



## HotTOPIC

## Teaching in New Times

*"The environment of the 21st century has shaped the way we learn," says veteran educator Ms Ek Soo Ben. What is it about the 21st century that sets it apart from previous eras? And how has that changed the way we teach? We explore perspectives on teaching in these new times.*

From her vantage point as a former teacher, principal, and now as a Deputy Director at the Academy of Singapore Teachers, Soo Ben has witnessed many changes in our education landscape.

One could say that her experience in the field is wide-ranging, but she would beg to differ.

## Learning from Experience

"I won't use the word 'experience' because your experience is situated, it's contextual. Very rarely do you have an experience that is going to be replicated, like a science experiment," explains Soo Ben.

According to Soo Ben, your experience is only as good as the lessons you've learned from it. "From that experience you have extracted the knowledge, skills and attributes that you can transfer. The learning is more important than the experience."

She adds: "You are not replicating the experience—you are actually enhancing your own capacity to meet with a new one!"

## Dealing with Complexity

Not one to keep still, Soo Ben brims with an enthusiasm for learning from new experiences. And these opportunities abound in the 21st century, where the pace of change seems to have accelerated exponentially.

In this new environment, no one person can claim dominion over every aspect of knowledge. And in today's workplace, it is common to work in teams—often in multi-generational teams—which allows us to tap on each other's knowledge and skills.



**We don't just teach the subject, we teach the child.**

**- Ek Soo Ben,**  
Deputy Director/  
Standards and Research,  
Academy of Singapore Teachers

## Towards Great Teaching

- >> How has teaching changed in the 21st century?
- >> What does it take to master the craft of teaching?
- >> Are there better ways to communicate Math concepts?
- >> How can Science teachers become learners?
- >> Where does good language teaching begin?

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"We're not negotiating in the same environment as we used to," she notes. "Some things are less obvious, less predictable, and you just have to respond."

We are also dealing with students who are more informed and increasingly critical. "You may still have the same skills, but the complexity of the skills and the ability to integrate the skills to make meaning in our teaching has become more demanding."

### Dealing with Change

For Soo Ben, it's all about the mindset, rather than a skill set. "Skills can be taught, but none of us actually are born with skills."

Practically, this means that teachers need to grow their repertoire of skills—and that means continually learning new skills and honing the old—in order to help students make connections and integrate what they are learning.

This willingness to learn is something Soo Ben recommends to all who teach.

"We must continue to learn, not because this is the latest buzzword or flavour of the month. But rather, if we stop learning, stop getting acquainted with the word 'change', the less likely we're able to accept what comes before us."

"You cannot know everything, neither can you experience everything," she adds. "But at the same time, it doesn't mean that you cannot be aware of other things."

### Imparting Values

Clearly, the changing environment of the 21st century has shaped the way we learn—and therefore, the way we teach. But beyond the learning of knowledge and skills, Soo Ben brings us back to the purpose of education.

"We don't just teach the subject, we teach the child. When we teach the child, whether it's the 21st century or the 20th, there are certain things that will always be evergreen."

The "evergreens" include values and beliefs that teachers themselves exemplify as individuals. "What we need to get the kids to do is probably what we need to get our teachers to role model," notes Soo Ben. "You need to be seen."

We role model collaboration, leadership, resilience, innovation and creativity in the very way we work—and our students are watching. Soo Ben reminds us, "To get the kids to function in the 21st century, the teachers' roles are very important."

**Ek Soo Ben** is Deputy Director of the Standards and Research Branch at the Academy of Singapore Teachers (AST). AST was set up to spearhead the professional development of teachers in Singapore. She has been in the education service for 25 years. The first 13 years were spent teaching in a junior college, after which she was appointed Vice-Principal and Principal of a secondary school.

## TeacherED

### Mastering the Craft of Teaching

*We've come a long way from the days when teachers merely pushed content from the textbooks to their students. Today, it's about mastering both the art and the science of teaching. For Principal Master Teacher Charles Chew, the key lies in bridging research and practice.*

Charles is well-versed in the interplay between the science of teaching—the pedagogy—and the art of teaching. His secret lies in using research to inform his teaching practice and to develop himself as a professional.

### Teachers as Learning Experts

The challenge for teachers today, says Charles, is to become *learning experts*. That means having deep subject mastery. But that's just a starting point.

To be learning experts, teachers need to keep growing in their knowledge of both the subject and a wide repertoire of teaching strategies.

