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THE BIG IDEA

Creating Educational
Futures

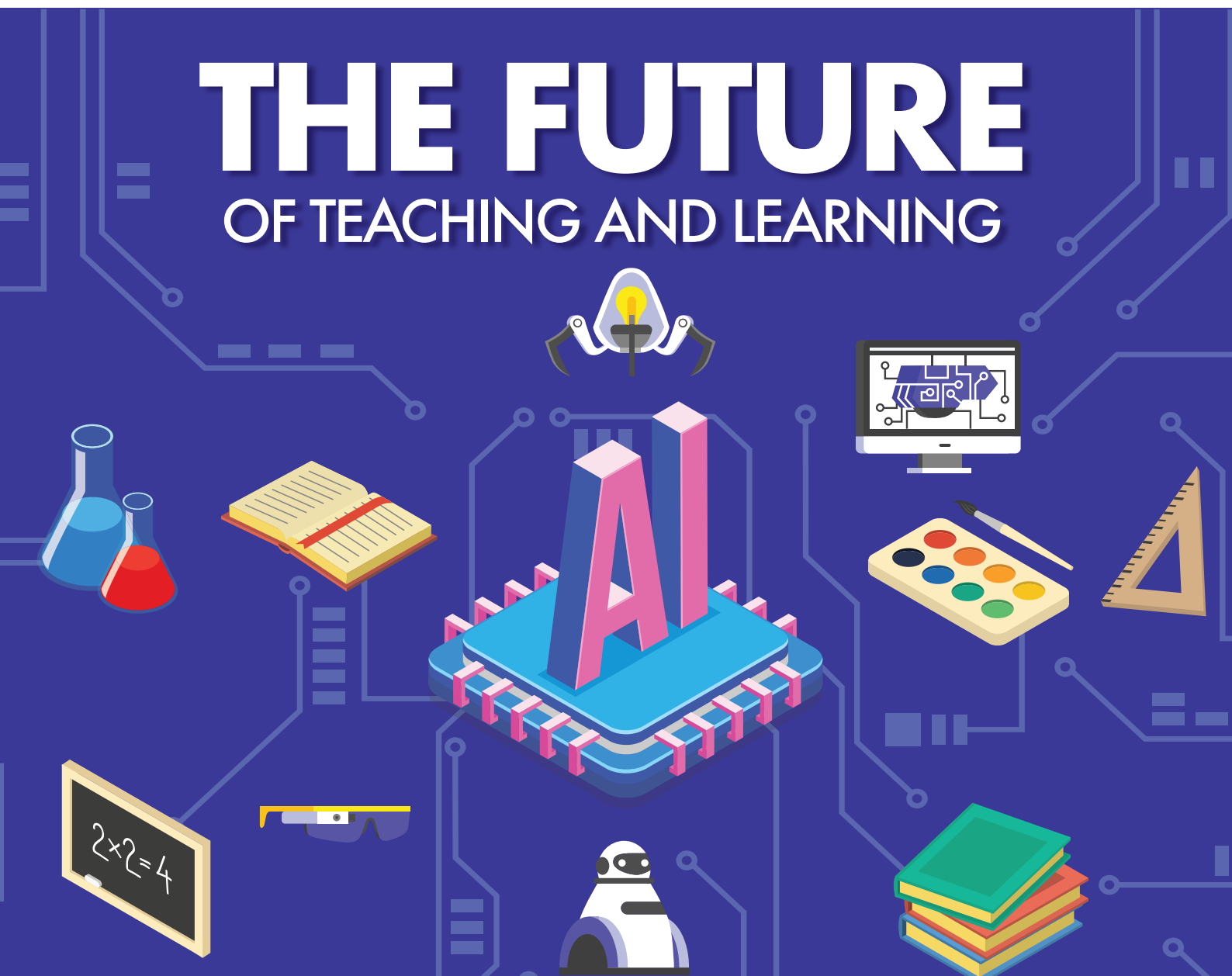
CLASSROOM PERSPECTIVES

Levelling Up Math Learners
through Neuro-Games

PEOPLE

AI in Education:
More than Science Fiction

THE FUTURE OF TEACHING AND LEARNING



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Celebrating 15 Years of *SingTeach*



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We believe education research can be practical and relevant to the classroom. *SingTeach* was initiated in 2005 to bridge the gap between research and practice for you, the teacher.

Published quarterly by the Office of Education Research at the National Institute of Education, Nanyang Technological University, Singapore, *SingTeach* is a magazine dedicated to improving teaching and enhancing learning. Each article is crafted with teachers in mind.

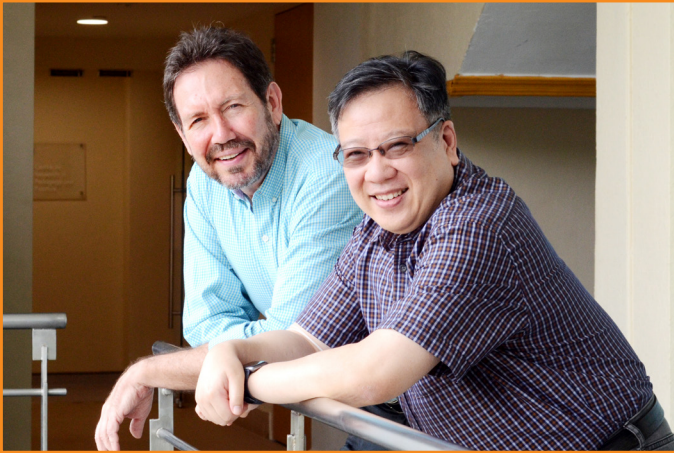
With easy access to tried-and-tested practices that work in your classroom, *SingTeach* puts research within your reach. We hope you'll be inspired.



