



ARTIFICIAL INTELLIGENCE

How Introducing AI Across the Curriculum May Address Key Equity Concerns

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By Sam Peterson Nov 5, 2020



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“It should be fun to work with artificial intelligence tools,” says Nancye Blair Black, Project Lead for [AI Explorations and Their Practical Use in School Environments.](#)



We want all students to have an equitable opportunity to succeed.

It's a simple credo but one that belies both a deep passion for computational thinking and an urgent desire to see this project succeed in its primary objective: to cultivate a broad and diverse group of future AI users and developers. Black sees endless opportunities to introduce AI across the curriculum to students of all ages and backgrounds. As the program—a collaboration between [ISTE](#) and [General Motors](#)—wraps up its third year of professional learning opportunities and support for educators, she says, “this is really the end of the beginning of the work.”

We spoke with Black recently about the work that she and her colleagues are doing, what lies ahead and why she's so excited about the potential of artificial intelligence in the classroom.

EdSurge: What do you hope to achieve with the AI Explorations project?

Black: I think our program meets a unique set of needs in the AI education space right now. In general, companies and organizations have been working primarily on student-facing resources. For the AI Explorations project, we also asked ourselves, “What is it that a classroom teacher really needs to know about AI?” The offerings that we've developed over the last three years have been focused on educating and providing professional development for educators so that they can make the dream of integrating AI education into K-12 a reality.

Now, we're working on scaling up the program to increase its impact, which does two things. First, it connects all those early adopter lone rangers—both through the course and our professional learning network—so even after they've finished the course, they stay involved. And the secondary piece is that we help them to not just be lone rangers by allowing them to train other educators and other leaders in their schools and districts so that they can expand into more of an initiative, instead of just one person who knows a little bit about AI.

Are these courses mostly for STEM educators?

When we stepped back and started to think about why this is relevant to everyone, we realized that every single student, even our 5-year-olds, are using AI on a daily basis. This is the world that we're moving into. It's not science fiction anymore; right now, in every single field of study, AI is being used. Students who understand how AI works and the potential impact of the problems it can solve will be better at curating the tools that they use in their own life. We're talking about kindergarteners, but also 10-year-olds, 13-year-olds, 18-year-olds.

I think a lot of the educators who came into our program this year were surprised at how many entry points there were for every subject area and for cross-curricular collaboration amongst their school and district teams. We took time to intentionally think about those entry points and integration points in every subject area and across grade levels.

For example, in our [Hands-On AI Projects for the Classroom guides](#), we have a project that's specifically for foreign language teachers. That might not be a class where you would traditionally think, "Oh, that's where we should teach AI." But artificial intelligence is used in all of the digital translating apps. We took a standard that they were already teaching in foreign language classes—comparison of languages and accuracy of translation—and showed how AI does it, how natural language processing works. Making that connection for students helps them to see how it all comes together. It's still important to learn a foreign language, but look how you can also use this tool to enhance your travels, your ability to communicate and collaborate with people who speak another language.

At the same time, we're posing bigger questions: "What does it mean to interact in a human-like way?" Or, "What does it mean to recognize emotions or to understand the context of language?" All of that enhances students' social-emotional learning, and it's fundamental to understanding artificial intelligence.

How does the program work to achieve its goal of drawing underrepresented student populations into the AI space?

How do we use technology to be a good citizen, a proactive citizen, and make a positive impact?

As we think about college, careers, whatever pathways students choose, what we've seen in the past in computer sciences is a significant underrepresentation of women and of students from diverse racial, ethnic and socioeconomic backgrounds. That's for a variety of reasons. A lot of it, for women, is stereotype threats around both what it means to be a woman and what it means to be in computer science. But for the majority of those categories, it's been access; they are not being exposed to computer science topics like artificial intelligence young enough and in a way that's fun, approachable and culturally relevant.

Now, no matter what field you go into, you are likely to be using AI tools to do your job effectively. We want all students to have an equitable opportunity to succeed, to know what those fields are like and see if they might identify themselves as being there. If we don't have diverse voices going into the creation of tools—for medical purposes, in the criminal justice system, environmental problems, etc.—we will continue to have products out in the market that are discriminatory against different populations. We really want equity at the front of what we're doing. The idea that AI education is for every student is a message that we get out all the time, that that's just the core of what we're doing and the materials that we produce.

The messaging that ISTE has had consistently, not just in this program, is that computational thinking is for every student in every classroom. That is huge. And what we've seen is that our participants—the majority of whom are not computer science educators—are now putting it into all those other classrooms. Even our computer science teachers have started to partner with other subject area teachers to get that AI message out earlier.

One of the phrases that I often use is, “early and repeated success.” We have to create experiences for younger students—not just with AI but also computer science—that are fun.

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We can't wait until a student is 16, 17, 18 to expose them to something for the first time when they've already solidified a lot of the ideas about who they are and where they fit. We have to introduce this so much younger to break those stereotype threats.

Part of it is changing the way students see themselves, recognizing the agency and the power that they have as a young person to make a difference. If we have them solving real problems, interacting with authentic audiences, if we do that at a younger age, we shift that entire mindset about how they see themselves and how they see learning. I think we'll see a lot more of our diverse students going into more lucrative fields.

And more than just lucrative, they're critical to the success of our society. Because if we don't have those diverse voices in the design of all of these tools, it hurts every single one of us. We need that diversity, so it's in everyone's best interest to get on board and teach about computer science and artificial intelligence at every grade level, and really break down those barriers.

You mentioned the classroom guides earlier; can you tell us a bit about the process of developing AI resources for teachers and students?

One major component in the development of our AI project guides was curating tools and resources and trying to determine which ones were appropriate for K-12. There is a major gap right now in tools that have been designed specifically for students to use.

In authoring the guides, Susan Brooks-Young and I saw our role as helping to fill that gap, helping teachers to know how a tool works, how to use it with students and what the takeaways should be. We said, "We really have to get this right. We need to help teachers identify tools and know what they're good for. What are a few things about AI that students can learn? What are the connections to content areas that they can learn? What are those ethical implications, those societal impacts that students should know about related to each kind of tool?"

That's one of the big things: How do we use technology to be a good citizen, a proactive citizen, and make a positive impact? We want students to ask those questions early. Every single project has a societal impact connection and reflection questions. Every single one.

What's on the horizon for AI in schools?



This entire field of AI in K-12 education is just getting started. I am looking into the future, and it's all potential.

The need is so broad, there's almost no wrong direction to go. There's a need for professional learning opportunities. There's a need for student resources. There's a need for the development of tools. There's a need for just the understanding of what AI is at a basic level.

This entire field of AI in K-12 education is just getting started. I am looking into the future, and it's all potential. It's a chance for people to get their feet wet. It's a chance for people to find what excites them about artificial intelligence in education and then to just jump into that space.

People who are excited about designing lessons and units, come on, we need you. If you're excited about professional development, come on, we need you. If you have programming experience, and you can make AI tools that are student-facing, come on, we need you.

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