

CONTACT

The Teachers' Digest

LEARNING NEVER STOPS

Three teachers share about their professional development courses

INNOVATIONS ABOUND

Check out how schools around the world encourage innovation

READ FOR FUN

With some creativity and imagination, reading can be fun for all



The art of innovation

Educators share how they nurture innovators in the classroom

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ISSUE 27 • T3 • 2017

PUBLISHER

Design Branch,
Communications Division,
Ministry of Education
1 North Buona Vista Drive
Singapore 138675
www.moe.gov.sg

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PHOTOGRAPHY
Pinckers Pte Ltd

Designed and Printed by
Ngai Heng Pte Ltd

All information is correct at time of printing.

A publication by



Ministry of Education
SINGAPORE

www.moe.gov.sg

MOESpore

moesingapore

MOEsg

moesingapore

EDITOR'S NOTE

THIS ISSUE...

Two teenage boys, bound by their love for flying, wanted to build a remote-controlled plane, even though they did not even know how to start. The enterprising and innovative duo were undeterred and turned to YouTube tutorials. It took a while, and a few failed attempts, but their dream finally took flight.

This story of these Commonwealth Secondary School boys is one of perseverance. Beyond that, it is also a story of how imagination and innovation spur individuals and society to dare to explore - a trait essential for the new economy.


Everyone has heard about the benefits of innovation. It gave us cool products and services such as Facebook, Uber and Airbnb.

But what exactly is it and how do you help students develop this trait? Ideas do not happen in a vacuum. They are a result of creativity, discipline, and a huge dose of appetite for experimentation and taking risks. Read this issue's cover story to find out how you can create the right environment for your students.

In FYI, we look abroad at interesting schools which are trying new teaching styles and even classroom designs to nurture innovation among students.

This issue also features teachers who have never stopped learning. There is a mother-daughter pair who have attended numerous courses - sometimes together. There is also a head of department for science who spent his June holidays learning to create apps from an online course. Perhaps you will be inspired to learn something new this year?

When it comes to reading, students may need some encouraging. We feature a few schools that use unique programmes and approaches to pique students' interest to pick up the habit.

So flip ahead and may we all seek to master the art of innovation! 

The *Contact* Team



 Readers' comments

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“We want our students to develop a mindset that sees beyond the short-term results ...”

Commonwealth Secondary School student Dini Syazwan dreams of flying. He got to know fellow schoolmate Marshall Chong who shares his passion for planes and the duo decided to build a remote-controlled plane.

“We had no idea how to build one. We’ve never done anything similar before,” shared Dini, a Secondary 4 student.

They watched YouTube tutorials and learnt to reprogram a remote controller to handle an RC plane. They also experimented with different materials before finding one that was light, yet sturdy enough for the body of the aeroplane.

It took them more than a year and three failed prototypes before their plane finally took off.

They had help along the way. Teachers gave them tips, and they used the school’s Design Space – a room

filled with tools, 3D printers and craft supplies meant for students get creative.

It was the school’s way of nurturing innovation among students, offering resources that will aid their great experiment – not for academic results but simply in pursuit of an idea.

“We want our students to develop a mindset that sees beyond the short-term results of grades, that embraces experimentation and is not afraid to try, fail, and try again,” said Mr Nah Hong Leong. The science teacher heads Commonwealth Secondary’s Research, Innovation and Design Department, which spearheads the school’s efforts to drive innovation and develop creativity.

THE IMPORTANCE OF INNOVATION

In an interview with *The Straits Times* in January this year, Education Minister Ng Chee Meng said students have to innovate and find breakthroughs to thrive in

this new era of technological disruption, but what exactly is “innovation”?

According to the Oxford dictionary, to innovate is to make changes in something established, especially by introducing new methods, ideas, or products. And for practical purposes, this idea or invention must grow into goods or services for which customers will pay.

But innovative ideas do not happen in a vacuum. Often, they are a result of creativity, discipline and a huge dose of appetite for experimentation and taking risks.

The best innovations grow to have wide-reaching impact on people and the world. For instance, tech giant Facebook, one of the most innovative companies of this decade, has drastically transformed how people interact with each other. It has forced news outlets and brands to rethink their marketing strategies.

It has resulted in new jobs in the digital space, such as social-media strategists and content creators – positions unheard of a decade ago. And it started with a simple idea: an online “place” to chat and share.

In a recent podcast, its chief executive Mark Zuckerberg said innovation is more than just having new ideas. It is very much about taking risks and trying new things constantly. Facebook strives to be a place that encourages such behaviours.

Zuckerberg’s employees often get together to build things – not just for work but also for fun.

HOW TO DEVELOP THE DREAM

Similarly, when it comes to getting students to be innovative, schools that *Contact* spoke with create opportunities for their students to try new activities and through the process, learn grit, resilience, cooperation and collaboration. To breed innovation in the classroom you need to build a drive or an intrinsic motivation to keep students focused on it. One way to do so is to encourage exploration and imagination.

At Commonwealth Secondary, for instance, the school encourages innovation by exposing students to design-thinking skills and mindsets from Secondary 1 by adopting the model developed by Stanford University’s Hasso Plattner Institute of Design, or “d.school”.

Students are introduced to the design-thinking methodology to get them comfortable with managing ambiguity and complex problems – a skill that will come in handy as they enter the working world in future, said Principal Aaron Loh.

They go through a five-step iterative process to figure out solutions to real-world problems: Empathise with



users and their needs, define the problem, generate ideas, build a prototype, and test the model to obtain feedback.