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**Mark Baildon**

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This issue of *SingTeach* highlights the necessary interplay between new perspectives, practices and technologies to transform education. While advances in neuroscience and neural-informed interventions can support teaching and learning in subjects like Math, and the use of learning analytics and artificial intelligence promises to effectively reduce teachers' administrative tasks and make classroom processes more efficient, education will fundamentally remain a human endeavor. The uses of new educational technologies will be directed by our values, interests and the decisions that we make. New directions in education will require drawing on new technological affordances in ways that better support teaching and learning to respond to 21st century global challenges such as climate crisis, pandemics and inequality (among others) as shared problems that all societies, communities and individuals must address.

The articles in this issue feature the ways technology can be harnessed to support more powerful forms of teaching and learning, yet point to the need to develop students who will become empathetic and ethical citizens, able to understand and address complex societal issues. This will fundamentally require new visions of education. It calls on all of us involved in education to develop an openness and hospitableness to new perspectives and practices, along with the capacities for critical judgment and public reasoning, and renewed commitments to justice and those most marginalized or vulnerable in our society. Perhaps the connecting thread between these dispositions and the ways we use technology in education and society is the need to develop new literacies and 21st century competencies—better viewed as social practices that will enable young people to critically investigate and understand their everyday lives as well as take informed action using a range of tools. This issue shares what this might look like in subjects ranging from Math to Literature and in multiple spaces that present new opportunities to empower learners.

We know education can be more. More, not in the sense of numbers or better scores on exams, but more in the sense of fuller, more meaningful, more fulfilling, engaging and relevant for all learners; that education can serve to not only improve individual lives but society as well. This view of education springs from the hope that education can be more about matters of the heart, empowering individuals in myriad ways to live rich, full lives, that it can be directed to serve all of humanity and the planet we share. We hope you enjoy the articles and use them to imagine or envision new forms of educational practice and how we might work together to create these new educational futures.

ONLINE EXCLUSIVES



RESEARCH IN ACTION

Digital Literacy to Empower Lower-Track Learners

CONTRIBUTION

Developing a School's Professional Capital through the Lens of Knowledge Management



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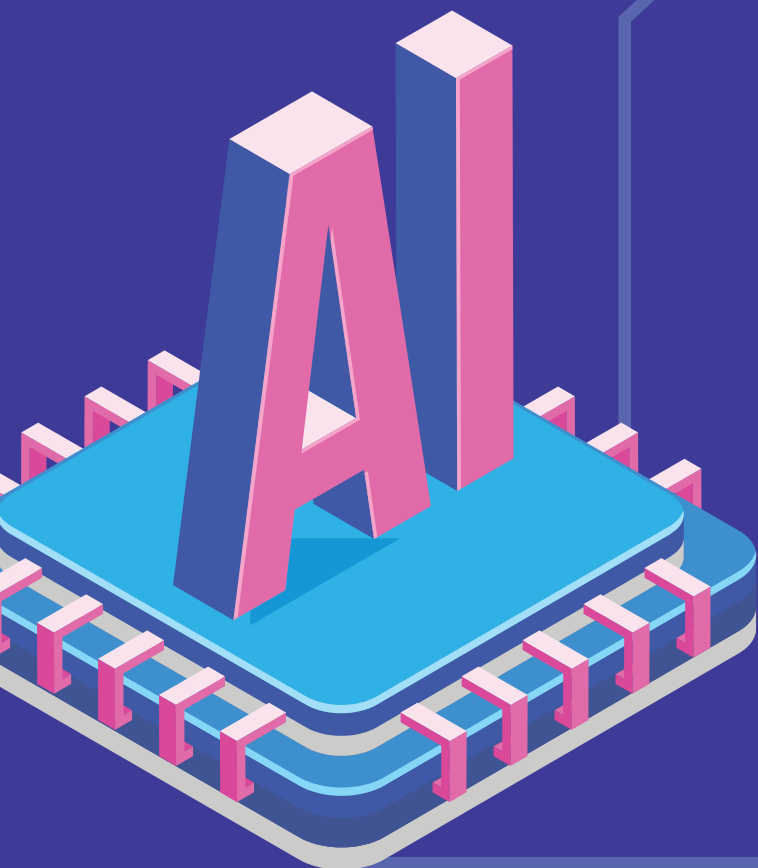
CREATING EDUCATIONAL FUTURES

There is a growing awareness among education researchers and practitioners on the need to evolve today's education system to meet tomorrow's demands. Beyond just the provision of tools and technology, it is also important to help our students develop skills that can help them ethically navigate the digital age and overcome the challenges of living in a global society. The guest editors of this issue of SingTeach share some possible changes in education and shed some light on the increasing importance of inculcating greater social consciousness in our learners to meet the challenges of the future.

New technologies and approaches to education, like artificial intelligence (AI) and Science of Learning, have the potential to transform teaching and learning. However, to fully transform educational practice also requires changes in mindsets and school cultures.

"The future of education will continue to be about meaning-making," says Associate Professor Mark Baidon, who is Associate Dean with the Office of Education (OER) at NIE. "And the advent of new technologies and neuroscience research in education today must be accompanied by new ways of thinking about education. As educators, we must think about the ways we can further enable teachers and students to learn in ways that are deeper, more meaningful and more personal while contributing to the well-being of society."

