

CLASSROOM TECHNOLOGY

Will COVID-19 Spur Greater Use of Artificial Intelligence in K-12 Education?



By [David Rauf](#) — May 19, 2020 ⌚ 6 min read



— Getty

The rush to adopt new technology during coronavirus-driven remote learning could lead educators to use more tools powered by advanced artificial intelligence. But that more optimistic vision for AI could be tempered by budget shortfalls resulting from the virus outbreak that “may seriously delay” school districts from making those types of investments in the near future.

That’s how Robert F. Murphy sees it. He is an independent education consultant with more than two decades of research experience, including positions as a senior policy researcher for the international think tank RAND Corp. and as the director for evaluation research at SRI International, a scientific research center.

Murphy, in a paper authored last year for RAND, focused on AI applications in K-12 classrooms and, as the featured speaker during a webinar hosted by a company developing AI-based language learning tools, has cautioned that artificial intelligence is not likely to transform education the same way it already has other high-profile industries such as transportation, drug discovery and health care.

Instead, he has argued that AI will continue to play a back-up role to enhance the classroom experience, assisting teachers with second-language learning, feedback on writing drafts, early diagnosis of reading problems, and through adaptive instruction for remediation.

“The recent phase of remote learning does not change my feelings about AI’s prospects for disrupting education relative to its potential to disrupt other fields,” Murphy said in an email interview with Education Week. “However, I do believe the current COVID-19 distance learning situation will bring renewed attention to the need for online instructional systems that support adaptive instruction and provide automated feedback and support to students when teachers and parents cannot be present.”

Murphy recently had an email conversation with Education Week Contributing Writer David Saleh Rauf about the evolution of advanced AI tools for education. This interview has been edited for brevity and clarity.

How can teachers, parents, and students trust that AI is going to be making the best recommendations to improve an educational outcome or that it’s even making good recommendations? Has there been sufficient research to determine what value teachers and students could derive from an AI solution in the classroom?



Robert F. Murphy

Currently, there is a lack of research and vendor reporting in both areas—in our understanding of the accuracy of statistical AI-based applications in education [with the exception of some

automated applications that score writing. The application automatically scores the writing.] and to what extent they are providing value beyond similar applications that don't include advanced AI techniques. As more of these applications are introduced in the market, there will likely be discussions about establishing industry standards for the disclosure by vendors of certain information about the products, including product performance. This information might include a description or ranking of the "knowability" of system decisions; limitations and accuracies of model predictions; the consequences of inaccurate decisions for students and teachers; and how the models were trained, including details of the data sets used and how the learned models were evaluated for potential bias.

The accuracy of statistical AI systems is highly dependent on access to large sets of data. In some cases, those data can be biased and reinforce racial, gender, or other stereotypes upon which the AI tool is being trained. What are the implications of biased data creeping into AI systems used for education?

Concerns over algorithmic bias will depend on the application, its role in the school and classroom, and the consequences of system decisions for students and teachers. For example, the consequences of bias creeping into the decisions from a curriculum-recommendation engine for teachers are likely to be fairly minor compared with the possible consequences for students of a biased AI-based early-warning system that might disproportionately and incorrectly identify one group of students for remediation based on gender or race while completely missing students with real needs for the same reason. This is why for AI applications such as early-warning systems where the consequences are significant, I advocate that the output of the systems should only be used as one data point in the decision making process along with the professional judgments of teachers and administrators based on their personal experience and knowledge of individual students.

What's the biggest obstacle preventing some of these advanced statistical AI systems from being used in classrooms around the country on a large and meaningful scale? Is it funding and product development, the lack of acquired data sets needed to build and train the machine-learning algorithms, trust issues regarding privacy, or a combination of all those factors?

If I had to rank these obstacles by their strength of influence on the development of advanced AI solutions for education, it would be (1) lack of appropriate data sets to train algorithms, (2) funding for development, and (3) data-privacy issues. The vast amounts of data needed to train sophisticated and unbiased AI learning applications across a host of subject areas and grade

levels is just not readily available in education. The only groups with easy access to the type of fine-grained data that might be of use for training advanced AI algorithms are the current publishers and developers of online learning platforms and applications that are being used at scale (for example, some online learning platforms currently in use in the U.S. and English-language learning apps serving the Chinese market). This is a very small network of people. Without this data, advanced AI capabilities are not possible. But even if the required training data were widely available, the available funding for development of AI-based solutions for the K-12 education market will only ever be a small fraction compared with what is being invested in other markets, such as health care, autonomous vehicles, the military.