Activities are created to help students go through the process. For example, to learn more about empathising with people, students are given a box filled with different everyday items that belong to their imaginary user. They have to look at the items – a coffee mug, a stress ball, photographs, for instance – and try to make connections and better understand the owner of the box.

When students are able to understand their users well, they can then begin to see how their solutions can bring value to others. “Design thinking is focused on the experience and needs of the user, which makes the process very meaningful because through this deep understanding, you really want to make an impact on a person’s life,” said Mr Loh.

He shared how some students are working with disabled members of Friends of the Disabled Society, a non-profit voluntary welfare organisation. They had been making simple handicrafts to sell, but sales have been poor. The students are now teaching them 3D printing and laser cutting to make their products more unique and sellable.

To breed innovation in the classroom you need to build a drive or an intrinsic motivation to keep students focused on it.

“There is the idea that you should fail earlier in order to succeed sooner. It’s a catchphrase that design thinkers use to remind themselves to not be afraid to try.”

CREATING THE RIGHT ENVIRONMENT

While the principles of innovation can be taught in bite-sized pieces, the spirit of innovation is also about getting students to make connections and find different approaches to the familiar.

At Haig Girls’ School, drama is used heavily in math lessons. Starting with a pilot programme in 2012, it was intended to enhance students’ knowledge of math concepts, but it also emphasises group work and encourages students to think of different ways to resolve issues – key traits that help foster innovation.

Ms Wong Yoke Lye, Assistant Year Head for Primary 5, who has been involved in the Teaching Through the Arts Programme from the start, said: “We noticed that our students struggle with math. They were easily discouraged and fearful of the subject. But they have a strong interest in aesthetics.”

Working with arts practitioners from the National Arts Council, Ms Wong and fellow maths teacher Ms Gina Cho developed ways that drama and dance can be used to understand concepts such as fractions, graphs, and money.

To learn about fractions, the students choreographed a dance where they assembled themselves in groups which then split up into smaller groups, to convey the idea of splitting up a whole. To teach students about money, the teachers designed a carnival and got the girls to set up booths to sell things with “fake” money.

“They learn about each other and tap on the strengths of their peers. It’s inevitable that they get into conflicts with their classmates. But we have seen them resolving conflicts themselves and moving on to work towards a common goal,” said Ms Wong.

At Crest Secondary School, teachers found that students were not enjoying English lessons and were not motivated to do well. Mrs Au-Leow Li Quin, who heads the English Language department, decided to get students to produce news videos as part of a *News@Crest* series.

“[English] lessons in class can be a little dry. The students don’t see the relevance, so we created this project where it’s more real,” said Mrs Au-Leow.

Students pick a topic they are interested to explore, act as broadcast journalists, and put together a news segment in the school’s media studio. One group produced a clip on the dishes sold in the school canteen, while another group featured the butterfly garden in the school. The clips were then uploaded onto Facebook and YouTube for their schoolmates to view their work.

The idea worked – students were excited with the project as it allowed them to be imaginative and experiment with something they had never done before. They also had to come up with content that their audience would want to watch.

Mrs Au-Leow added that the students had to take charge of the project from start to end, which gave them a sense of ownership and motivated them to work harder.

JUDGEMENT-FREE ZONES

Students need to be taught everything – including how to handle failure. The hardest way to teach it is to simply let them fail – something that goes against a teacher’s instinct to protect students. However, learning to overcome obstacles are crucial in the pursuit of innovation.

Ms Cai Xirui, who heads design thinking at Victoria Junior College (VJC), said: “There is the idea that you should fail earlier in order to succeed sooner. It’s a catchphrase that design thinkers use to remind themselves to not be afraid to try.”

During a study trip to San Francisco in the June holidays with her colleagues (see side story “Walking the Talk”) to observe how schools there weave design thinking into the curriculum, she was struck by how the schools there believe strongly in the concept of a “judgement-free zone” – a safe environment that assures students that it is all right to fail.

A Santa Clara school teacher shared how she had once refrained from telling her students that their idea would not work, even though it was clear that the students were on a wrong path.

VJC Vice-Principal Gurusharan Singh, who also went on the trip, added: “[The teacher] knew that the students had come up with a wrong problem statement, but she withheld her judgement. She wanted them to find out on their own, and the students did eventually come to the same conclusion as the teacher.”

Teachers may feel compelled to help students avoid failure and get the right solution in the shortest time possible. “But it is important to let the students come to conclusions themselves, and decide for themselves what their next step should be,” he said.

This removes the stigma of failure and builds confidence in students who discover that they can do better. In a safe, judgement-free environment, students also learn to be open to ideas contributed by their peers.

How can teachers achieve this? “You can frame your feedback as questions, which invite students to think, instead of statements, which tell students that this is what they need to do,” said Ms Cai.

“To breed a culture of innovation, we have to leave things open-ended. This way, we encourage exploration,” Mr Gurusharan added.

TEACHERS EXPERIMENT, TOO

Will all this lead to greater innovation? The results are not easily assessed and not visible in the short term.

But at Commonwealth Secondary, the school has seen how its programmes can unlock the students’ passion to pursue and realise their ideas.

“We have seen students working on maker projects coming back on their own during the June holidays to ask that the Design Space be opened up because they want to work on their projects,” said school principal Mr Loh.

Mr Eugene Lee, who is in Commonwealth Secondary’s Research, Innovation and Design Department, noted that teachers also have to be role models for students and learn to be comfortable with things they do not know.

“As a teacher, I often try to plan things and think them through until they are perfect in my head. But it doesn’t work out this way most of the time. The key is to learn to navigate ambiguity,” he stressed.