So how might technology and neuroscience research enable that, and what changes exactly will these bring about in our future classrooms?



SCIENCE OF LEARNING IN EDUCATION

The all too common one-size-fits-all traditional approach to teaching and learning is a thing of the past. Moving forward, imagine teachers being able to confidently meet the needs of all learners.

“It remains an educational priority to ensure that students with individual learning differences are provided with the necessary assistance as much as possible to help them thrive during their schooling years,” explains Dr Dennis Kwek, also Associate Dean at OER. “This is where Science of Learning can help.”

In a nutshell, Science of Learning in the context of education is the combination of brain sciences and classroom research. “It is an evidence-based approach to teaching and learning,” Mark adds.

Science of Learning is an approach that recognizes the importance of cross-fertilization of ideas across different fields of study. In particular, it involves the combination of neuroscience and education research to help teachers and school leaders make more informed education-related decisions involving the learner to enhance his or her schooling experience.

“It provides teachers with insights into their students’ learning and also serves as a tool for reflective teaching in a way that allows teachers to think deeper about how their students learn best and the areas that need improvement,” Mark explains.

While the intention of Science of Learning, through combining different fields of research, is to understand why students learn a certain way and how teachers can appropriately intervene to maximize their learning, Mark and Dennis note that there is one more concept of the tech future that can further facilitate and enhance this entire education process.



ARTIFICIAL INTELLIGENCE IN THE CLASSROOMS OF TOMORROW

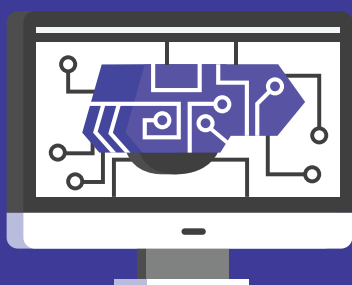
Much like the idea behind Science of Learning, AI in the context of education focuses on three core areas—students, teachers and processes—through the gathering and analysing of big data.

“In terms of learning, AI can help create a personalized form of learning experience for students based on their individual needs,” Dennis shares. “When it comes to teaching, on the other hand, AI can help teachers customize curriculum through processing big data. This in turn allows teachers to better their teaching practices.”

Beyond teaching and learning, AI can also reduce teachers’ administrative workload such as marking and certain decision-making. However, Mark cautions that it is crucial that teachers are involved in the design of these AI approaches to ensure that the main objective of AI is constantly met—to serve students’ learning.

“In the use of AI in education, we must always remind ourselves that the goal is to support teaching and learning,” Mark says. “The data collected should not be weaponized against individuals or used as a sorting mechanism to classify students into particular kinds of groups.”

This means that it is increasingly crucial for both educators and learners to understand the risks associated with technologies. According to Dennis, one way around this is to frequently infuse discussion on ethics and social consciousness in the classroom.





SOCIAL CONSCIOUSNESS IN THE DIGITAL AGE

“Technology has inadvertently transformed the way we live, work, play and think. It is also technology that has created a growing need for us to ensure that our students remain on track in terms of their values,” Dennis shares.

While technology will continuously transform the way teachers teach and how students learn as it progresses, he opines that one’s values should remain a constant throughout one’s life.

“It is important that teachers discuss with their students about how technologies can impact lives in both positive and negative ways,” Mark adds. “So the connecting thread with AI is literacy and inquiry to foster critical thinking and the deliberation of values such as responsible decision-making and greater social awareness.”

This means that the future will bring about an increasing importance on subjects such as Literature and the need to educate students about pressing societal and global issues. Largely focusing on helping students to develop empathy and the ability to think critically and have multiple perspectives on issues that affect them, Mark feels that exposing students to Literature and Humanities subjects can benefit them in the digital age.

“Literature can definitely help students to think about the ethics behind certain choices that we make,” he says. More than just that, however, both Mark and Dennis also believe that all the other subjects also have the potential to open learners’ eyes to the world around them.

“In Math, students are exposed to logic, symmetry and rules that exist around them. In Chemistry, students are exposed to the nature of interactions of certain compounds, leading to a greater understanding of nature itself,” Dennis shares.

Education will, by and large, continue to be about more than just equipping students with the hard skills required to navigate the digital age. As Mark simply puts it: “As educators and as citizens, we need to take greater responsibility for the kinds of futures we create—futures that might ultimately be more meaningful, just, sustainable and satisfying.” ■



About the Guest Editors


Mark Baildon (right) is Associate Dean, Partnerships and Analytics at the Office of Education Research (OER) in NIE. Prior to joining NIE, Mark taught social studies in secondary schools in the United States, Israel, Singapore, Saudi Arabia and Taiwan. **Dennis Kwek** is Associate Dean, Strategic Engagement also at OER in NIE. He has more than 15 years of research experience working closely with Singapore schools on classroom pedagogical research and in his spare time, plays his Nintendo Switch.





NURTURING GLOBAL CITIZENS THROUGH Literature Education

Literature education should not center only on the aesthetic appreciation of texts, but should also engage with global issues. An NIE researcher explains the importance of global citizenship and the potential of Literature to equip students with dispositions that would enable them to navigate today's interconnected and interdependent world.



EVOLUTION OF LITERATURE EDUCATION

The study of Literature had traditionally centered on training students to critically read and analyse aesthetic features—plot, character, setting, theme and style—of a poem, short story, novel or play.

