

# Tech T(h)inkers

What place should technology occupy in the lives of children in the 21<sup>st</sup> century? A centre leader, parents and an early childhood expert give their take on this issue.

In January 2015, Preschool Learning Academy @ Temasek Polytechnic (PLAY @TP) collaborated with the Infocomm Development Authority of Singapore (IDA) to introduce technology-enabled toys at the centre. In what way do tech toys add value to children's learning and development?

**Ava:** Traditional toys like building blocks are capable of sustaining children's interest and promoting creative, imaginative and open-ended play. The use of technology in the form of tech toys, especially the robotic ones rolled out under IDA's PlayMaker Programme, provide educators with another pedagogical tool to teach and facilitate children's learning.

Robotic toys can interact with and give feedback to children, arousing their interest and curiosity. The attraction these toys hold overrides the frustration children may feel, as they figure out how to use them. This encourages



On Dhana: Top Camouflage, Leggings Seed Heritage On Ethan: Shirt Fox Kids, Sweater Petit Bateau, Bottoms Seed Heritage, Sneakers Seed Heritage, On Dayez: Top Crayon, Jeans Marks & Spencer, Shoes Seed Heritage, On Ava: Top Marks & Spencer, Pants Models Own, Heels Charles & Keith On Wee Jin: Shirt Marks & Spencer, T-shirt Marks & Spencer, On Sophie: Headband Seed Heritage, Top Camouflage, Pants Camouflage Styling Sharon Tan assisted by Naomi Tham Hair & makeup Brendie Lye & Yeo Hui Mei Mable

PHOTOS BY MARK LEE

TECH TOYS DEFINITELY HAVE THEIR SPACE, GIVEN THE AGE WE LIVE IN. BUT TO ME, THEY ARE SUPPLEMENTARY — HUMAN INTERACTION IS STILL THE MOST IMPORTANT.

//Mr Chong Wee Jin

self-regulation of behaviour and perseverance. As the toys are shared among pre-schoolers at our centre, children have more opportunities to think and problem-solve as a group.

**Tell us about the toys used at PLAY@TP. How do teachers incorporate these into their lesson plans?**

**Ava:** From January to March 2015, we conducted a Proof-of-Concept exercise with IDA to test the tech toys at our centre. The toys were found to be challenging for Nursery children so we integrated the toys into our K1 and K2 curriculum instead. Our aim is to give children tactile and meaningful play activities so they can relate what they learn in class to real-life experiences. The teachers, too, play an important role in facilitating and guiding the children's learning while they are engaged with the toys. It gives children the opportunity to discuss, clarify, ask questions and problem-solve. This develops their thinking further. After all, research says that the social context is important for learning.

One of the most popular toys is the



**Chong Wee Jin**  
40, RISK MANAGER AND FATHER TO SOPHIE, 6 (PLAY@TP)

BeeBot, a bee-like robot that children can programme to move in different directions on a grid mat. This develops their math skills and sequential thinking. Robot pair Dash and Dot is just as well-liked. Using an iPad, children can control each robot, for instance, plot a route for Dash to follow or instruct it to play an attached xylophone. Children can also learn about electronics through littleBits, a [non-robotic] kit made up of circuit pieces

that can be fitted together in various ways. Our K1 children created electrical circuits to add lights and helicopter propellers to their art-and-craft projects.

**Parents, where do you stand on the value of tech toys relative to traditional forms of play?**

**Saanthiyah:** We live in a high-tech world so it is important for children to be familiar with technology. The robotic toys at PLAY@TP are good because they also support children's creativity and imagination, and engage them socially with their peers.

## MORE PLAYMAKERS

In January 2016, IDA's PlayMaker Programme was rolled out to 160 pre-schools island-wide. Besides being equipped with tech-enabled toys, educators at the pilot centres will receive ongoing tech support and attend workshops on how to integrate the toys into their curriculum. PLAY@TP will also share their learning experiences with these centres.

Tech toys like these BeeBots make learning fun for children.



**Wee Jin:** Tech toys definitely have their space, given the age we live in. But to me, they are supplementary — human interaction is still the most important. Many iPad and mobile games can be played alone, so

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**DHANA IS ONLY ALLOWED TO USE THE IPAD IF SHE HAS COMPLETED HER HOMEWORK OR HELPED WITH HOUSEHOLD CHORES. GETTING TO PLAY WITH THE IPAD IS A REWARD FOR HER.**

//Mdm Saanthiya



**Saanthiyah Vairappan**  
 33, HOMEMAKER AND MOTHER TO DHANALATCHMI, 6 (PLAY@TP)

there is not much chance to interact to form strong bonds and relationships.

**What toys do your child usually play with at home?**

**Saanthiyah:** Dhana usually plays with building bricks and puzzles, either alone or with her younger brother. But she has started to become interested in tech toys since using them at school. Her favourite is the BeeBot as she has a knack for calculations. I have begun to shop around for a suitable and affordable tech toy, although I haven't found one yet.

**Wee Jin:** Our family time is spent playing card games or board games like Scrabble Junior and Snakes and Ladders. I plan to stick to

these 'brick and mortar' games for as long as I can — that is until Sophie grows bored of them. She also likes to sing, and often engages in friendly banter with her younger sister over who is the better singer!

**Ms Wang, do you agree that tech toys are supplementary rather than essential play tools? Could they do more harm than good, if used excessively?**

**Ava:** In the case of iPads or other tech toys that involve screen time, absolutely! We are all social beings so young children must have a firm foundation in interacting with people. If children are introduced to

**Ava Wang**  
 54, PRINCIPAL, PLAY@TP

these screen-based tech toys at an early age, they may spend less time interacting with others. As a result, they may grow up not knowing how to hold a conversation, interact or read people's expressions — and that is very worrying.

Out of the six tech toys at our centre, only two require the use of an iPad. Parents should also have control over such devices at home to limit their child's screen time. Building relationships with children can be done through something as simple as reading a book together. You do not need tech toys to do so.

**Parents, how do you make sure your child does not spend too much time at home playing with screen-based tech toys?**

**Wee Jin:** I limit Sophie's iPad time to one hour a day. She can choose whether she wants to spend that hour watching videos or playing educational games like

On Saanthiyah: Top Marks & Spencer



When learning how to control robots Dash and Dot using an iPad app, Play@TP students problem-solve as a group.



# Finding A Balance

Like Ms Wang, Dr Sirene Lim, a Senior Lecturer at SIM University who specialises in early childhood education, favours robotic toys over screen-based tech games — and not just because the latter can be addictive. "Two-dimensional screen swiping does not engage young children as much as three-dimensional robotic manipulatives that small hands can actually hold and move around or command with a remote control," says Dr Lim. Robots also offer more opportunities for social play, can teach children basic programming or coding skills, and provide greater motivation for them to problem-solve or think logically.

That said, the use of tech toys — which are generally on the expensive side — is but one pedagogical approach. Low- or non-tech options offer more affordable ways to facilitate children's learning and development. As Dr Lim explains, "Tech toys do not do everything for a child's growth. In particular, they do not replace physical play which young children need to flourish and develop holistically into happy, healthy, curious individuals."

For example, Dr Lim suggests giving children

wooden, architectural unit blocks so they can work on block-building projects. This encourages self-directed learning, develops their math and engineering skills, and improves their hand-eye coordination. They can even construct something new out of discarded objects and loose parts such as cardboard boxes of various sizes, newspaper, string, fabric and bottles. "All families should provide young children with a variety of play opportunities," she says. "The quality of play is not determined by the cost of the play opportunity."

