2022 IMPACT REPORT

MIT | RAISE

in collaboration with i2LEARNING

AI IS FOR EVERYONE

Imagine a classroom of students who have one school day each year dedicated to learning about artificial intelligence (AI). Not only are they taught about the technology of AI, but also its applications, potential career paths that use AI, the influence of AI on society, the implications for digital citizenship, and responsible design and use of AI. The teacher, who has minimal experience in computers and programming, confidently introduces how AI is shaping today's world through relatable examples, hands-on exercises, engaging class discussions, videos, and regionally/culturally adaptive lessons. Now multiply that one classroom by thousands, across the city, state, province, country, and even the world!

This was the scene during the inaugural Day of AI event held on May 13, 2022. Registrations from 3,158 teachers represented over 90 countries worldwide, ranging from large public classrooms in major cities to homeschooled children in rural communities.

Developed by researchers from MIT Responsible AI for Social Empowerment and Education (RAISE), Day of AI is a novel, low-barrier yet high-impact short curriculum offered free of charge to K-12 students and their teachers targeting in-classroom learning. It introduces AI literacy, responsible design and use of AI, and highlights the implications of AI for digital citizenship and literacy.

We are grateful to the community of educators, students, staff, and supporters who helped make this transformative day possible.

Barber Middle School students programming on the Day of AI.

Curriculum

The [Day of AI curriculum](#) developed by MIT RAISE is free to use, customize, and redistribute under the [Creative Commons CC-BY-SA license](#). The activities are designed to be student-relatable and hands-on to inspire creative design, critical thinking, and reflective discussion.

The curriculum is currently offered in four grade bands – one track each for grades 3–5 and grades 6–8, and two tracks for grades 9–12 (general and AP Computer Science). The modular curriculum contains four hours of online and unplugged activities in 30-60 minute blocks that support teacher customization. All tracks start with a professionally-produced [video of AI researchers who define AI in their own words](#), then the tracks are divided into the age-appropriate grade bands. Each grade band focuses on a salient AI theme that allows the classroom to dive deeper into the content.

> These thematic elements are:
> Grades 3–5: machine learning and bias,
> Grades 6–8: creative AI and digital media,
> Grades 9–12: AI and social media (for everyone), or
> AI and mobile computing (for AP CS students).

All grade band curricula include the Careers in AI module, showcasing a [video highlighting the breadth of careers in AI](#). Told from the perspective of diverse professionals in a multitude of industries and academia, interviewees range from astronomers to product designers, with industries spanning climate science, consumer products, law and policy, insurance, and healthcare.

Our vision is to demonstrate the pervasiveness of AI in many industries, not just the tech-centric ones, and to show a diversity of professionals that any student can relate to.

What is AI?
All grades

Upper Elementary
Teachable Machines
Grades 3-5

Middle School
Can Machines Be Creative?
Grades 6-8

High School
Social Media and Misinformation
Grades 9-12

High School
Personal Image Classifier: PICaboo
Computer Science Track | Grades 9-12

Careers in AI
All grades

Recruitment & Participation

The Day of AI program was promoted through [social media](#) and professional educator networks worldwide with focused outreach towards U.S. Department of Education Title I schools. All teachers were invited to register, especially those without any background in STEM subjects or expertise in computer science.