"Master the craft of teaching," advises Charles, who has over 20 years of experience in teaching and education research. But this is not enough for this "chief pedagogue". "You still need to have an art of teaching, which is unique to each of us."

His vision is for every teacher to be a " $\pi$  professional", referring to the need for a strong theory–practice nexus. The horizontal stroke of the mathematical symbol

#### Article highlights

- How can professional development transform teaching?
- What is the role of the 21st century teacher?
- How can teachers inspire students to attain deep learning?

represents the link between the two vertical strokes, which stand for teaching scholarship and research scholarship. Both are needed.

### Transformative Professional Development

Charles' answer to mastering the art of teaching is professional development (PD), specifically "job-embedded research". "PD is getting more job-embedded," he says, noting how PD today has taken a new direction.

All teachers can engage in such practice-embedded research as a form of PD. Charles suggests that "creative collection" of data in the course of teaching, such as the use of post-it notes, can be used for research that informs our practice.

This requires teachers to be reflective practitioners. Reflection after each workshop—and sharing of those reflections with a community of learners—is as important as the learning experience itself.

"It's not just attending a workshop. You need to reflect, if not it won't lead to new comprehension."

Charles points out that PD not only shapes what you do but also who you are—your very identity as a teacher.

"Learning begets identity, and identity begets learning. Being precedes doing, and doing shapes the being," he says. "As you talk to your students, you construct understanding of the subject and learn about yourself at the same time."



Facilitate students in connecting all that they know...to achieve deep understanding.

- Charles Chew,  
Principal Master Teacher/Physics

### Five Steps to Transforming Teaching

The Academy of Singapore Teachers hopes teachers can engage in a "5C Approach to Transformative PD". This will enable them to keep learning—from each other and on the job.

#### Curious

Be aware of your ideas and be curious to find out about new ones.

#### Comprehend

Seek to understand these ideas and be able to articulate them to others.

#### Convinced

Believe that you can adapt new ideas to fit into your context and existing beliefs.

#### Contextualized

See these ideas as useful in helping you understand what you say and do.

#### Changed Practice

Apply the new ideas to become a more skilful teacher and transform your practice.

### Learners in a Digital Age

A teacher has to be an expert in the subject. This hasn't changed despite the changing education landscape. What has changed, though, is the profile of learners.

With information readily available on the Internet, students no longer come to class as the proverbial blank slates. But what they have are "bits and pieces" of information.

The teacher's role, says Charles, is to enable students to connect these fragments of information into structured concepts and principles. "You have to facilitate students in connecting all that they know in a meaningful manner to achieve deep understanding."

Teaching for deep understanding starts from the learner—what they know and are interested in. The teacher is always asking: How can knowledge be transformed into deep understanding?

"The teacher must have the ability to transform the deep insights into simpler terms, to make it comprehensible, to bring about deep understanding in such a way that students are inspired to find out more on their own."

### A New SPIN on Learning

Charles explains how the use of learner-centred methods that are informed by research can help students achieve deep understanding. He recommends a simple and effective way to give learning a new "SPIN".

"SPIN is a learner-centred approach that focuses on the **S**trength, **P**rior knowledge, **I**nterests and **N**eeds of the learners." This helps students to connect what they know and to structure their understanding.

### Useful References

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**Charles Chew** is Principal Master Teacher/Physics with the Academy of Singapore Teachers. He has been a junior college teacher, head of department and Vice-Principal of a secondary school, and lecturer at NIE. He continues to be actively involved in research as he believes in the importance of bridging the theory–practice nexus for effective teaching and meaningful learning.

Teachers can further make learning “FREE”, says Charles. “Make learning meaningfully **F**un to engage their emotions, make it **R**elevant to their daily lives, **E**voke their imagination to foster curiosity, and **E**ngage their various senses so that learning can be experiential.”

Methods like SPIN and FREE not only help to connect students’ knowledge, but also to connect teachers to students. Because even in the digital age, inspiring teaching begins face to face. “Some students will learn because of the teachers.”

As pedagogical models change with the changing profile of learners, teachers have to continually construct new knowledge and connect it to their teaching practice. It is no wonder that Charles thinks PD is the answer for the modern teacher.

For Charles, effective PD for teachers should result in changed practice. “They must have conceptual change in understanding and it must also lead to change in practice.” This will transform your teaching and their learning.

## MathED

### New Ways to Learn

*Clear delivery of content used to be equated with good teaching. The teachers of today, though, are going beyond that to engage their students in the Math classroom. Master Teacher Cynthia Seto points the way.*

When Cynthia started teaching in 1979, she used vanguard sheets to create charts for her Math classes. Teachers now can easily do much more using computer software.