Said Mr Loh: “We know that more often than not, we won’t get it right the first time. But if we don’t do something, we’d never make a start. So, let’s just do it, and we will get better the next time and eventually, we will get it.” . □

Walking the Talk



Photo from Victoria Junior College

For 10 days during the recent June holidays, a group of 11 teachers visited schools and companies in San Francisco to study social innovation and design thinking. Their key takeaway: Schools that want their students to be innovative must lead by example.

“If we want to be a school that talks about innovation and design thinking, there must be visibility in how innovation is practised,” explained Mr Gurusharan Singh, Vice-Principal of Victoria Junior College. “It must be a culture within the school as well.”

On a visit to design and consulting firm IDEO, the group of teachers from VJC, Victoria School and Cedar Girls’ Secondary School, found that the company adopts innovative solutions to solve workplace problems as well.

For example, the firm noticed their staff were cycling to work and parking their bicycles outside the office compound. It was not ideal as the bicycles were exposed to rain and also at risk of being stolen. IDEO solved this problem by designing bicycle parking lots using a pulley system to hang the bicycles from the ceiling.

But this quickly gave rise to another problem – people started using the lots as storage space. They left their bikes in the office for days, inconveniencing other cyclists.

The company then came up with a simple process to identify errant users. All the bikes would be pulled down at the end of the week. IDEO would then inform owners who had not collected their bikes to do so. Ms Cai Xirui, who heads Project Work at VJC, said the college has also been practising some of the principles of innovation.

For instance, the school’s operations manager would receive multiple calls to repair the same faults around the college. Or worse, some faults were not reported as teachers assumed that the operations manager had been informed by someone else. “A committee of teachers tested a few ideas to make the reporting of faults a more transparent process,” said Ms Cai.

In one of the first few prototypes they came up with, the teachers created a notice board where people could write down the faults they had noticed. Everyone could refer to the board for updates.

The simple method worked. Now, as with everything else, the notice board has been upgraded to a Google spreadsheet that is shared among the staff. Ms Cai added: “I guess this is a small glimpse of IDEO in VJC.”

HOW TO BUILD AN INNOVATOR?

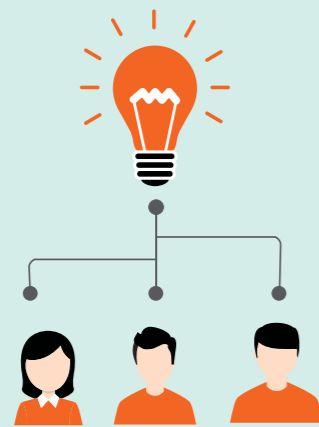
Enrol others

Working with others in teams can launch new ideas and make them better.



Expand minds (and open mouths)

Create a culture where voices, different perspectives and opinions are valued and students do not censor themselves.



Embrace failure

Students gain resilience and experience from learning to pick themselves up after failure.



Encourage questions

Questions stimulate, provoke, inform and inspire.



Examine everything

The way to understand an issue in depth is by slowing down, listening and observing.



Emphasise discipline

Innovation involves testing and refining ideas over and over.



Engage in reflective conversations

Encourage students to think deeper about their actions and thoughts, and ways to do better.



Empathise with others

Only by understanding others' feelings and struggles can students think of solutions that addresses actual needs.



Keeping an “I” on Innovation

Countries around the world are trying new teaching styles to nurture a spirit of innovation in students. Check out what some of these schools are doing.

Going beyond the grades

From next year, Secondary 3 students at Commonwealth Secondary School will have the option of offering a new non-examinable subject, the Design Elective, as part of their subject combination. Students taking the subject will apply design thinking to projects to address real-world problems in areas such as healthcare, sustainable living and the environment.

The programme seeks to nurture human-centred problem solvers who are able to identify needs and

opportunities, generate out-of-the-box ideas, and quickly prototype solutions to obtain feedback for further improvement, says principal Aaron Loh. The programme also seeks to instil qualities such as empathy, resourcefulness and creative confidence in students.

While the project will not carry an O-level grade, Mr Loh says the experience will be invaluable to students as they will be empowered to be innovators and change-makers in their community.

SINGAPORE: COMMONWEALTH SECONDARY SCHOOL



Photo from Commonwealth Secondary School

Being open in design and teaching

This school is without walls – literally. The Ørestad Gymnasium, as secondary schools in the country are called, sports a bold design: There are no classrooms. Instead, four learning zones on separate levels are organised around a central spiral staircase. Wide and open spaces mean that all activities are visible to everyone. The public school believes the architecture encourages its students, aged 16 to 19, to communicate and ask questions freely with their peers and teachers.

Its design reflects its philosophy of training students to be independent, self-directed learners – traits important to nurturing innovative learners. The school is also completely digital, lessons are taught on computers and tablets as teachers walk around the different learning zones to help students who need extra coaching. Going digital on teaching and learning is the school's way of nurturing tech innovation among its young charges. Instead of being mere consumers of content, teachers hope students can be transformed into content producers.

COPENHAGEN: ØRESTAD GYMNASIUM



SAN FRANCISCO: BRIGHTWORKS SCHOOL



Much to learn from playing with fire

In Brightworks, a private school for youngsters from ages of 5 to 17, students at times can be found extracting oil from lavender, constructing a chart of housing prices in San Francisco, or literally playing with fire. Of course, everything takes place in a highly-supervised environment and these activities are all part of the school's philosophy of encouraging learning through exploration and expression.