Over 2,100 teachers in 48 U.S. states participated. Internationally, teachers from Australia (628), the UAE (346), India (121), China (69), and Canada (53) represented the largest share of 93 countries participating. **Based on the registration information provided by the teachers, they self-reported reaching over 500,000 students worldwide.** This level of engagement far exceeded our goals for our first year of this program!
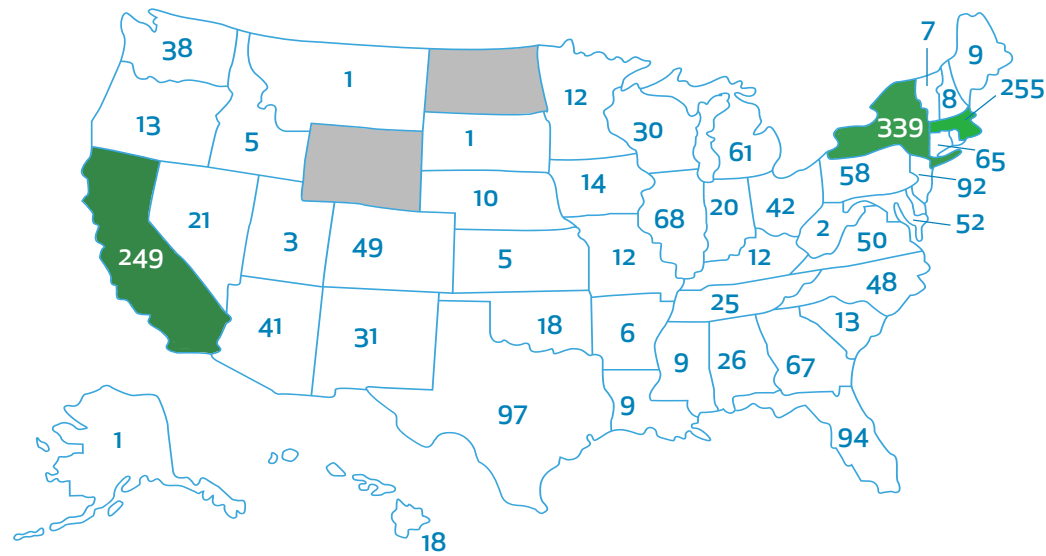
Registration for Day of AI by U.S. state (above) and by country (below).
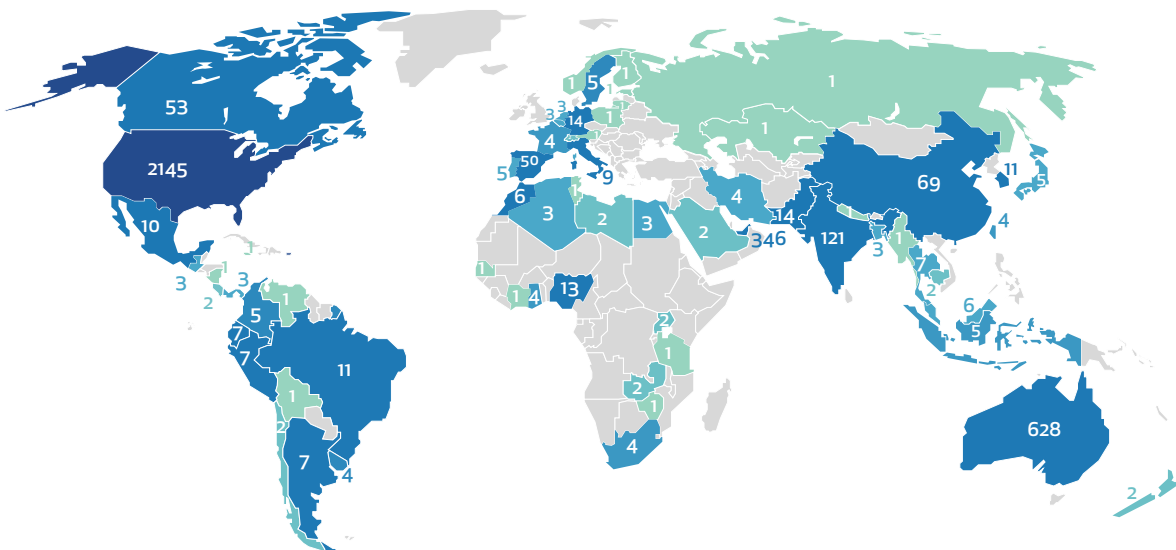
Top 6 Countries by Registration

