Summit Public Schools charter network in California and Washington State has done with its expeditionary learning blocks. Schools could also turn to organizations like the CAPS Network, which organizes onsite, work-based learning experiences for high school students, to integrate career and technical education for all students. Or schools could offer apprenticeships, akin to what Coweta County in Georgia is doing for sophomores through the Georgia Consortium for Advanced Technical Training. And when schools want to teach about AI itself, they could use up-to-date online courses from places like Coursera rather than seek to reinvent the wheel.

AI is more than a homework helper or fast-track to cheating. It is a transformative tool, and students know it. These sorts of innovations could start to address the concerns of students like Peterson, who worries that high schools “are more focused on cheating and stopping AI usage than on how they can use AI to make education better.”

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SCHOOL LIFE

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Harvard’s gone through a difficult time the past six months. What do you think is the way forward?

One of the reasons we came to this point was that the university governing bodies were undervaluing the requirements and the ethical framework of the research university and overvaluing political activism and statements about politics in the choice of presidents and other high officials. The university is going to have to recover its commitment to research in order to preserve its academic prestige and the value of its degrees.

One of the things you learn in history is that things can collapse very quickly. Harvard has been the premier university in the country since the Second World War, but things can collapse. I would hate to see this wonderful university with its incredibly generous alumni and many distinguished people losing prestige because of short-sighted actions from our governing boards. The governing boards have to stop trying to turn the university into a training school for political activism and stop trying to send out political messages in their choice of officers.

Can you give examples of universities that have fallen pretty far from the pinnacle they once had achieved?

There’s what’s called the first-mover phenomenon in universities where the oldest universities are still the leading

universities. The University of Paris, which was founded in 1215, University of Bologna, which was founded around 1190—they are still top universities. And so is Oxford, so is Cambridge, both founded in the late 12th and early 13th centuries. There are a lot of German universities, which were founded in the 14th century, that have gone up and down. Harvard, as a research university, only has really existed since the early 20th century and only tried to be a dominant university in the country since maybe the 1920s and ’30s, and it wasn’t at that point necessarily the top university.

I’m more worried about the reputation of research universities as a whole in this country. When they start taking sides in politics, it means that the other side in politics automatically regards them as politically motivated. That’s not a good thing.

But I don’t think it’s true. Most of the research of my colleagues in the humanities, social sciences, and sciences is not politically motivated. The ends or the purposes might be shaped by political beliefs, but the research is almost all sound as far as I’m concerned. So it doesn’t deserve to lose esteem, but if the university does become a partisan institution, and it’s heading for that, then it’s going to lose public support.

This is an edited excerpt from an Education Exchange podcast. Hear it in full at educationnext.org.