Even the school building itself reflects this ethos. With an expansive warehouse as its home, Brightworks frequently play around with the space to fit changes in curriculum. Be it a science lab, or a workshop stocked with real tools, the school is ready to build what they need for their students.

Founder Gever Tulley, who started education programme Tinkering School in 2005, believes that children, when taught to engage responsibly with danger, learn to be in control of their actions, and develop problem-solving skills.

NEW YORK: QUEST TO LEARN



Swapping textbooks for games

As part of biology class at Quest to Learn, ninth-graders spend the year role-playing as workers in a fictional bio-technology company, where they clone dinosaurs and create stable eco-systems for them.

This is how they learn about genetics, biology, and ecology. The public middle and high school, for sixth- to twelfth-graders (11-18 years), advocates game-based learning to teach concepts. For instance, fractions is not taught through practice papers, but through card games designed by the students and teachers.


One of the school's founding designers, Rebecca Rufo-Tepper, believes that learning, when fused with games, becomes irresistible for students. When everyone participates in a game, students collaborate with one another and no one is left out. Failure also motivates them to try again to succeed.

BERLIN: EVANGELICAL SCHOOL BERLIN CENTRE

Take charge of your learning

This private school lets its students decide the topics they want to study, and the exams they want to sit for. There are the usual subjects of math, languages, and social studies. But to demonstrate their understanding of math concepts, the students can opt to code a computer game instead of taking a math test.

By removing grades, timetables, and lecture-style instructions, the school believes it can better prepare students for disruption and change.

Students also have to score on more abstract subjects like “responsibilities” and “challenges”. Their homework for a challenge: plan and go on an adventure by themselves with budget given by the school. They could go trekking, kayaking, or work on a farm. The school’s headteacher, Margret Rasfeld, believes the process of planning and executing an activity allows students to discover the meaning behind what they learnt in school on their own, increases their confidence and self-motivation. But students have to be disciplined – those who drag their feet will have to go back to school on Saturdays to catch up. Freedom, as Rasfeld says, must come with structure. 



So your student “friended” YOU...

Facebook, Instagram, Twitter, blogs, forums... Social media has taken over much of our lives and created new ways of communication. And opened up chasms of potential misinformation. What should educators do about them?



Q Should I Set Up A New Facebook Account To Add My Students?

Instead of creating a new account to add your students, how about creating a page or a group within your personal account? For teachers, social media is another tool they can use to engage students in education-related matters. The platform allows for open discussions, and you can use it to distribute announcements, events, and assignments. However, do note that Facebook does not allow children under 13 to register for an account!

Q Some parents have found my private Facebook account and have tried to add me as a friend. What should I do?


As your Facebook account will likely contain personal information, it is perhaps not a good idea to add parents as friends on it. We agree that parents are important partners of the school in our students’ academic journeys. But when communicating and working with parents, it is important to exercise your objectivity and judgement to avoid situations that put you in direct conflict between private interests and the work you do in schools (like parents’ ad-hoc requests and demands through Facebook Messenger for instance!). Just politely decline parents’ invitations and keep them informed of your work with their children through the school.

Q My Students Have Set Up A Facebook Profile As A Class And They Post Photos Of Class Outings With Me In Them. Is It Ok For Me To Leave Comments On The Platform?

A class Facebook profile or group is a great way to keep in touch, even after students move on to different paths in life. But as we all know, even the most innocuous online comments may be taken out of context, be reproduced, and then made to go viral. Do ensure that the privacy settings of this Facebook profile have been set such that only the class can view its content.

When communicating with students online, keep it professional. For instance, keep comments to broader topics, such as class bonding or activities that were done together, and avoid commenting on specific students.

Q My Students Regularly Comment About My Lessons And Teaching Style On Their Public Twitter Accounts. Should I Talk To Them About It?

This sounds like an undesirable situation, but it can be a teachable moment. Let students know that social media platforms are public spaces. Even with the best efforts to maintain privacy, comments may still be reproduced and misinterpreted – sometimes years later. Speak to them about protecting their own digital footprints as one day, they will apply for jobs or college places and scholarships. They may end up having to explain some irresponsible posts made in their younger days. And importantly, let them know that if they have any comments about your class or teaching, they can always let you know in person. Then listen to them sincerely and seek to deepen the trust and understanding between you and your students. 

Back to Class

Learning never stops for these three teachers, who have sought out courses in the last few months to upgrade themselves to be better.



Mrs Kwek Lee Yook, School Staff Developer, Tao Nan School and Ms Kwek Wen Qing, Art teacher, Ang Mo Kio Secondary School

Mrs Kwek and Miss Kwek are mother and daughter, both art teachers, who signed up for the same course – without knowing the other was attending – until a few days before the training started. It was a pleasant surprise for them when they found out, but it was not the first time they had selected the same course at the same time.

In the recent March holidays, they had applied for the same inquiry-based art lesson design course at the Singapore Teachers' Academy for the Arts (STAR).

"It was completely unplanned," said Mrs Kwek Lee Yook, 55, with a laugh. The School Staff Developer has been teaching at Tao Nan School for 33 years.

Her daughter, Ms Kwek Wen Qing, 28, who teaches at Ang Mo Kio Secondary School, added: "It was fun to attend the course with my mother. We discussed ideas after class, and asked each other about the concepts that we did not understand."

The duo is no stranger to taking up courses. This year alone, they have each completed 19 courses ranging from watercolour-painting classes at STAR, to courses and workshops on innovative pedagogy. Most were conducted during the school holidays, after school or over the weekend.

The most recent four-day course they took together guides art teachers on how to conduct lessons based on inquiry-based learning, which focuses on asking questions, rather than presenting established facts or a single path to knowledge.