Resources are not the only difference between then and now. On pedagogy, she notes: “The emphasis was on clear delivery to the children, with very explicit examples. I’m not saying those are no good but now we need to go beyond that to engage them in learning.”

#### Engaging Students

As Master Teacher, Cynthia mentors fellow Math teachers. She also seeks to promote teacher leadership and ownership of their professional development through networked learning.

As she sees it, “going beyond” the clear delivery of content means the role of the teacher has expanded. “Not only do we need to be good teachers, we also need to be facilitators and co-learners.”

This means teachers have the opportunity to interact and learn with their students. And even though we want students to be self-directed learners, teachers should observe the students and know when and how to step in to guide them along.

“When to scaffold and when to let go a little bit for students to explore, to make sense of their learning, and when to give the right amount of practice, which is very important in Math,” she elaborates.

#### Engaging Technology

Another way to engage students is to make use of what they like—technology. “Those children, when you give them computers and technology, their eyes will sparkle!”

Teachers are encouraged to tap on information and communications technology (ICT) to enhance students’ learning. Cynthia gives an example of how she would teach the concept of  $\pi$  ( $\pi$ ) to a Math class today.

Give each student a string to measure the circumference and diameter of a circular object, such as a coaster. Then get them to divide the circumference by the diameter, and enter the data into an ICT platform that allows real-time sharing of information and facilitates the analysis of the underlying mathematical relationships.

“With technology, it enables the children to have access to others’ data. When you have multiple data, it helps them to be able to see different perspectives and patterns, to come to a conclusion, and to generalize.”

#### Article highlights

- How can Math teachers engage the 21st century student?
- How can technology help students learn better?
- How can we help students become effective communicators in Math?



Not only do we need to be good teachers, we also need to be facilitators and co-learners.

- Cynthia Seto,  
Master Teacher/Math

"We want to engage the students in this way because we want them to develop this kind of thinking, to identify patterns and see relationships," Cynthia explains. "These are important skills they need to have in the 21st century."

### Learning the Language of Math

In the 21st century classroom, we also want our students to be able to justify their solutions, besides giving the correct answers. They should be able to solve the Math problem *and* explain how they did it, explains Cynthia.

Students also need to communicate their thought processes, especially for problem sums. To achieve this, teachers need to help them learn the *language* of Math.

Getting students to be peer assessors can help them become effective communicators.

For example, the teacher can get one student to pose a Math problem. The rest of the class then uploads their solutions using an ICT-sharing platform. The first student then acts as a teacher and explains why each answer is right or wrong.

"We want children to have this disciplinary thinking in Math, to see situations and generalize, and to summarize what they have learned. At the same time, we also want children to be able to communicate Math effectively to one another."

### Engaging Other Teachers

What makes a good teacher? And what advice would she give to fellow teachers who want to teach well?

"Number one, you need to read up," says Cynthia. "Read not only about pedagogy, but in terms of your own content knowledge. Content knowledge is a non-negotiable."

Besides having strong subject mastery, teachers need to have a good understanding of the learners and the learning environment. That means understanding the social, psychological and pedagogical contexts in which learning occurs and how these affect student achievement and attitudes.

"The other important thing is to have conversations with like-minded people, so that you can exchange ideas and know what's happening," recommends Cynthia. One of the best ways to do so is to engage in research.

Research can "sharpen your senses, and develop 'eyes' to see what is happening in the classroom". In this way, teachers will not just be able to deliver a lesson clearly, but also develop a clear vision of how various teaching strategies can benefit their students.

With these in mind, teachers will be able to ensure that they are teaching to the needs of the students and to make sure they are ready for the world beyond the classroom.

**Have conversations with like-minded people, so that you can exchange ideas and know what's happening.**

- Cynthia on how to become a better teacher

**Cynthia Seto** has about 30 years of teaching experience. She started out teaching Math and Science in a secondary school and switched to primary school Math 5 years later. She actively incorporates ICT in her teaching and has received several awards for her efforts.

## ScienceED

### A Time to Learn Together

**Developing self-directed and independent learners is the goal of teaching today as these are important 21st century skills. Master Teacher June Wong tells us how we can teach strategically to enhance learning.**

During her early teaching years, the classroom was quite different. "Back then it was always teacher talk, always teachers dishing out everything," June recalls. "The teacher was the dispenser of knowledge."