In recent times, however, there has also been a growing emphasis on making connections between a literary text and students' lives. Additionally, the Literature in English syllabus now features more works from countries beyond the West such as the inclusion of Singapore literature.

What then is the significance of these shifts in Literature education and how do they benefit students today and in the future?

Associate Professor Suzanne Choo from NIE's English Language and Literature Academic Group believes these shifts are central to ongoing efforts to develop students to becoming empathetic and ethical global citizens.

ILLUMINATING GLOBAL CITIZENSHIP

Contemporary views of cosmopolitanism, or citizen of the world, does not view such a person as rootless. Conversely, one may be rooted to home while being open to the world.

"In fact, global citizenship embodies the idea that individuals can navigate multiple spaces—home, community and world. Global citizens also do not lose their rootedness to 'home', but learn to negotiate the different spaces they are embedded in," Suzanne clarifies.

Additionally, a global citizen is conscious about and committed to addressing issues facing the world. In a global age where people from across the world are increasingly interconnected, it has become

more crucial for teachers today to think about and incorporate global education into their lessons to sensitize students to real-world issues.

"Many of the challenges we are experiencing today such as terrorism, human trafficking, climate change and infectious disease outbreaks are global in nature so we can no longer teach a subject in isolation from the real world," Suzanne adds.

PROFILING GLOBAL CITIZENS

For her research on Literature education and global citizenship, Suzanne focuses on cosmopolitan dispositions that a global citizen should embody—openness to difference, hospitality, criticality and a commitment to justice.

"Openness to difference and hospitality are other-centered dispositions that prioritize an understanding of the other over the self," Suzanne explains. While the former concerns one's ability to build connections with people from other cultures or with different beliefs, the latter centers on empathy, how welcoming one is to others and the capacity to listen and suspend judgement.

With technological advancements and the proliferation of social media, people today have more avenues to not only air their views, but also connect with individuals with similar worldviews.

"Although interacting with people on the same wavelength as us is always more comfortable, the reality is that students will encounter people who are different and whom they may disagree with when they graduate and enter the workforce," shares Suzanne. Educators, as such, have to nurture students to have a more hospitable orientation to others and guide them to engage in dialogue with people from diverse backgrounds.

Aside from openness to difference and hospitality, criticality and a commitment to justice are also important in developing discernment and wisdom as well as in activating students to advocate for others who suffer implicit and explicit forms of violence in our world.

“With the influx of information available in our globalized age, one needs to be critical and be able to discern between the real and the fake,” Suzanne adds. “Moreover, a commitment to justice requires one to critically think about the kinds of systemic issues and values that reinforce the oppression and marginalization of others.”

GLOBAL EDUCATION THROUGH LITERATURE

While students can gain knowledge about global issues or people from diverse backgrounds through reading news articles or historical documents, these sources of information would help them understand such issues only at a cognitive level.

So what can be done to enrich students’ understanding of individuals from other cultures and the impact of global issues on people’s lives? According to Suzanne, one powerful platform is through the study of Literature.

“One crucial contribution of literary texts is that they immerse readers in the world of another who could be from a different culture or an individual who is experiencing the effects of global injustice,” explains Suzanne.

Citing the novel *So/d*, which centers on a girl trafficked from Nepal to India, Suzanne shares that some teachers who taught the book found that it broadened students’ understanding about the social and psychological effects of human trafficking. “Reading the text does not just bring the issue of trafficking to life, it also sensitizes readers to its processes and detrimental effects on families and societies,” she adds.

Additionally, Literature education equips students with the ability to critically read culture and values. “When reading texts such as *To Kill a Mockingbird*, students may engage in discussions about whether the laws and values of a particular society promote fairness and justice for all, including minority groups,” Suzanne elaborates.

Beyond nurturing cosmopolitan dispositions, Literature plays a role in disrupting media stereotypes of individuals living in countries plagued by civil strife or deemed “enemies of the West” and thus continually portrayed in a negative light.

“I often tell my students that if they are likely not to visit countries such as Afghanistan, Syria, North Korea, etc., then they should at least attempt to read stories about people living in the countries so that their perceptions are not based on media stereotypes,” shares Suzanne.

ROLE OF LITERATURE IN A STEM-FOCUSED AGE

In today’s technological age, many countries have made significant investments in STEM (Science, Technology, Engineering and Mathematics) given its importance to the global economy and role in improving material standards of living.

This trend, however, does not suggest that Literature or other humanities subjects are any less relevant in current times.

“Even if one plans to become a scientist or an expert in artificial intelligence, one must possess other-centered dispositions and ethical sensibilities, which can be cultivated through Literature, so that one’s knowledge and skills can be used to better humanity,” says Suzanne.

Furthermore, Literature is one of the few subjects that offers lessons in applied ethics. “Many literary texts illustrate how characters negotiate moral ambiguities and ethical dilemmas,” shares Suzanne. “In daily news, we also often read about situations involving moral dilemmas, such as whether or not a country should retaliate against another.”

By engaging in discussions about ethical issues in literary and real worlds during Literature lessons, students would not only develop a better understanding about complexities involved in navigating moral ambiguity, but also learn to reflect on their own value system.

“At the end of the day, Literature education should not be about the mere study of fictional texts, but about an exploration of the human condition, about what it means to be a human being and to defend the inherent dignity and worth of others,” concludes Suzanne. ■



LITERATURE: A NON-THREATENING SPACE FOR DISCUSSION

Over the last two years, NIE Associate Professor Suzanne Choo has been working with a group of teachers and her research team comprising Dr Dennis Yeo and Mr Dominic Nah to design lessons on race and identity through Singapore literature.