For Mrs Kwek, she has already applied what she learnt to her lessons on French artist Henri Matisse. She starts art sessions now by encouraging students to explore more and wonder aloud when first introduced to the artwork.

"The students had many different interpretations, and could create work based on their own ideas. Some kids would ask, 'You sure this is OK?',"

and I say, 'Sure, it is your interpretation. There is no right or wrong.' It has helped them become more motivated in learning," she said.

Attending courses also helps her better engage her students. "I learn about how to click with the students, how can we get their attention, or how to ease into the topic so they can better understand it," she added.

For her daughter, attending courses is like being a student again, but most of all, she values the opportunity to learn with and from other practitioners.

"I find that I gain many lesson ideas. I enjoy the collaborative learning with other teachers," Ms Kwek shared. "Resources were uploaded online and we get to learn from one another."

Back in school, both teachers would share what they have learnt with their colleagues during department



Photo from Singapore Teachers Academy for the Arts

sharing and help spread the word to others about courses they find beneficial.

Already, the mother and daughter are looking at the next course to attend. Possibly, even, together.

Your Comments

Learning never stops for these two teachers, who have sought out courses in the last few months to upgrade themselves to be better.

Ms Sharon Simon

Year Head
St. Margaret's Primary School

Students today are digital natives who started using the Internet at a young age. One way to engage them would be through Information and Communication Technology (ICT). I would like to learn how to create educational apps for teaching and learning purposes to suit my students' needs. Currently, not many educational apps allow users to customise them for the local context. I would like to have the autonomy to creatively design apps that can bridge the learning gaps of my students.

Mr Suhaimi Bin Zainal Shah

Teacher
Mathematics and English Language Department
Pasir Ris Secondary School

I have been experimenting with drones and I learnt how to pilot one recently. I have been thinking about using it for maths lessons to teach students about the angle of depression and perspective, for instance. I also received a virtual reality (VR) box* recently as a gift and I would also like to learn how the VR box could be used in education. I believe the VR box, which can show 360° images of places, can add flavour to the learning process by making classes more exciting. Such technological innovations encourage students to try new things and to think out of the box.

**VR Box is a head-mounted device aimed to provide an immersive virtual reality experience, for the purpose of 3D simulations.*

Tell us about a professional development course you have attended, and how it has benefitted you.

Send your entry to contact_online@moe.edu.sg and the published entries will receive a NETS Flashpay card. Please include your name, NRIC, email address, school or division, and contact number.



Mr Mohamed Azhar Bin Mohamed Noor, Head of Department for Science, Innova Primary School

“The characters all have positive values that we want our students to emulate”

While most of his colleagues were on vacation during the June holidays, Mr Mohamed Azhar Bin Mohamed Noor decided to use the free time to learn how to design an app instead.

Not only was he picking up a new skill, but he also wanted to show his students that learning never stops.

“Designing an app is something that is beyond my comfort zone,” said the Head of Department for Science at Innova Primary School, who admits that he has no background in coding at all. “But I’m learning things that I can show my students.”

“I teach them that if you put in the effort, you can see the results. But it’s rhetorical unless you do it. So I wanted to document the whole process and show them that ‘If teacher can do it, so can you!’”

In fact, learning to design an app was a challenge posed to him by his Vice-Principal, Mdm Tay Gek Khim. After learning that Mr Mohamed Azhar had incorporated a self-made card game to encourage more class participation, Mdm Tay urged him to take it a step further and create a customised app for his students.

“So I thought this June holiday, I’ve got a little bit of free time, I can start learning app design,” he shared.

After searching online for relevant courses, he found “How to Launch Your App In Just 16 Hours” from online learning platform Udemy. He chose an online course as it gives him the flexibility to better plan his time. He signed up for the \$80 course and paid for it in full with his SkillsFuture credit.

He began his e-learning journey at the start of June, dedicating about two hours a day to the course which has about 100 mini lectures. “The learning is manageable as it is self-paced,” he said.

On how this course differs from the usual training offered by MOE, he explained: “If you take up a course outside, you can meet and learn from non-teachers and... pick up ideas from other industries.”

With his new skills, he aims to create an app for students to set goals and to-do lists. The app will incorporate three animal mascots – a lion, an eagle and a dolphin – the embodiment of an orator, an explorer and an entrepreneur respectively. He had created these characters together with the school with reference to the school’s values.

“The characters all have positive values that we want our students to emulate,” he said. “The orator speaks confidently, the explorer perseveres and does not give up and the entrepreneur helps others. They are like role models.”

Students can then set daily goals in the app according to the different characters’ traits. A to-do list for an orator, for instance, may include asking questions in class, or leading group discussions.

While he admits that it is not easy creating an app, it has helped him uncover a new passion for using technology and inspired him to keep exploring and learning.

“There is more to app development than coding. Because of it, I have also started using Photoshop, and I realise I can mash-up pictures and make better posters for class,” he beamed.

Turning weakness into strength

Mathematics teacher May O Guat Bee may have struggled to learn the subject that she is now teaching, but she is using her experience to inspire students.



“If they see that the teacher had gone through the same experience, they become more receptive to your teaching and advice.”

When students meet Ms May O Guat Bee in class, one of the first things they learn is that their mathematics teacher had struggled with the subject as a student herself.

The 45-year-old teacher at Temasek Primary School, who has been teaching for 18 years, isn’t afraid to share that she had consistently failed her math exams, which made her feel insecure.

“I always share my story with my kids. It’s telling them that mistakes are opportunities to better yourself, and how you turn that into encouragement,” she said candidly.