But those days are over. "Nowadays, when you go into the classroom, the teachers are also learning along together with the students," she notes.

### Critical Learning Outcomes

June taught in schools for about 30 years before she became a Master Teacher. She often has conversations with teachers to find out about their training needs and conducts workshops to address those needs.

#### Article highlights

- What learning outcomes do we want for our Science students?
- How can teachers be active partners in students' learning?
- How can teachers themselves become better learners?



While the pedagogy changes, the way we assess must also change.

- June Wong,  
Master Teacher/Biology

**June Wong** has taught secondary school students across different levels and streams. She was also one of the pioneers in an Integrated Programme school and was involved in creating the curriculum from scratch. She is well-versed in different pedagogies, such as inquiry-based learning, problem-based learning and critical thinking.

A question she often gets is: What do you coach beginning teachers on?

“Questioning techniques are very important for them,” says June. There is a tendency for beginning teachers to “give everything to the students”, she observes.

But questioning techniques are just as essential for experienced teachers, to know when to pause at strategic points and pose the right questions to stimulate critical and productive thinking. In this way, students stay engaged and focused in generative discussions.

Students are now *active* partners. “When students become more self-directed, they are able to pose their own questions and become responsible for their own learning. We also have to create opportunities for them to work in teams, so students become collaborative learners as well.”

These skills are particularly relevant in the Science classroom. “In Science, it’s a lot about inquiry—you ask a lot of questions. That will drive them to want to learn, to investigate.”

That’s not all. Students need to apply what they’ve learned to new situations. For example, after students have done research on deep-sea creatures, they can then be tasked to create their own creatures, applying the principles of adaptation.

### Directing Student Learning

While we want to encourage more self-directed learning, June cautions against leaving the learning entirely up to the students. To her, that’s not self-directed learning.

“There is a time for teaching,” she explains. There are times when we still have to teach certain concepts up front. This is usually foundational knowledge that students need to fall back on and build upon as they navigate the learning process.

We can think of the learning process as a series of tasks that slowly build up their capacity to do the final task.

Another important aspect of teaching is assessment. “While the pedagogy changes, the way we assess must also change,” June points out.

“We don’t wait until the end and give students a summative test. Along the way, we give them feedback so that they can grow.”

To facilitate growth, many teachers today use *assessment for learning*. Teachers can provide timely feedback throughout the learning process to guide them, and to help them know how they’re doing.

Teachers can also give more detailed feedback rather than *good, bad or poor*, advises June. “Students will not know exactly where they’ve gone wrong otherwise.”

### Teachers Learning Together

As a mentor of teachers, June believes that teachers themselves need feedback. It can come from anyone, be it students or colleagues.

Being open to feedback paves the way to more learning. Constructive feedback also encourages teachers to look for alternatives that can improve their practice.

June suggests that teachers work together as a team so that they do not feel so alone. One good way for teachers to learn together is to try out a new pedagogy.

“For teachers, learning is not just about going to workshops, or going for a course,” she explains. “They can engage each other within their school, or within their department. They can work together and learn together as a team.”

Just like their students, teachers can benefit from collaborative learning. They can come together to discuss what went well and what didn’t after trying a new approach. “There’s a lot of learning that way,” she says.

She gives another example of doing a literature review together. “When you work together as a team, different people do different parts. You share the load of reading, and then you come together and share, and that sharing becomes very rich.”

And teachers should continue to learn, because the work they do in the classrooms continues to be vital. As June sums it up: “The teacher factor is very, very important—to be there at the right time and at the right point, to guide the learning.”



## Developing Effective Communicators

*Ask any teacher where they start when crafting their lessons and chances are they'll tell you—the syllabus. But while a good syllabus is important and teachers depend on it as a guide, Principal Master Teacher Ang-Tay May Yin says that's not the solution to good teaching. So, what is?*

May Yin has been a teacher, curriculum planner, specialist inspector, school leader, teacher educator, and is now a teacher mentor.

She has a keen interest in designing and developing curriculum and was involved in the development of the 2001 and 2010 English Language (EL) syllabuses. Both syllabuses were designed with the aim of developing students to use English effectively.

While a syllabus is critical for describing what students should learn and how teachers should teach, May Yin acknowledges that even the best syllabus is not the be-all and end-all of good teaching.

“Drawing up the world’s best syllabus is not the solution to improving the learning of our students,” she says. “What really matters is a collaborative partnership with teachers to improve teaching and learning.” Such a partnership involves co-teaching, coaching and role modelling.