USA - 2145
Australia - 628
UAE - 346
India - 121
China - 69
Canada - 53

Social media efforts included a YouTube video about the day along with promotion on Twitter, Facebook, LinkedIn and Instagram.

dayofai.org

DAY OF AI

May 13, 2022

contact@dayofai.org

Day of AI is May 13, 2022

dayofai.org
#DayofAI

Join classrooms around the world

DAY OF AI

Teaching AI can be as easy as 1, 2, 3

1) Register at dayofai.org
2) Sign up for free professional development workshops
3) Download the free curricula and activities

> "This experience made AI real by introducing it not just as a topic but as a potential career path where students can "make the world a better place." It embodies how education should be. Students are able to connect the dots between the information they received because there was an immediate "hands-on" opportunity to apply the learning.

Valerie Assamoi, Boston Public School Teacher on i2learning training

Launch event for Day of AI on October 18, 2021 with Massachusetts Governor Charlie Baker, Lieutenant Governor Karyn Polito, and MIT President Rafael Reif.

Professional Development

Our i2 Learning collaborators (a not-for-profit educational organization providing project-based STEM curriculum) provided teacher logistical support and free professional development sessions. Professional instructors from i2 Learning ran the online professional development sessions twice weekly from January through April 2022, at times typically convenient for school teachers. More than 350 teachers took the three-hour training sessions across each grade band offered. Through our surveys at the conclusion of the sessions, we found that teacher interest was very high and fairly uniform across all four grade bands.

DAY OF AI
MAIN EVENT

The Day of AI was announced in October 2021 as part of the Mass STEM Week kickoff at MIT. The launch featured a number of high-profile speakers including MIT President L. Rafael Reif, Massachusetts Governor Charlie Baker, Massachusetts Lieutenant Governor Karyn Polito, and corporate donors. MIT graduate students previewed elements of the Day of AI curricula and discussed the learning objectives for students and teachers.

The much-anticipated inaugural Day of AI took place on Friday, May 13, 2022, accompanied by an MIT News article. To celebrate, the MIT RAISE team hosted a launch event at the WBUR CitySpace, the local NPR affiliate, featuring prominent speakers and a panel of professionals who shared their thoughts and enthusiasm about AI applications and career opportunities. "The gift of Day of AI is students getting exposure to this subject as early as 3rd grade. They're learning how not to be afraid to bring their ideas forward and make even better solutions," said Lt. Gov. Polito at the event. On social media using the hashtag #DayofAI, educators all over the world shared their excitement and participation in the Day of AI activities.

MA Lt. Gov. Karyn Polito takes the stage at the Day of AI launch event at WBUR CitySpace. Fifth- and sixth-grade students from Mary Lyon School in Boston proved to be a highly engaged audience, asking many questions of the panel of experts.

Dr. Cynthia Breazeal, Director of RAISE, welcomes everyone in-person and online to the inaugural Day of AI event.

Dr. Jeffrey Leiden, executive chairman of Vertex Pharmaceuticals (a founding sponsor of Day of AI, as well as the CitySpace event), said, "Twenty years ago, I don't think any of us could have predicted how much AI and machine learning would be in our lives. We have Siri on our phones, AI can tell us what's in our fridges, it can change the temperature automatically on our thermostats," he said. As someone working in the medical industry, he's particularly excited for how AI can detect medical events before they happen so that patients can be treated proactively.

The event also featured diverse students from grades 5-6 at Mary Lyon School in Boston, who helped pilot the Day of AI curriculum and shared the projects they had created. For example, one group demonstrated how a machine-learning model that identifies the subject of hand drawings is more likely to correctly identify a drawing of a cow if the cow is drawn with spots. Students reasoned that this might be due to possible bias in the dataset used to train the machine-learning model. They concluded that the input dataset of drawings simply did not have enough drawings to account for other breeds of cows without spots. Quite an astute conclusion for fifth graders!