At first, the students would not believe her. To convince them, she would even show them her old report card with red-marked math grades.

“It is a good way to reach out to the weaker students,” she shared. “If they see that the teacher had gone through the same experience, they become more receptive to your teaching and advice.”

When it comes to mathematics, she said, she had been a late bloomer. In primary school, she dreaded and feared math classes. “When I was young, I was not a math person at all. It was my weakest subject,” she revealed.

Oral English							
Second Language Chinese (Malay Term)	12-8	14-02	19-3	32-1	12-6	33-8	46-4 79
Second Lang. Oral							
English Literature	10-1	15-0	25-1	12-5	33-8	46-3	71
History	11-6	18-5	30-1	12-5	27-7	42-2	72
Geography	10-1	15-8	25-9	7-1	26-6	33-7	56
Mathematics	9-6	13-0	22-6	12-3	18-0	30-3	53
Additional Maths							
General Science	11-3	19-0	30-3	10-4	22-5	32-9	59
Physics							

A page from Ms O’s report book when she was in Secondary 2. She had struggled with mathematics in her teenage years. (Photo from Ms O Guat Bee)

“There were a lot of formulas to remember... It was just drill, drill and drill,” added Ms O, who also remembers being caned by her mother when her grades fell short of expectation. Naturally, she was not motivated to learn.

That changed in Secondary Three, when her then-math teacher, Mr Jason Koh, got through to her with his sheer patience.

“He gave us a lot of his time. After school, he would stay back, walk us through the things we did not understand,” she recalled.

Slowly, she improved her grades and surprised everyone – including herself – with an A2 for the ‘O’ Levels. From being the subject she always failed at in primary school, it had become one of her best-performing subjects.

She even went on to take a diploma in accountancy before eventually teaching the subject she had feared the most.

Today, Ms May O uses story-telling and real-life examples to make the subject relevant to her students.

For instance, during lessons on ratio, Ms O talks about cooking. During lessons on percentages, she talks about shopping sales.

“It’s a way to get them to remember, and play to their learning styles,” she said.

But her students’ favourite story is still the one of the math teacher who overcame her own fear of math.

And her favourite line for her students? “It’s about being OK with failing, and having the courage to tell yourself: ‘I will try again tomorrow’. If you put in the effort, and have the can-do belief, you will see the results eventually.”



Giving reading a makeover

Photos on this page from Xinghua Primary School

Two schools share their unique reading programmes which were lauded at the Reading Excellence Awards this year. More importantly, they've won student fans!

We may be familiar with silent reading, an enforced period in which students sit in the school hall or assembly area and read for about 20 minutes daily, or dedicated classes where teachers would take the students to the school library.

But some children need a bigger push to make it a part of their lives to read and expand their horizons. We know you have seen a variety of ways that teachers



reach out to students, but here, we highlight Xinghua Primary School and Bukit Merah Secondary School that are taking their reading programmes a step further by making them more systemic, organic and fun.

HOW TO MAKE READING FUN

At Xinghua, the aim is to create an environment where students have easy access to books. The school has a book cart in the canteen, and students can take home old library books.

“Our students need the extra push to read,” said Ms Kanaran Shanta Kumari, who is also head of department for English. “And easy access to books is critical. The library is located on the third level.... But we want the books in a location where it’s visible.”

In the week leading up to National Reading Day on 30th July, the school transforms into a literary fantasy world.

Teachers dress up as Wilbur from *Charlotte’s Web* and Mr Fox from *Fantastic Mr Fox*, among others, and the characters parade around the school, with students getting the chance to interact with them and ask questions.

A mystery reader also drops by each class to read a short book or an excerpt. The surprise figure is usually someone who isn’t from the Language Departments, such as a Physical Education teacher, a student’s mother, or the school’s principal.

To complete the experience, the school is plastered with posters of teachers and students “caught” reading.

“The aim is to show that teachers are role models of reading, too,” said Ms An Bee Ling, who is head of department for Mother Tongue. “At least, if we are not there physically, the posters are there to remind the students.”

THE PRINCIPAL’S SELECTION

At Bukit Merah Secondary, the roots for its reading programme were actually seeded from the top.

The school’s former principal, Mr Sim Chong Boon, started a Principal’s Selection display in the library – buying new books with his own money.

“Mr Sim was observing our students’ reading habits and he realised that they are not reading enough,” said Ms Chong Oi Lin, lead teacher for English at the school.

However, the school library brings in new books only once or twice a year, and Mr Sim sought to change that.

Since starting it in 2013, the selection, which showcases about 20 new books every time, has over a thousand books now.

Today, there is an entire library shelf filled with the books from the Principal’s Selection.

The spread is not limited to fiction. It also includes non-fiction catering to special interests, such as botany and plants, for instance.



Photos on this page from Bukit Merah Secondary School

The school also started a book-a-book programme last year to increase book ownership. Teachers recommend about four to five books, coming up with a short synopsis where the students will pick one that they are most drawn to. They then pay a subsidised rate to own these books

While the aim is to introduce new titles to the students, students will also have to complete a project on the book, where they get to change the ending, for instance, create posters or a book jacket based on their selected book.

The programme is 15-year-old Nuruljannah Bte Azhar’s favourite.

“When the teacher gave us the paper to choose a book, I had a hard time choosing because I thought, ‘I want to read this and I want to read that, too,’” said the Secondary Three student.

“I didn’t read a lot back then. But I do now.”



“Teachers are role models of reading too...”

