

NTU develops interactive learning tool to help children with special needs

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CtoI News Desk Monday, April 1st 2019

Researchers from Nanyang Technological University, Singapore (NTU Singapore) have developed an interactive educational tool to make learning more engaging for children with special needs.

Learning activities based on the i-Tile technology incorporate purposeful movement, game-like elements and responsive audio-visual feedback. These factors have been proven effective in increasing and sustaining student engagement, NTU said in a press statement on Monday, April 1.

The i-Tile lessons were also observed to help students learn values such as the need to take turns and teamwork.

With funding from Temasek Foundation, NTU researchers developed i-Tile lessons alongside teachers from MINDS Fernvale Gardens School (MINDS). The classes have been trialled at the since 2018 at MINDS – a school for children and youth with moderate to severe intellectual disability and Autism Spectrum Disorder (ASD).

The reconfigurable nature of the i-Tile system also allows teachers to adapt and design new learning activities to meet their students' diverse learning needs. Teachers are keen on using the i-Tiles to help students remember their personal information, such as their telephone numbers and their home address, or to teach students money skills and how to shop for items in a supermarket.



Supported by Temasek Foundation, NTU develops interactive educational tools trialled at MINDS. Photo courtesy: NTU

The project was started in 2015 by NTU Associate Professor Goh Wooi Boon, who noticed that most children seem to be more engaged and energetic when they are moving around and playing with their friends.

“We set out to develop appropriate low-cost technology, which the teachers can readily incorporate movement, play and collaboration into their lessons, so that it engages the students in their learning,” said Assoc Prof Goh, Associate Chair (Faculty) of the School of Computer Science and Engineering.

Professor Leo Tan, Chairman of Temasek Foundation Innovates, said: “The i-Tiles technology is a novel solution that helps children not only learn better, but bring about important lifelong skills. We are pleased to support practical and sustainable research that creates a better life for everyone in Singapore.”

Ms Koh Gee May, deputy CEO of MINDS said, “The students who are involved in the project have gained huge strides not only in academic areas but also in other areas such as ability to display great sportsmanship, and communication and interpersonal skills. Students have become more confident in reading and spelling as the programme provides immediate feedback once they complete the tasks.

“As the programme involves interactive, collaborative and competitive play, it encourages our students to engage with one another in its play, thus enabling the students to work together and at the same time, show respect and generosity to their fellow competitors. The beauty of it all is that the technology used is easy to learn and versatile so teachers can customise it to suit students’ varying learning needs and achieve individual goals.”