In another project about responsible social media and game design, students demonstrated how the Roblox game platform recommends only gendered clothing for characters based on the reported gender of the user. The solution the students proposed was to change the design of the recommendation system by inputting more options that were less typically and traditionally gendered, thereby allowing all users access to all choices of clothing.

Students present their Day of AI project to VIP guests.

Dr. Omaira Lee @sm_ramsBP • May 13

3 weeks of STEM fun #DayofAI @sm_ramsBP with our #Ramtastic scholars.

MassEducation @MassEducation • May 13

Today, @MassLtGov and her fellow c-chair of the STEM Advisory Council Jeff Leiden participated in @MitRaise's #DayofAI event. The #STEM Advisory Council supports STEM initiatives and courses of study through programs like Innovation Pathways and #EarlyCollege.

Dava Newman ✓ @DavaExplorer • May 13

Having a blast at #DayOfAI calling all students and teachers. Incredible students, teachers and sponsors. Thanks to all. #MA_STEM #AI4All

Teresa Rivas @TeresaRivas77 • May 13

Learning about artificial intelligence @LraOwls @lausdLDE @Jackie4LAkids @Jackie4LAUSD #ArtificialIntelligence #Kindergarten

Tonya Coates 🌱 @TeacherCoates • May 13

Students were eager to take part in #DayofAI by coding intelligence in their robotic monarch butterfly. Using a sensor we triggered #butterfly movement when students read poems from Señorita Mariposa. @Microbit @birdbraintech @csteachersorg @CSforCA @AI4CALI @MisterGsongs

0:38 | 1,191 views

Betzabé Prenas | ▫️Betzy @betzydbo • May 13

#DayofAI activities, DONE! ✅ What does it leave us with? Read the thread! 👀👇

Sheila Escobedo Gt @EscobedoGT • May 13

Yes!!! #DayofAI 🎉 Exploring AI in education!

Betzabé Prenas | ▫️Betzy @betzydbo • May 13

Yes!!! Guatemala is on that map... you'll see how students in Guatemala celebrate the #dayofai creating awareness of what it is and why ethics play an important role in it. @NancyeBlackEdu twitter.com/MITPK12/status...

Nadine Wenger @NadineWenger2 • May 13

Celebrating #DayofAI in @MrsLavelle and @stacy_decillis classes!! Ss learned how AI works, helped develop datasets on @GoogleForEdu Quick Draw and AutoDraw & had fun with machine learning. @GoGCMSPrincipal @ddfansano41 @lmaguire22

> " I am fortunate and grateful to have been part of the inaugural MIT Day of AI held on May 13, 2022. Day of AI was designed to introduce K-12 students of all backgrounds to artificial intelligence (AI) and its role in our lives. I am optimistic that we have empowered a few students... to dream big and think of how they can change our future using AI.
>
> I look forward to seeing how the event evolves in the years to come. Thankful for the support of Liberty Mutual Insurance as a founding sponsor, and to my Neuron colleagues Christine LaBarre, Phil Ahn, Thaya Psyhojos for their encouragement and recognition. To my fellow panelists, it was great to connect with you all. Huge shout out to the organizers at Massachusetts Institute of Technology.
>
> Stephen Idowu, MBA
> Strategic Innovations in AI and ML at Liberty Mutual Insurance

Students from San Marino Elementary School collaborating during the Day of AI.

Research Findings

To understand the impact of the Day of AI activities on educators' ability to deliver a compelling and meaningful educational experience to their students, our research team recruited and engaged teachers who registered for Day of AI. We conducted a research study with both quantitative and qualitative aspects from a sample (N=108) of teachers across a variety of countries. Teachers who participated in this study reported a student coverage of almost 7,000 students.

In this sample, 86 U.S. teachers (79%) came from Title I schools and 22 (20%) were teachers from outside of the U.S. About 40% of the teachers who responded to the survey did **not** have a degree in a STEM area.