5 Ways to Make Reading Fab Fun!

Making words on a page come alive requires imagination, dedication and at times, encouragement. See these innovative ways that schools have come up with to get Primary 1 and 2 students to fall in love with reading.

READING IS FAB, YOU KNOW THAT!

Children who are exposed to ending sounds in words and word families have a head start with reading. Those who are able to rhyme are also more likely to be successful readers later on. At the Learning Support Programme (LSP) Reading Carnival, organised by MOE in collaboration with NLB and 18 schools, students gathered around teachers to read an extract from *Cinnamon and the April Shower*, a story about the importance of rain, from the points of view of several new-born animals and plants. The students were then given the task of finding words that rhyme with those extracted from the story.

C-AT, B-AT, R-AT,

What do the words cat, bat, and rat have in common? Yes, they are all living things – but they also share another similarity. They all have the same rimes, but with different onsets. Bet even you don't know what those are.



An onset refers to all the sounds in a word that come before the first vowel (the C in cat) while a rime is the first vowel, and all the sounds that follow it (the “at” in cat). If students are able to blend the two together, it helps them read better. At the carnival, teachers designed dice with onsets and rimes pasted on the six faces. Students throw the dice and read words extracted from three different stories by blending the onsets and the rimes together – and laugh at the results.

In another activity to help students practise their blending skills, phonogram cards of beginning and ending sounds are placed on the floor. On an easel, a list of words with the same sounds is displayed. In a group, each student took a turn to throw a beanbag on a phonogram card on the floor. They would then say the sound aloud, and pick out a word on the easel that contains that same sound. They then blended the beginning and ending sounds to read out the entire word.



HELLOW, FRAND-HELLO, FRIEND!

Spelling can be fun too, especially if you do it while hopping around. For the same carnival, teachers made a Hopxagon Grid, created by placing hexagon-shaped phonogram cards on the floor. The students are given a challenge: They will hear a word, break it down into its respective sounds, and hop around to find the letters to spell the word. The game reinforces the concept of sound-letter correspondence, and the jumping and hopping make it fun and easy for students to remember how to spell the words correctly.

READ A STORY, RETELL IT...

You know a student has understood and appreciated a story if they are able to retell it. At the carnival, a story sequencing station was set up based on a story the students would have just read. Teachers prepared sentence strips from different parts of the story. The students have to “stitch” the story together in the correct order based on their knowledge of the story setting, plot, and characters. More than just a test of memory, this activity also relies on students’ understanding of the various story elements.



...AND THEN ACT IT OUT

To get students more involved in a tale, teachers got them to take on the role of the storybook characters and act out certain parts. Through the use of drama, the children could respond to the story in different ways through their interpretations, which enhances their experience beyond passive reading. When they put themselves in the characters’ shoes, the students also appreciate the plot better.

► For more details about the Carnival, go to <https://bit.ly/ReadtoGrow>

Bring your 'A' game

SCIENCE: CYBORG VS MONSTERS

Learning is best achieved by doing. **Kranji Secondary School** wanted to help its students grasp the science behind the human digestive system. The school developed Alimentary Avengers, an interactive app in which players take on the role of a laboratory scientist to build a monster-battling cyborg's entire digestive system. Through the process, students complete tasks and answer questions that will set them thinking about the functions of specific organs. They also gain knowledge of how food is broken down, and why it is important that the food should be absorbed and utilised by the human body.

Other examples:

- **Peiyang Primary School** created Scientopia, a board game that parallels the five themes in the primary-school science syllabus. The game, designed to



Photo from Peiyang Primary School

cater to different learning styles, reinforces students' understanding of science concepts, and exposes them to challenges Singapore faces in scientific research and development.

- To learn Chemistry better at **Anglican High School**, students fill Periodic Table "bingo" cards. Teachers then describe the properties of an element, and students cross out the correct element on their cards. To win, they have to cross out four in a row correctly, and yell "Eureka!".

MATH: COMPETITION X COLLABORATION = EXPONENTIAL LEARNING!

At **Chongzheng Primary School**, the school motivates students to learn mathematics through Math Wars – a game inspired by the name of the movie, Star Wars. Instead of working to restore freedom in the Galaxy, students battle their peers to overcome several mathematical challenges, each one tougher than before, to advance to the next level. In one segment, multiplication questions are flashed on a board every 30 seconds. Students will work in teams to quickly mark out the correct answers, bingo style. The finalists will

Gamification, or the use of games for learning, is all the rage in the classroom as more and more teachers look for new ways to engage students and help them learn better. Here are four examples to inspire you!



Screengrab from Kranji Secondary School

then move on to the Final Battle, where tougher math questions await them. At this stage, if a team finds themselves stumped by a question, they can call a friend or ask the audience to vote for the right answer. This gets the whole room of students working and learning together.

Other examples:

Math can feel like a workout sometimes, but at **Holy Innocents' Primary School's** Math Gym, it's anything but a chore. Students can choose from a whole range of games modelled after Bingo or Snakes & Ladders to build up their "math muscle" during recess. They are even encouraged to loan the games home to play with their parents and siblings because learning and fun doesn't have to stop when school ends!

HUMANITIES: SUSTAINABLE DEVELOPMENT A BALANCING ACT

Balancing growth and development has always been a key challenge countries face. With limited amount of resources, countries must walk a tightrope. At **Catholic High School**, students learn about sustainable water management through the game Aqua Republica, a digital simulation game developed by environmental consultancy DHI Group and United Nations Environment Programme. The game gets students thinking about how a country can balance its growing water needs with limited water supply. They are introduced to issues such as pollution, green technology, and transboundary water management. But what is more important are the debrief sessions after the game. Students share their insights on water issues, and teachers question their assumptions to help them gain a deeper understanding of complex issues.