“These lessons aim to get students thinking about otherness within Singapore, in particular who is the ‘other’, how a person is ‘othered’ and how people feel when they are ‘othered’,” shares Suzanne. Teachers would also engage students in discussions about stereotypes, or introduce them to texts that feature the perspectives of different racial groups in Singapore, including those beyond the CMIO (Chinese, Malay, Indian, Others) categories.

While Suzanne acknowledges that issues pertaining to race and identity can be sensitive and uncomfortable, she believes that educators should not shy away from engaging students in discussions about potentially controversial topics.

“In the Literature classroom, racism is often discussed from afar especially in the West. However, we should bring discussions about race closer to home to make students aware about stereotypes and help them realize that they themselves might have perpetuated stereotypes about others,” explains Suzanne. “In doing so, students would also recognize that they have a role to play in addressing racism in their own society.”

So what can Literature teachers do to facilitate discussions about race or any topic that may be sensitive or controversial during lessons? Suzanne believes that teachers must first establish a culture of empathy and hospitality in the classroom.

“In an ideal Literature classroom, the teacher opens up a space for students to respond personally and constructively to sensitive issues,” says Suzanne. “At the same time, teachers should help students recognize that their response must be coupled with respect and any comments made should stem from an understanding of the other.”

Ultimately, when open and honest conversations about sensitive topics can take place in the Literature classroom, students will also develop a richer and more rounded understanding of the world around them. ■



About the Interviewee

Suzanne Choo is Assistant Dean, Teacher Leadership at the Office of Teacher Education and Associate Professor with the English Language and Literature Academic Group at NIE. Her book, *Reading the world, the globe, and the cosmos: Approaches to teaching literature for the twenty-first century* was awarded the 2014 Critics Choice Book Award by the American Educational Studies Association. Her research interests lie in cosmopolitanism, ethical criticism, and Literature Education.



AI IN EDUCATION: MORE THAN SCIENCE FICTION



From e-mail communications and web searching to social media and digital assistants, the concept of Artificial Intelligence (AI) is present in many aspects of our daily lives. AI in education, however, is a concept that could be new to many school teachers. How can we incorporate AI into the classroom? What does the future classroom look like with AI? We answer these questions and more with Director of AI Industry Innovation, AI Singapore, Mr Laurence Liew.

"If you have watched the 2016 Star Trek movie, you will remember a scene from it in which Spock the Vulcan was having a lesson in a hemispherical-shaped cubicle," Laurence shares. "Spock was bombarded with questions from an Artificial Intelligence (AI) and interacting with it by responding to those questions. No humans were involved in the teaching process at all."

Will *this* be the future of our Singapore classrooms?

TEACHERS ARE INDISPENSABLE

Thankfully, Laurence assures that the role of teachers will never be replaced by AI. "Coming back down to Earth, even as we move forward with the use of AI, the role of a teacher remains very important," he says.

Laurence believes that the human element is crucial to teaching and that students will not be able to learn purely through the use of AI as what is depicted in the Star Trek universe. "AI is not magic and it will not be able to replace tasks that require a lot of creativity or human empathy," Laurence explains.

Bringing AI back into the teaching realm, can, however, help to automate and remove some of the more mundane and repetitive tasks that a teacher has to undertake. This in turn creates more space and resources for the teacher to focus and value-add to other areas of teaching.

WHAT IS ARTIFICIAL INTELLIGENCE REALLY?

Imagine a machine capable of performing tasks that normally require human intelligence. The idea and theory behind that is what would be known as artificial intelligence.

"It is basically a tool that uses math and is created by humans so that you can use it to help you in your work effectively, whether you are a lawyer, engineer or teacher," Laurence explains. This means that AI is ultimately the result of humanity's effort to replicate its own cognitive capabilities in machines.

If AI, despite its human-like capabilities, can never replace the role of teachers, then why does it matter in education today?

ARTIFICIAL INTELLIGENCE IN SINGAPORE EDUCATION TODAY

Laurence and his team at AI Singapore, a national AI programme launched by the National Research Foundation to anchor deep national capabilities in AI, are currently in the exploratory stages of discovering how AI can be used in the process of teaching and learning in the classroom.

“In today’s literature, how AI is commonly used in education currently focuses a lot on students’ performance tracking,” Laurence shares. By collating and analysing students’ data such as test scores and results, AI can help to track the trajectory of a student’s performance and detect anomalies or stray behaviour so that teachers can intervene early.

Another way teachers can use AI to help students learn better is the tracking of their learning behaviour through analytics. However, Laurence cautions that this can only be done when learning is done electronically or digitally. “When learning is done digitally, you are able to gather data such as the length of time a student browses a particular page online, and what are the links he or she clicks on,” Laurence explains.

This provides teachers an understanding of the extent to which their students enjoy a particular topic, or how much time they require to understand a topic. This is much like how a website, such as *Amazon* for example, is able to customize one’s shopping experience online.

“The page that you see on Amazon is tailored to your needs based on your browsing habits and that’s what AI does,” Laurence explains. “In a way, it’s like a recommendation engine or system.” Similarly, AI is also able to recommend to teachers what the next best questions to ask students are

to enhance their whole learning experience in the classroom.