Canada - 2
USA - 86
Mexico - 1
Guatemala - 1
Uruguay - 2
Germany - 1
Italy - 1
Algeria - 1
Romania - 2
Turkey- 1
Greece - 2
Lebanon - 4
UAE - 2
India - 1
Hong Kong - 1
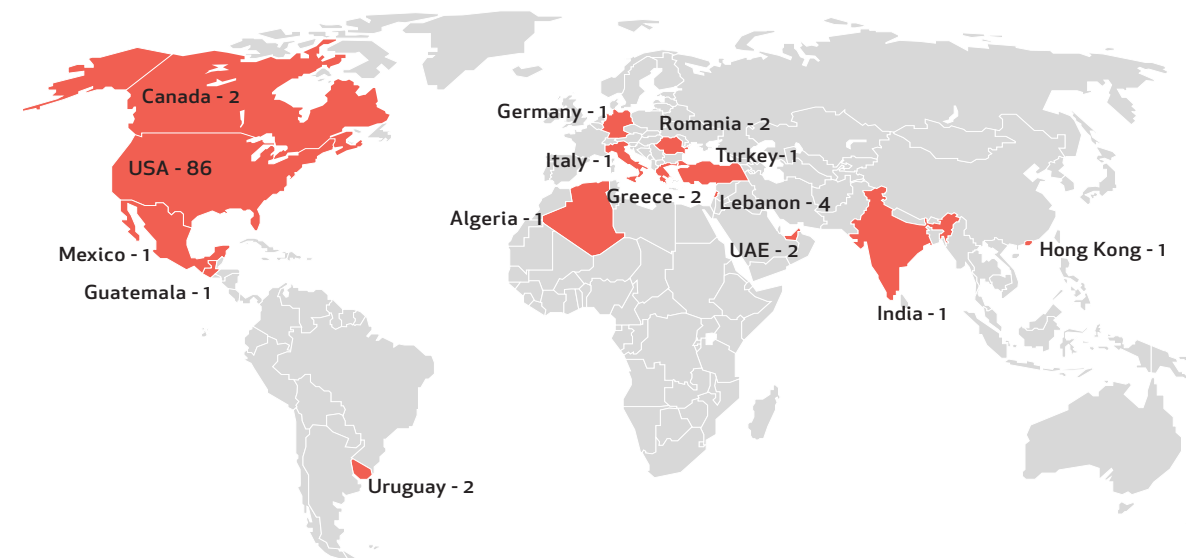
Survey response by country represented and by number of teacher respondents.

Overall, our survey results are very encouraging with respect to the positive impact of Day of AI activities. Specifically, teachers felt more prepared to develop students' AI literacy skills — including critical thinking, creativity, digital citizenship, and ethical use of AI (including trust, privacy and equity) — using our resources and materials. One of our teachers shared, **"Students are more AI literate. There were multiple entry points and activities that students could use to get to the 'big idea'."** Teachers in our study also reported that their students were engaged and achieved valuable learning gains about AI, societal implications, and its responsible use. Teachers' perceived effectiveness of the online professional development training strongly and positively correlated with their perceived readiness to use digital tools and applications to teach students about AI literacy. This correlation was the strongest for teachers from Title I schools in the U.S.

Quantitatively, a total of 108 teachers who were not explicitly technology or computer science teachers were willing to use, implement, and design material based on the Day of AI curriculum in their own classroom environments. Teachers' perceived effectiveness of the curriculum correlated strongly with the perceived readiness of their students to engage with the curriculum. Additionally, teachers who received the online professional development training positively correlated with the perceived readiness of teachers using digital tools and applications to teach students about AI literacy.