Other examples:

- A group of humanities teachers at the same school has whipped up a card game – Sovereign City. Players try to achieve sustainable development through prudent energy allocation, while juggling competing demands for funding, figuring out how to adopt alternative energy sources, and balancing the power usage in different cities.

LANGUAGES – LEARN CHINESE WITH JOY

Hanyu Pinyin may seem like a complex challenge for young learners with its unique set of pronunciation rules and tones. At **Punggol Green Primary School**, teachers designed *Pin Le*, a set of cards based on MOE's Primary 1 curriculum, with three different types of cards – tones, initial sounds (*sheng mu*) and ending sounds (*yun mu*). The students will then mix and match the different cards




Catholic High School students playing Sovereign City - a card game created by the school.

Balancing growth and development has always been a key challenge countries face. With limited amount of resources, countries must walk a tightrope.

to come up with the right configuration for specific words. The card game is easy to use, which also makes it a perfect for parents to play at home with their children and help them master Hanyu Pinyin.

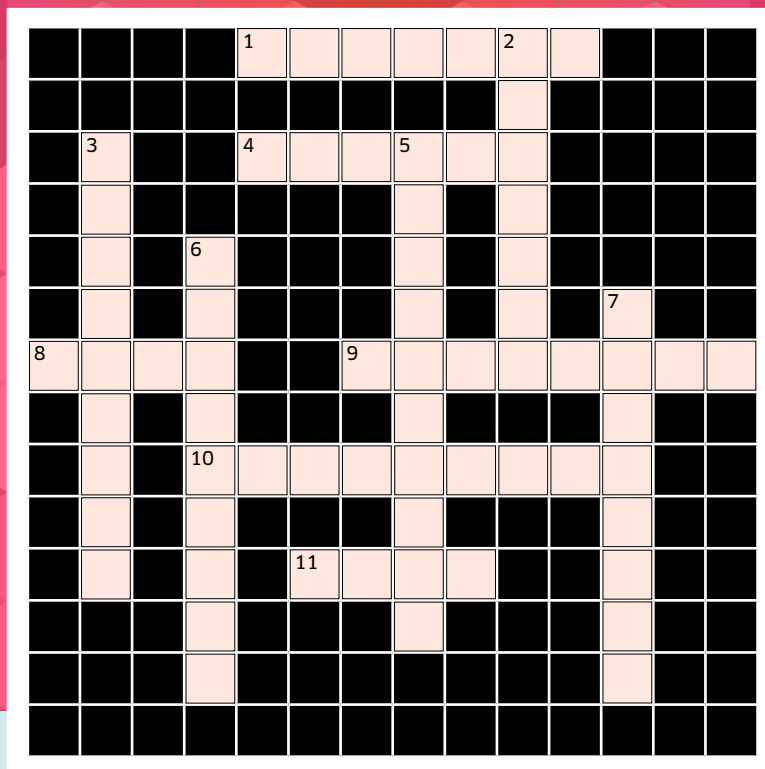
Other examples:

- At **Fairfield Methodist Secondary School**, students go beyond playing games – they develop one. Every year, Secondary 4 students get together to organise a Malay language event from scratch. Most recently, they put together an Amazing Race-style game in Sentosa, where participants from all cohorts had to solve puzzles relating to Malay words and idioms.
- Case markers are one of the most fundamental grammar components in the Tamil language, necessary in speaking and writing. But students, especially those who do not come from Tamil-speaking backgrounds, often trip up at using case markers correctly. Teachers at **Huamin Primary School** developed a package consisting of games and manipulatives designed by teachers to help students practice using case markers correctly. 

ANSWER & WIN!

Can you solve this?

Show us how well you read *Contact* by tackling this puzzle (answers can be found within the magazine). Three correct entries will be chosen to receive an attractive prize each!



ACROSS →

- The _____ settings of a class Facebook group should be set such that only the class can view its content.
- From next year, Secondary 3 students at Commonwealth Secondary School can take a new _____ elective.
- At the LSP Reading Carnival, students could hop around a Hopxagon _____ to spell words.
- Kranji Secondary School students built a gaming app about the digestive system, called Alimentary _____.
- The first step in design thinking is to _____ with users.
- Mr Mohamed Azhar Bin Mohamed Noor's app features a _____, an eagle and a dolphin.

DOWN ↓

- Xinghua Primary School has a book cart in the _____ to give students easy access to books.
- To make the _____ of faults a more transparent process, Victoria Junior College uses a Google spreadsheet.
- Mr Nah Hong Leong heads Commonwealth Secondary's Research, _____ and Design committee.
- A "_____ -free zone" is a safe environment that assures students that it is all right to fail.
- Ms May O uses story-telling and real-life examples to make mathematics _____ to her students.

Winners from last issue's puzzle



Mdm Song Chay Hoon
(Mrs Serene Lim)
Jurong Primary School
Learning Support
Coordinator English

Mr Ling Xiao Ern Darren
Bukit Batok Secondary School
Teacher

Ms Ng Xinyi
Jurong Junior College
Teacher

Congratulations!

THINK YOU HAVE THE ANSWERS?

Send a clear photo of your completed entry to contact_online@moe.edu.sg by **15 October 2017**. Please include your full name, institution, designation, NRIC and contact number in your email.

Answers to last issue's puzzle: 1. Direct 2. Resilience 3. Anxiety 4. Sovereign 5. Escape 6. Relationships 7. Westwood 8. Adopt 9. Belonging 10. Instructor