

MOE's newest AI tools and how schools are using them

Marking systems, a lesson planning tool and an adaptive learning system offer benefits

Gabrielle Chan

Artificial intelligence (AI) tools in schools have been all the buzz since Education Minister Chan Chun Sing announced a plan by his ministry to adopt technology and AI into how students learn.

The EdTech Masterplan was launched in September 2023, with the aim to make education more customisable for each student.

Five tools – which have been gradually introduced since June 2023 – are currently being used by both students and teachers.

How do these tools work, and how will they alter the learning landscape?

The Straits Times speaks to four teachers and two developers from the Ministry of Education's (MOE) educational technology team to find out more.

Q What tools are being introduced in schools?

A There are currently five AI-powered tools – three marking systems that act as “learning feedback assistants”, an adaptive learning system for students to learn at their own pace, and a tool that helps teachers with planning lessons.

The newest tool that helps teachers to plan their lessons is the Authoring Copilot, which helps them come up with sections, activities and components based on their in-

put.

The three learning feedback assistants, launched in 2023, are for mathematics, English language and for short answers.

These marking systems provide students with instant feedback on their assignments.

Mr Nicholas Wong, lead specialist at the technologies for learning branch at MOE's educational technology division, said the maths assistant offers hints and suggested marks, guiding students through their answers rather than just checking the final result. It also provides step-by-step feedback.

The English language version corrects grammar, spelling and sentence structure, while the short answer assistant corrects answers across subjects such as geography and science, freeing up teachers to assist with more challenging content.

The adaptive learning system (ALS) – which is currently available for mathematics for upper primary pupils and geography for upper secondary students – provides personalised learning for students based on how they respond to questions and activities as they learn a topic.

All these tools are rolled out through the Singapore Student Learning Space (SLS), an online learning portal that provides resources for both students and teachers.

Q Why were these tools created?

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A These tools were created primarily to create a personalised learning experience for each student, said Mr Gerald Ajam, lead specialist at the technologies for learning branch at MOE's educational technology division.

“We customise the platforms, and enable teachers to be able to customise their instructions so that it is differentiated,” he said. “The way we use technology is always to complement the professionalism of the teacher.

“This is so the teacher continues to be the main designer of learning.”

Another reason is to help teachers with tasks that are time-consuming, said Mr Ajam, giving an example of a teacher having to repeatedly correct a student about similar things.

A better use of the teacher's time would be to look at the holistic progress of a student, and give them very specific comments about how to improve, Mr Ajam said.

“If we can free up some of the teacher's time from doing these things, then they can spend more time on the human side of a stu-

dent's progression – engaging them, student-teacher relationships, and really delving deep into helping them with their social-emotional states,” he added.

Q What do teachers think?

A Before her lessons, Ms Lilian Teo, the biology subject head at Pasir Ris Crest Secondary School, makes use of the short answer feedback assistant to input questions and answers into online quizzes on SLS.

As students put in their answers, the tool matches their responses to her mark scheme and provides immediate feedback, she said, adding that she can refine this feedback to better support the students' learning.

Mrs Melissa Chew from St Hilda's Primary School uses it to help upper primary pupils with their maths revision.

She said the system profiles students into pathways according to their level of competence in the subject based on their responses.

“I get real-time feedback on individual student progress,” Mrs Chew said.

The Authoring Copilot is the newest tool rolled out by MOE in June, and helps teachers with lesson planning for all subjects and levels.

It designs lesson activities and quizzes based on teachers' input regarding learning objectives, keywords, topics and students' prior knowledge, said Madam Wong Mei Ting, a senior mother tongue teacher at Anderson Primary School.

Madam Wong, who uses the tool almost weekly, said it helps her

with tasks that are slightly more time-consuming, like creating quizzes, allowing her to focus more on teaching and interacting with students.

However, as with all tools, teacher discretion is still needed, Madam Wong said, adding that she uses the tool more to generate ideas and standardise her lessons.

“As a teacher, I still need to have a plan in mind, so I can tweak activities that the machine suggests so they best fit my pupils.”

Q What are some benefits and drawbacks of these tools?

A Teachers told ST that the key benefits are immediate feedback for students and higher motivation to learn.

Senior physics teacher Tan Seng Kwang from Temasek Junior College said his students enjoy using AI tools without needing intervention from the teacher.

“The students are given affirmations, which help them gain confidence in answering similar questions that follow,” he said.

Immediate feedback helps them learn faster, he added, unlike in a typical classroom where a teacher's attention is divided.

Biology teacher Ms Teo added that the feedback assistant motivates students by clarifying misconceptions before they attempt other questions.

Previously reliant on multiple-choice questions for ease of marking, she now uses content-based questions, which also reduces the chances of students guessing the answer.

“This gives me a more accurate assessment of their understand-

ing, and I can also access higher-order thinking skills like analysis, instead of just recall of information,” Ms Teo said.

Madam Wong said she also saves a lot of time in lesson planning using the Authoring Copilot, although the machine is still unable to read Chinese and she has to translate her inputs into English.

One lesson, which previously would take her about a week to plan, now takes her about two to three days.

But teachers told ST that time savings from the AI tools are not fully realised, as they still need to manually review the machine's feedback.

Mr Tan said AI may not always accurately assess student responses and can make errors, requiring manual review.

Q How are teachers and students trained to use these AI tools?

A Teachers in training at the National Institute of Education (NIE) have to attend a compulsory course on technology which covers AI and data analytics for education, said Assistant Professor Farhan Ali from NIE.

It was reported in 2022 that by 2026, topics about AI in education will be offered for all teachers, including undergraduates, post-graduate and in-service teachers at NIE.

Prof Farhan added that over 100 master's degree students at NIE have also signed up for AI and data analytics courses, and two new courses have just been launched in 2024.

Teachers also share resources across and within schools, and attend training by MOE's EdTech division where they learn how to use each tool and how to troubleshoot if necessary.

It is important that teachers continue to be interested in these technologies and themselves be keen to learn, said Madam Wong.

“To use the tools well, and to be able to teach my students, I have to put myself in my students' shoes and to keep learning,” she said.

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