> I am impressed that students that don't often get really engaged in learning were engaged and blossomed.
>
> Teacher at Title I school, Massachusetts, USA

On average, **81%** of teachers in the sample positively rated their **readiness to implement** the Day of AI curriculum in the classroom. This included incorporating key ideas and topics in AI literacy for student learning, reflecting on responsible use of AI, and applying critical thinking to AI literacy. About **85%** of teachers demonstrated the **ability to successfully use, adopt, and customize** the Day of AI curriculum in their classrooms (see Figure 1). About **66%** of teachers reported the **effectiveness of Day of AI resources**, including curriculum material, Day of AI websites, training videos, hands-on projects, prompts for student discussion, and the AI career development video. Almost **90%** of teachers positively rated **students' learning about responsible AI**. Teaching students about deep fakes and social media, examining reasoning for AI use, and understanding and evaluating the ethical use of AI were some of the most valuable aspects of the AI curricula, teachers reported (see Figure 2).

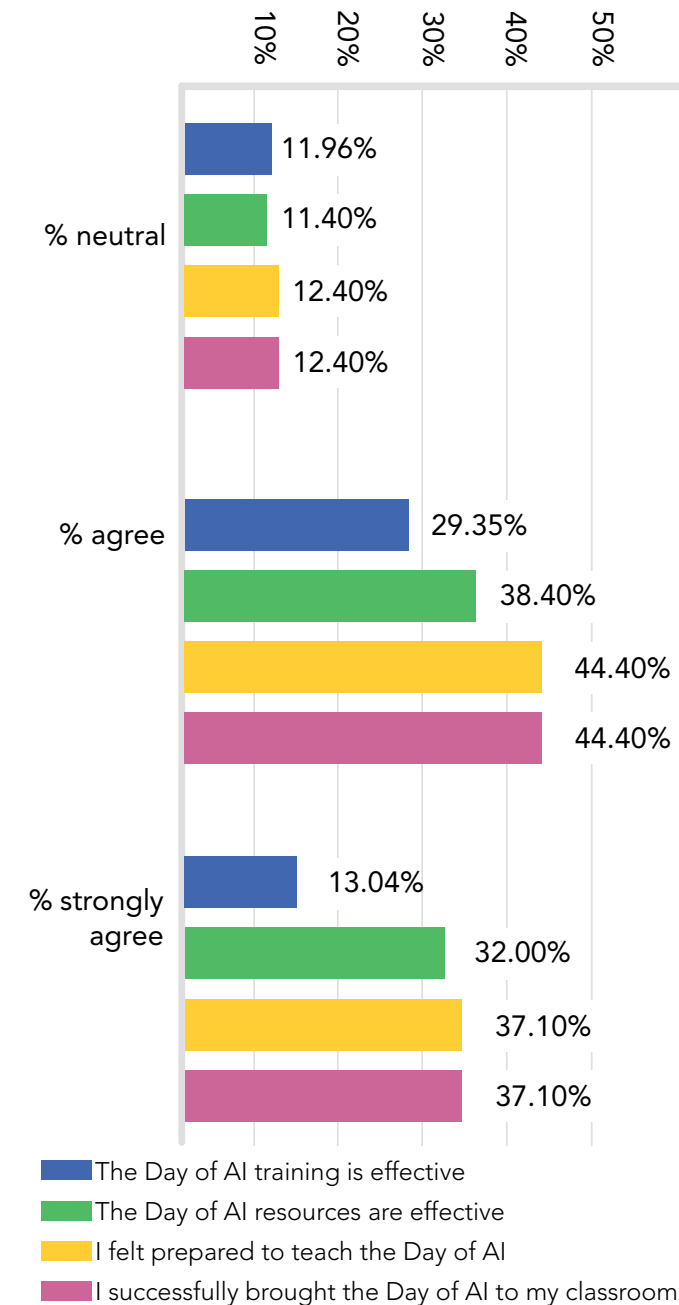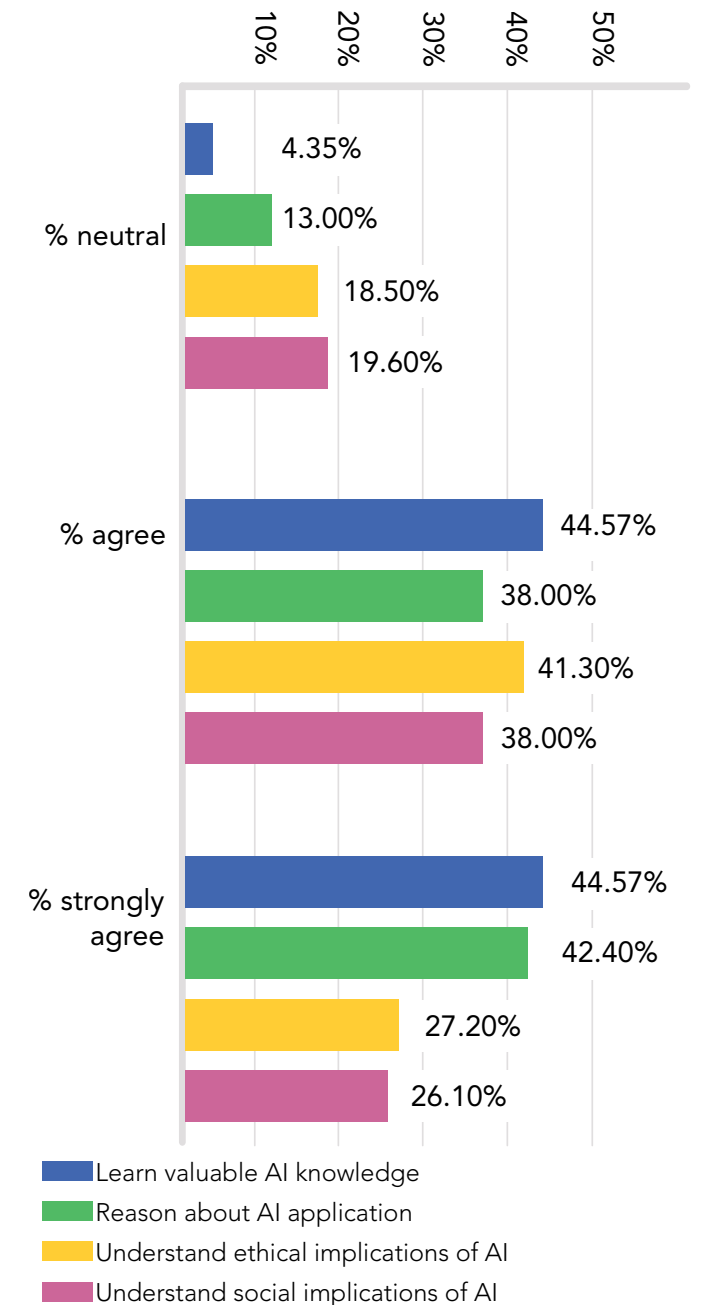Figure 1: Teachers' learning gains based on Day of AI resources.