MOVING FROM SCIENCE FICTION TO REALITY

As a tool for teachers, Laurence hopes that AI can help remove administrative tasks such as marking. However, he is also aware that some of the biggest challenges in automating marking include the complexities involved in grading essay-based assignments and deciphering handwriting.

“If we can move towards the ideal situation in which every kid has their own devices where homework can be done and submitted online or we are able to conduct electronic examinations, we can automate marking to a large extent,” Laurence opines.

As Laurence and his team work with the relevant stakeholders to develop AI strategies for Singapore classrooms, he also shares that they are, at the moment, only experimenting with different AI ideas to see what works and what does not. “We are still at the exploratory stage. We will not know if an AI idea is feasible until we try it out so right now, we are learning what can and cannot work in the classroom.”

As the education industry gradually begins its march deeper into the world of advanced technology, Laurence hopes that teachers will come together to attend public classes on AI. “We are also happy to head down to interested schools to share with them more about this,” he shares.

As science fiction incrementally moves into our realms of reality in ways more than one can imagine, Laurence once again asserts that the myth of AI displacing humans, especially teachers, needs to be dispelled. “We are already in the AI age and there is nothing to fear. While AI can replace mundane and repeated tasks, the role of teachers themselves will never be replaced,” he concludes. ■



About the Interviewee

Laurence Liew is Director for AI Industry Innovation at AI Singapore, and drives the adoption of AI by the Singapore ecosystem through the 100 Experiments and AI Apprenticeship programmes.

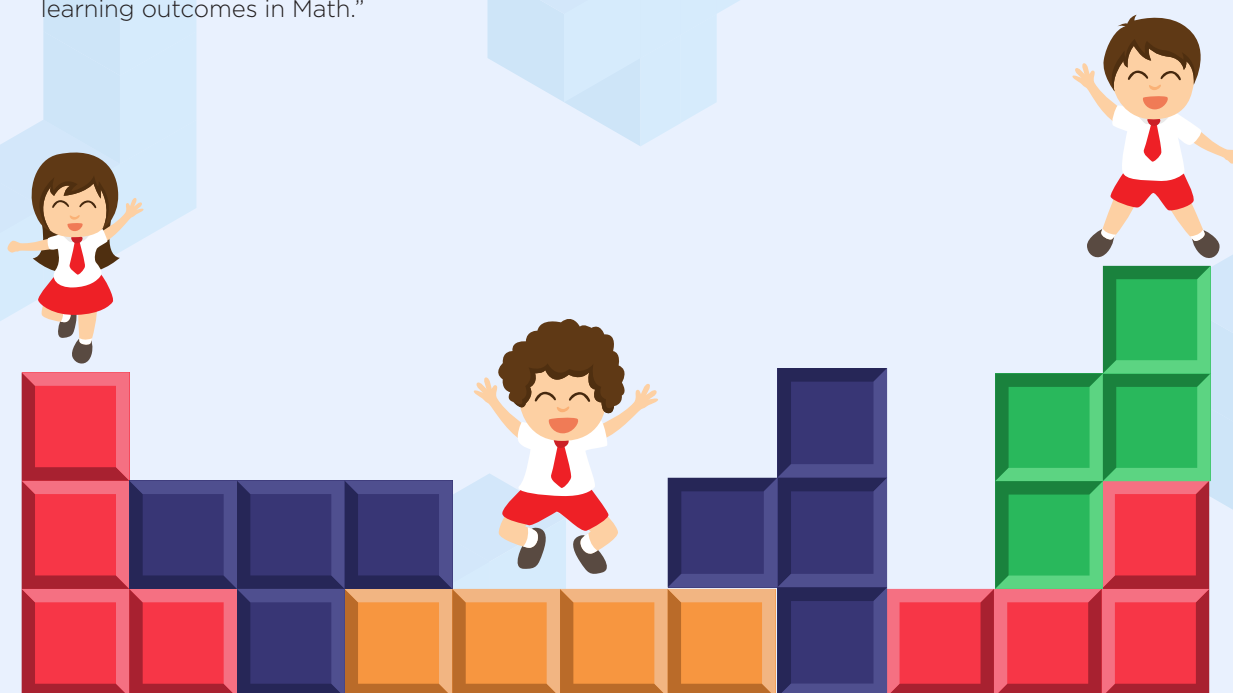
LEVELLING UP MATH LEARNERS THROUGH NEURO-GAMES

In 2018, North Spring Primary School and Elias Park Primary School collaborated with NIE researchers on a project involving lower-progress students in Math. One of the key aims of this ongoing study is the translation of basic neuroscience research into effective classroom interventions. Two teachers from the schools share with us their experience of implementing games in the Math syllabus as a way to level up the numeracy skills in this group of students.

As teachers in-charge of the Learning Support for Math (LSM) programme, Mdm Joyce Ye from North Spring Primary School and Mdm Iza Mariah from Elias Park Primary School were keen to participate in the project to gain better insights on how educational neuroscience can help address the challenges of teaching and learning Math.

“Many lower-progress learners struggle with making sense of complex math concepts as they move up from one level to another. We felt that embarking on this project might help us uncover new pedagogies that can alleviate the level of Math anxiety,” Iza says.

Sharing her observations, Joyce adds that many of these students struggle to retain information. “We were curious to find out how brains work when students learn Math. We hope that by participating in this study, it can shed light on innovative learning strategies that can help students to achieve better learning outcomes in Math.”



PLAYING GAMES AS INTERVENTION STRATEGY

A key aspect of this project involves implementing neural-informed game-based interventions in the LSM classroom. Physical and digital games have been developed to suit the learning needs and abilities of this group of students.