May Yin brings over 20 years of experience—and lessons learned in curriculum development—into her current position as Principal Master Teacher with the English Language Institute of Singapore (ELIS), which was set up to drive excellence in EL teaching and learning in Singapore schools.

### Effective Communication

What is the aim of good language teaching?

“The aim of language teaching is for our students to be effective communicators in English, which is an important and necessary 21st century competency,” says May Yin. “This is what EL teaching has always been and is about—that our students are able to communicate effectively in English.”

But while the goal is still the same, our approach to EL teaching and learning—and thus our policies and syllabuses—would invariably be influenced by global and national concerns, the changing role of English in Singapore and the world, the needs of our students, and developments in language research and pedagogy.

Because English is not the home language of all our students, the teaching of EL must take into account our multilingual context. This means that we need to build in our students a strong foundation in language skills, grammar and vocabulary, which is the prerequisite for effective communication.

### Skilful Teaching

So, what should EL teachers know and do in order to develop our students to be effective communicators?

For May Yin, a syllabus is only good when the learning outcomes in it are realized through skilful teaching.

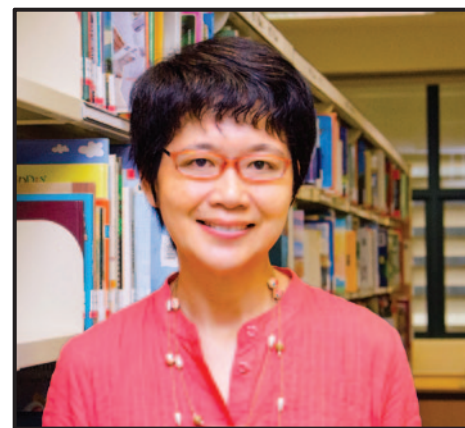
For EL teachers, this means having a strong foundation in three areas: knowledge of subject content, knowledge of pedagogy, and knowledge of the use of information and communications technology (ICT) to enhance the teaching of English.

“I believe that the EL teacher today must have deep knowledge of subject content for it is fundamental to EL teaching and learning. This means having a firm grasp of fields such as phonetics and phonology, grammar, semantics, and pragmatics, psycholinguistics and sociolinguistics.”

In addition, EL teachers must have knowledge of the theories of language learning and know how to apply the “Principles of EL Teaching and Learning”, which are articulated in the *English Language Syllabus 2010* (MOE, 2010, p. 11).

### Article highlights

- What is the aim of good language teaching?
- What should English Language teachers know and do?
- Is there a 21st century pedagogy for language education?



The aim of language teaching is for our students to be effective communicators in English, which is an important and necessary 21st century competency.

- Ang-Tay May Yin,  
Principal Master Teacher/  
English Language

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Development Division, MOE.

**Ang-Tay May Yin** is Principal Master Teacher/English Language and Programme Director of the English Language Institute of Singapore (ELIS). Her experience includes teaching at the secondary and pre-university levels. She was a Senior Curriculum Specialist, Assistant Director/English Language and Assistant Director/ Curriculum Policy and Pedagogy in MOE's Curriculum Planning and Development Division. She has also been a Senior Lecturer with NIE's English Language and Literature Academic Group.

## A Balanced Approach

Knowledge of subject content will improve teachers' pedagogical practices.

"EL teaching is not just about having students complete worksheets and do written exercises," says May Yin.

"Teachers have to explicitly teach language skills, learner strategies, and knowledge about language to their students. They need to consciously impart processes that will help students become self-directed and self-aware."

These processes include teaching students how to read critically, pose critical questions, and interpret and evaluate the text that they read. May Yin emphasizes, "There has to be a balance between process and product."

## A Principled Blend

Is there a 21st century pedagogy for EL teaching?

For May Yin, this is encapsulated in the EL Syllabus 2010 recommendation that teachers adopt a "*principled blend* of first and second language teaching methods". This pedagogy may be described as *principled eclecticism*.

To effectively blend teaching methods, teachers need to have a wide repertoire of teaching approaches.

At the same time, they must know how to make informed choices about which teaching approaches would be appropriate for their students, be able to articulate why they made those choices, and apply them according to the learning context and the learning outcomes to be achieved.

To do all these, they must have a strong foundation in the three areas that were mentioned above.

May Yin cautions teachers against being "faddish" in their pedagogical choices. "What matters is whether students' needs, abilities and interests are catered to. Teachers have to make sound decisions on what best suits their students."