% neutral
- The Day of AI training is effective: 11.96%
- The Day of AI resources are effective: 11.40%
- I felt prepared to teach the Day of AI: 12.40%
- I successfully brought the Day of AI to my classroom: 12.40%

% agree
- The Day of AI training is effective: 29.35%
- The Day of AI resources are effective: 38.40%
- I felt prepared to teach the Day of AI: 44.40%
- I successfully brought the Day of AI to my classroom: 44.40%

% strongly agree
- The Day of AI training is effective: 13.04%
- The Day of AI resources are effective: 32.00%
- I felt prepared to teach the Day of AI: 37.10%
- I successfully brought the Day of AI to my classroom: 37.10%

Legend:
- The Day of AI training is effective
- The Day of AI resources are effective
- I felt prepared to teach the Day of AI
- I successfully brought the Day of AI to my classroom

Figure 2: Student learning gains as reported by teachers on the responsible AI curriculum modules.

% neutral
- Learn valuable AI knowledge: 4.35%
- Reason about AI application: 13.00%
- Understand ethical implications of AI: 18.50%
- Understand social implications of AI: 19.60%

% agree
- Learn valuable AI knowledge: 44.57%
- Reason about AI application: 38.00%
- Understand ethical implications of AI: 41.30%
- Understand social implications of AI: 38.00%

% strongly agree
- Learn valuable AI knowledge: 44.57%
- Reason about AI application: 42.40%
- Understand ethical implications of AI: 27.20%
- Understand social implications of AI: 26.10%

Legend:
- Learn valuable AI knowledge
- Reason about AI application
- Understand ethical implications of AI
- Understand social implications of AI

> ❝
> I loved that the curriculum had some authentic problems and context, and so it had the potential to be relevant to the students lives!
>
> Teacher at Title I school, Connecticut, USA

Students from the St. Andrew's Scots School in Argentina on the Day of AI.

Next Steps

Following the strong global interest in Day of AI per 2022 registrations, MIT RAISE is coalescing a global community of educators. This active educator-led network will share novel ideas and create new pedagogy for teaching AI literacy, provide peer-to-peer guidance, and improve the materials and support that MIT RAISE provides. We are inviting educational collaborators to help support the global expansion of Day of AI by helping to translate our modules into additional languages and localize our curriculum to contain culturally and geographically relevant examples.

We will also expand our curriculum by inviting members of the growing K-12 AI education community of teachers, not-for-profit organizations, and academia to submit new modules. MIT RAISE will review and curate these additions with our research team and teacher network to ensure high-quality of the accepted submissions.

We are also seeking greater support and engagement from qualified industry, government, or non-profit collaborators who are interested in sponsoring the Day of AI in their country, state, province or region – providing assistance in advertising the Day of AI to schools, providing professional development, translating materials, and contributing to our curriculum (such as the Careers in AI module). MIT RAISE reserves the right to the Day of AI trademark and to decide the criteria in permitting organizations requesting to use the Day of AI name. Typically, these criteria include alignment with our educational mission, marketing budget and reach, sufficient staffing, and large event planning experience.

Please contact raise-info@mit.edu for more information.

Student from Mary Lyon School on the Day of AI.

The Day of AI was made possible at no cost to educators or schools through the generous support of the following sponsors:

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About MIT RAISE

MIT RAISE (Responsible AI for Social Empowerment and Education) is an MIT initiative to innovate learning and education in the era of AI. As computers continue to automate more routine tasks, AI education is a key enabler to future opportunities where success depends increasingly on intellect, creativity, empathy, and having the right skills and knowledge. In the face of this accelerating, AI-powered change to people's personal and professional lives, the RAISE research, outreach, and impact mission is to advance equity in learning, education and computational action to rethink and innovate how to holistically and equitably prepare diverse K-12 students, an inclusive workforce, and lifelong learners to be successful, responsible, and engaged in an increasingly AI-powered society.

Headquartered in the MIT Media Lab, RAISE is a collaboration with the MIT Schwarzman College of Computing and MIT Open Learning. As part of the RAISE research effort, faculty, staff and students from across MIT explore new pedagogical approaches, develop constructionist curriculum where students learn-by-making, creative innovative tools, advance the science of learning, as well as how AI can advance human learning. These advances are applied to RAISE outreach programs, designed to promote an AI literate society by engaging teachers and students in impact-driven learning from preK-12 to the workforce. The educational goals are to demystify AI and to enrich AI literacy for everyone by empowering learners of all ages to embrace AI technology creatively and to use it responsibly, equitably, and ethically. By doing so, we aspire for people to know how to use AI responsibly, have an informed voice to shape how AI is used in society, and to prepare a diverse and inclusive workforce that can design and apply AI responsibly to make a better world.

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Responsible AI for Social Empowerment and Education