Adopting a targeted approach, Iza and Joyce are selective when it comes to choosing which math topic will have a games element to it. “Not every topic in the Math syllabus will be accompanied by games,” Iza explains. “Due to several constraints, we are strategic in choosing topics that we think the games will have the most impact on learners.”

Since the inception of the project, several math topics such as multiplication tables and place value of numbers have been partly taught through games. Mdm Jesslyn Goh, Head of Mathematics Department at North Spring Primary School shares, “For Primary 1 and 2 students, the learning of place values are reinforced through the playing of number games. For Primary 3 and 4 students, Bingo games are used to aid the learning of multiplication tables.”

Apart from using math-based games to reinforce what the students have learnt earlier, both schools also use them as a form of formative assessment. Iza adds that she uses them to introduce students to a new math topic.



ENHANCING MATH TEACHING AND LEARNING

Taking a step back from the conventional pen-and-paper route has given the teachers a fresh perspective in looking at new ways to engage LSM students. Playing number games on iPads, for example, is a boon for students who have issues with fine motor skills as they can easily answer questions with just a swipe of the fingers.

Joyce shares, “Participating in the math-based hands-on activities and digital games becomes a physical and visual treat for them. They get excited when they score a point and are more motivated to try another question. They will then compare their scores with their peers. This mode of competition actually builds up their confidence.”

Agreeing, Iza adds that the instant gratification the students get from playing these games helps them in self-directed learning. “These math games encourage them to attempt answering questions and find solutions independently. When they realize that success is within their reach, they want to continue reinforcing that loop of success without needing much prompting from teachers.”

Jesslyn notes that adapting games into the Math intervention programme has equipped the teachers with a wider repertoire of teaching tools to meet the different learning needs of students.

"THESE MATH GAMES ENCOURAGE THEM TO ATTEMPT ANSWERING QUESTIONS AND FIND SOLUTIONS INDEPENDENTLY."

BRIDGING THE GAP BETWEEN RESEARCH AND THE CLASSROOM

Working with lower-progress students in the LSM programme comes with its unique set of challenges. Iza and Joyce highlight two critical issues—chronic absenteeism and lack of family support—that impede their intervention efforts.

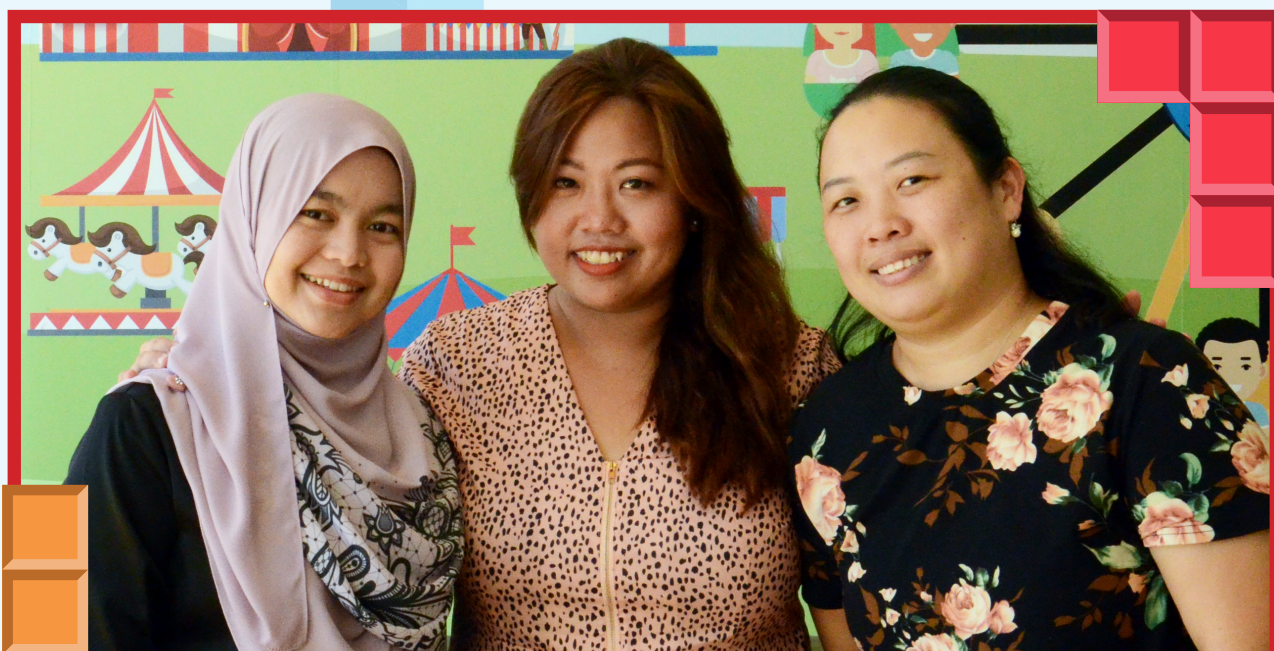
“The lack of parental involvement and availability of resources such as computers and Internet access in the home mean that the children cannot learn within a consistent and holistic environment,” Iza shares.

“Their absenteeism, a contributing factor in low academic performance, also poses a logistical challenge. It can be quite difficult to get them to be in the same room with the researchers which may, in turn, affect the collection of data for the project,” Joyce adds.

While taking these challenges in stride, they are also confident that the research findings can pave the way for changing how Math is taught and learnt in these group of students. With concrete data and evidence, they say, it will be easier to change teachers’ beliefs and mode of teaching.