There's a ton of funding, ranging from venture capital used by startups to big investments made by public corporations, going into AI shaping technology all around us. How come the investment in AI for the ed-tech sector isn't as robust? Could that change following the COVID-19 school closures and the uncertain future of when brick-and-mortar classes will resume?

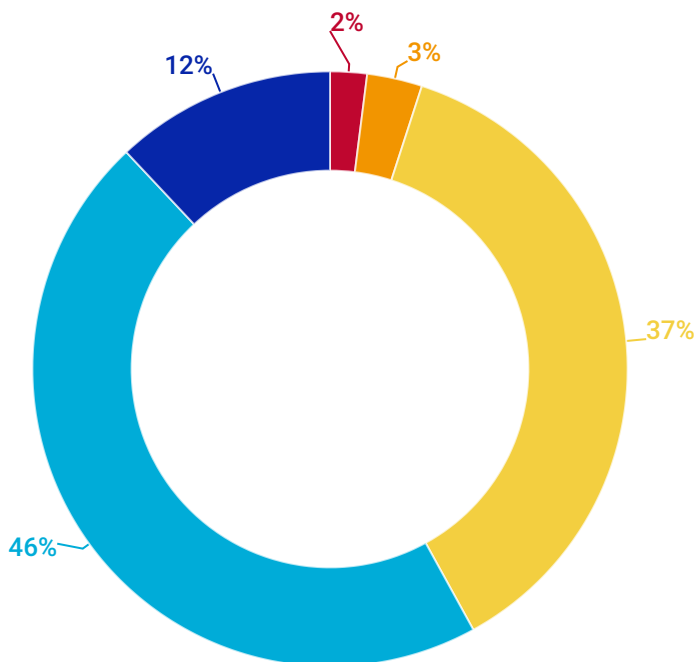
The K-12 education market is a notoriously difficult and costly market for product vendors due to a number of factors: small discretionary budgets, compliance requirements, long sales cycles involving committee approvals, etc. Unfortunately, at this time, it's difficult to envision large new investments by venture-capital firms and public corporations in the development of new products and services for the U.S. K-12 market.

In a webinar you participated in last year, you said that systems outside of education are ultimately going to influence the public's trust of AI in education. What did you mean?

The general public, including the parents of school-age children, will have their most significant experiences with AI applications outside of education, such as in health care or within their automobile. And the quality of this experience will likely shape the public attitudes toward AI's use in education. Media coverage, good and bad, will also play a major role in public attitudes. The next news story involving an AI application that garners wide media attention—a major personal-data breach, the discovery of COVID-19 vaccine, a fatal autonomous-driving accident, more productive agricultural yields—will likely have a lasting impact on the public's general perception of the safety and reliability of all AI applications, including those developed for the education market.

On AI Use in K-12

As a result of the shifts to remote learning during coronavirus closures, I predict that the role of artificial intelligence (technology that can perform tasks that normally require human intelligence) in our school district will:



Decrease a lot Decrease a little Stay the same Increase a little
Increase a lot

 Download data

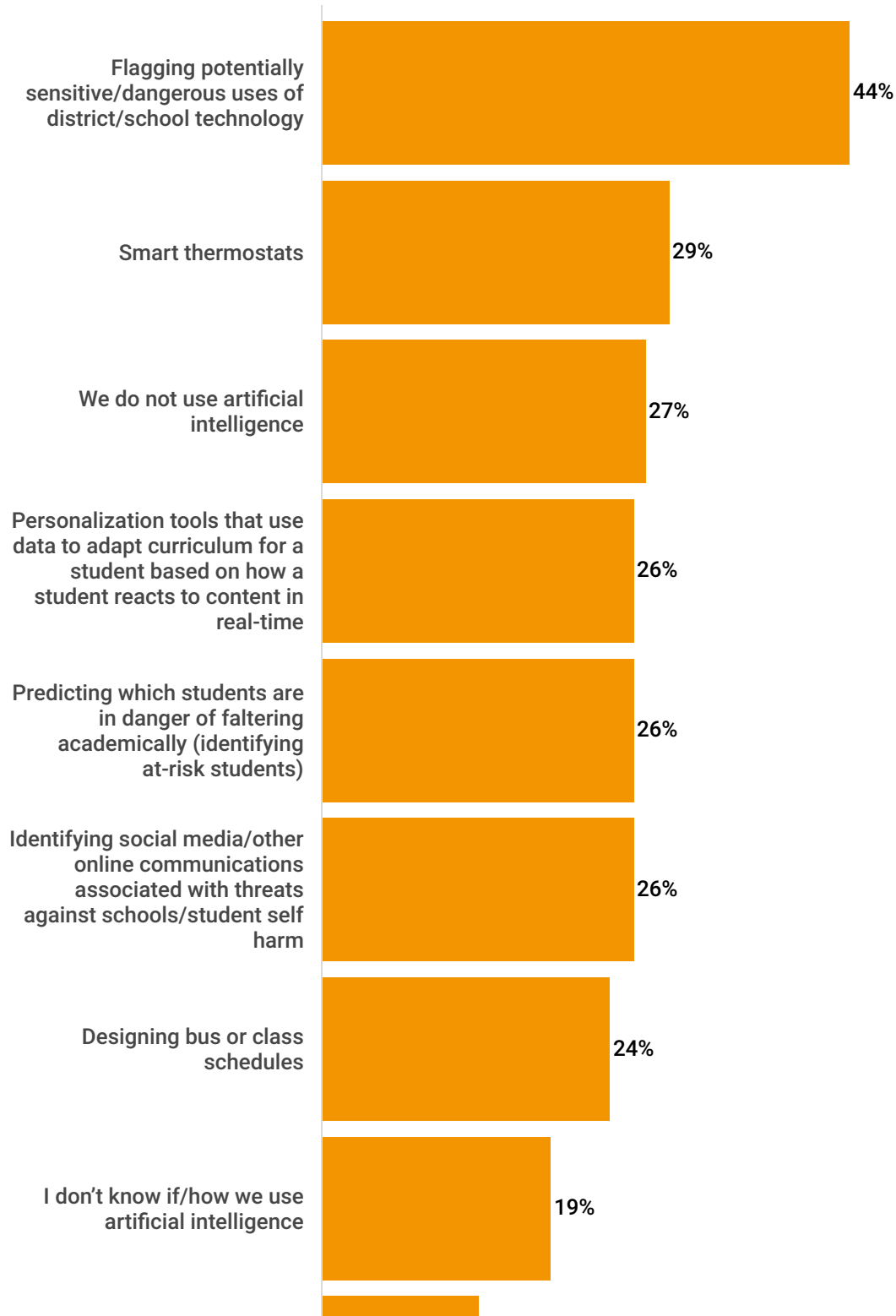
Results show responses from teachers and district leaders.

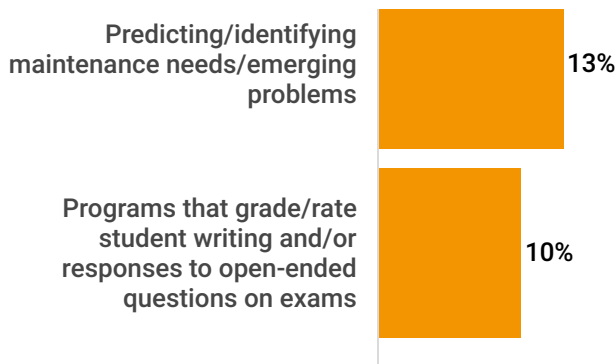
SOURCE: EdWeek Research Center survey, May 7, 2020



Top 10 Ways Educators Use AI

Which of the following artificial intelligence applications (technology that can perform tasks that normally require human intelligence) is your district currently using? Select all that apply.





Download data

Results show responses from district leaders.



David Rauf

Contributing Writer, EdWeek Market Brief, EdWeek Market Brief

David Saleh Rauf is a contributing writer for EdWeek Market Brief.

Reprints, Photocopies and Licensing of Content

All content on Education Week's websites is protected by copyright. No part of this publication shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic or otherwise, without the written permission of the copyright holder. Readers may make up to 5 print copies of this publication at no cost for personal, non-commercial use, provided that each includes a full citation of the source. For additional print copies, or for permission for other uses of the content, visit www.edweek.org/help/reprints-photocopies-and-licensing-of-content or email reprints@educationweek.org and include information on how you would like to use the content. Want to seamlessly share more EdWeek content with your colleagues? Contact us today at pages.edweek.org/ew-for-districts-learn-more.html to learn about how group online subscriptions can complement professional learning in your district or organization.

Copyright © 2024 by Editorial Projects in Education, Inc. All rights reserved.