“The research outcome has the potential to deepen teachers’ and stakeholders’ understanding of how lower-progress learners learn Math and perhaps bring about shifts in the way teachers engage them,” says Joyce.

Furthermore, Iza adds that the research findings can benefit not only lower-progress learners, but those of average ability as well. “I believe we can do more to level up the math proficiency of average learners too. This research can be a strong advocate for teachers and educators to reflect on their current teaching and learning approaches, and see what can be changed such that learning is maximized for all learners.”



About the Interviewees

Iza Mariah and **Joyce Ye** are Math teachers in charge of the Learning Support for Math programme in each of their schools, Elias Park Primary School and North Spring Primary School, respectively. **Jesslyn Goh** is Head of Mathematics Department at North Spring Primary School.

CELEBRATING 15 YEARS OF SINGTEACH

Did you know that this year marks the 15th year of *SingTeach*?

To celebrate this milestone, we are sharing a series of photos of individuals who have made an impact on the publication in one way or another.

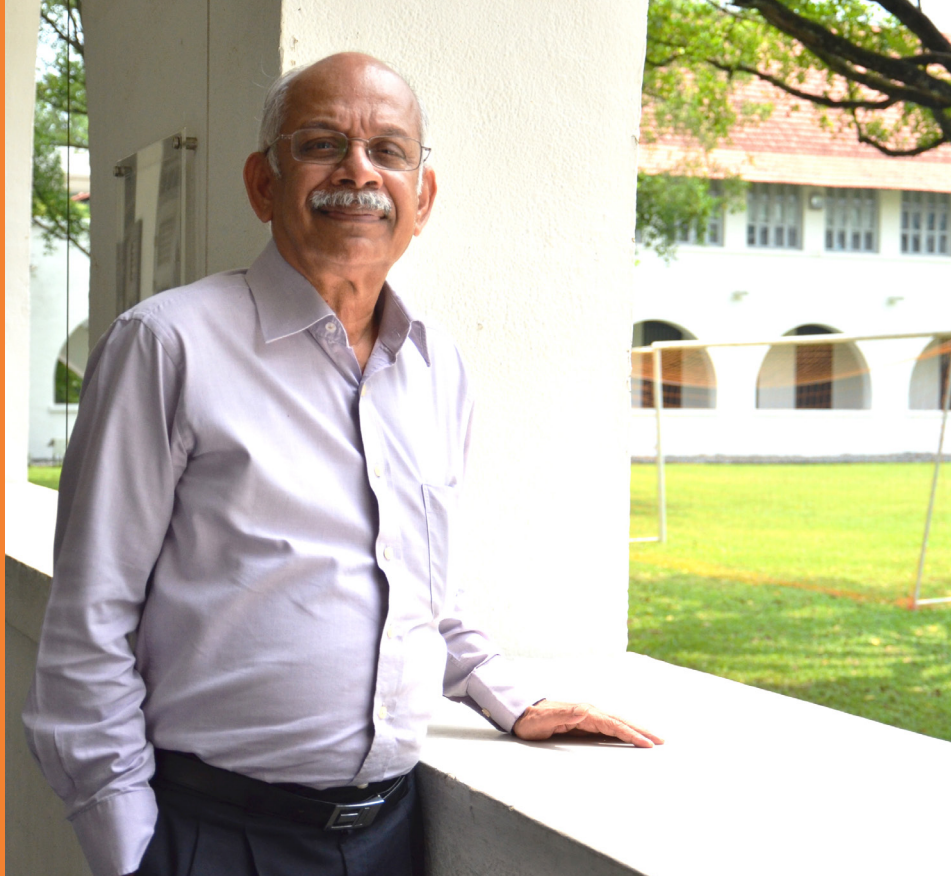
For starters, we are featuring our Founding Editor who started it all 15 years ago. Professor S. Gopinathan, who was then Vice-Dean with the Centre for Research in Pedagogy and Practice at NIE, saw the need to spread the word about education research done locally and how practitioners can benefit from them.

As a strong advocate of practice-oriented educational research, he kick-started *SingTeach* as the first ever online publication that specifically targets local educators. With that purpose in mind, the bridge between research and practice was firmly laid in place and put easily within the reach of local educators.

Join us in our year-long celebration by following us on our new Instagram page (@singteach_oer).

Have a message for *SingTeach*?

Drop us a message on any of our social media account or email us at sgteach@nie.edu.sg.



We want more educators to base their decision on evidence, or at least be informed. If we want to improve any kind of teaching, we really require exposure to evidence. Now, many educators get their evidence from textbooks or journal articles. But these articles may not be specifically about research in the Singapore context. *SingTeach* is therefore signalling to teachers that it's not that the best Math research comes out only from China, the US or the UK; we're also doing Math research here!

We have to look at the next phase of Singapore's education development. Every 10 to 20 years, there're new educational challenges. The nature of our student body is different. Technology is changing communication patterns. *How do we understand the changes in our students, and the purposes for which they come to school? What about the nature of teaching and the focus on learning?* All these things are relatively new and challenging old fields of teaching and learning.

How are we going to find a pathway without research, without data, without analysis by people who understand the context, who have gathered the data and talked to students and teachers? So I see the context changing. I see the demand for answers going up, and therefore I think researchers have a big challenge and opportunity to influence the direction of teacher education and the future of education goals.

Professor S. Gopinathan
Founding Editor of SingTeach



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