



HotTOPIC

A Teacher at Heart

You can take a teacher out of the classroom, but you cannot take the classroom out of a teacher. This is true of Associate Professor Sylvia Chong—academic, researcher, and teacher.

Research and practice can and must go together, says Sylvia. At its most basic, it is about reflective teachers, improving their teaching practice based on an understanding of the data and facts. It is that simple.

Gathering evidence-based feedback and evaluating such data are very much part of her current and previous portfolios.

As Deputy Head of Academic Quality Management, Sylvia plays a key role in ensuring NIE's academic quality. She had also been closely involved in the development of teacher education programmes at NIE.

"I am first a teacher," she says, "a reflective teacher who uses the data gathered from systematic reflections for decision-making and to improve practices. That is the basis of what I do."

Q: Tell us more about your background in education.

A: I was a music teacher. I was initially prepared as a primary school teacher but was posted to teach in secondary school after I completed my Master's. I taught Music, Literature and English.

After completing my doctoral degree, I joined the Music unit at NIE. In 2003, I became the PGDE Sub-Dean and subsequently the Associate Dean at Foundation Programmes Office. In July 2009, I became Deputy Head of the Office of Academic Quality Management.

Q: What is your view of research?

A: A key role of research is to improve practices, towards innovative and effective teaching and learning.

In many ways, in our day-to-day practices, we are all doing some form of research. Every teacher does it! When I enter a class, I look at my students, I systematically gather data about my teaching and my students' learning.



A key role of research is to improve practices, towards innovative and effective teaching and learning.

- Sylvia Chong,
Office of Academic Quality
Management

Talking about Research

- >> Why is education research so important?
- >> What can such research bring to the classroom?
- >> How can teachers engage with research?
- >> What benefits can teachers gain from research?
- >> What is the relationship between teachers and researchers?

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Research occurs when teachers consciously take on the role of reflective practitioner, subject their own beliefs about teaching and learning to critical analysis, take full responsibility for their actions, and continue to improve their teaching practice.

Q: Why is this “research” so important?

A: Many a time, we make decisions based on anecdotal evidence or feedback. This is where the concept of “evidence-based” comes in, the use of evidence-based practices in planning and development.

When I was with the Programmes Office, a key question I constantly asked myself was: What is the basis of the programme development or innovation?

For me, it started with “functional” data, like admission and graduation data; looking at the profiles of the student teachers towards programme feedback and evaluation. I wanted to know where and what the evidence was.

I began looking at trend data as I needed the historical research to make decisions. I needed the “analytics” to guide educational decisions regarding teaching and learning approaches, strategies and interventions.

Q: How has your teaching experience affected the way you view research?

A: I am quite big into evidence or data for process improvement—quite different from innovation research. I am referring to research data that supports decisions, that supports process and practice.

What do our students think of our programme and how can our programme improve? Do they find what we teach relevant or are we backdated?

In a world with increasing focus on accountability, evidence-based practice is becoming an integral part of curriculum development. But this doesn't mean that every teacher will be conducting rigorous research studies. Instead, it means that educators should be carefully planning activities and making data-driven decisions.

Q: How can research improve teaching and learning?

A: Teaching and learning is improved if teachers have reflective and inquiring minds. For teachers, that self-inquiry and critical thinking can help them move from a level where they may be guided largely by impulse, intuition or routine, to a level where their actions are guided by reflection and critical thinking.

I'd like our teachers to be thinking and reflective teachers. I hope they can look at research data and findings, see the relevance to their schools, and translate it to action research with their own schools. We need them to develop one level further, into critical users of the findings.

The use of reflective practice and action research in teacher professional development is based on the belief that teachers can improve their own teaching by consciously and systematically reflecting on their teaching experiences.

Q: How can teachers acquire these skills?

A: I think teachers need to be able to see value in research. This can be built up with lots of reading. However, teachers are too busy to read. There is no time to smell the roses, and the roses are in all the research literature.

I used to—and still—look at a research article, read it two or three times, and not understand what it means. I am sure many teachers feel the same way.

But through research processes—planning, observing, analysing and reviewing—teachers can learn a great deal about the nature of classroom teaching and learning, and also acquire useful classroom investigation skills.

Teaching and learning is improved if teachers have reflective and inquiring minds.

- Sylvia on how research can improve teaching and learning

Sylvia Chong is our Hot Topic Editorial Adviser for *SingTeach* in 2011. She is currently Associate Professor and Deputy Head with the Office of Academic Quality Management at NIE.

LanguageED

Linking Learning to Life

Warren Mark Liew is Assistant Professor with NIE's English Language and Literature Academic Group. His early ambition was to be a professor of English Literature specializing in English Renaissance poetry. All that changed when, he says, "I started teaching and experiencing the real challenges of classroom teaching."

It all started with a love for literature—and a desire to make the subject come alive for his students.

Formerly a secondary school teacher, and now a teacher educator at NIE, his teaching philosophy is to make learning real and relevant, both for himself and for his students.

“Like any subject in the school curriculum, the study of teaching should be made real,” says Warren. “There’s a need to join theory and practice; not see them as dichotomous.”

Q: Is there an area of education that you are especially interested in?

A: I am interested in how teachers can dissolve the barriers between the school and the larger world outside the classroom.

This goes back to the educational tenets of thinkers like John Dewey, who believed that life in school should not just be a reflection of life in society, but also assimilate the elements of that larger reality. As a microcosm of the real world, the school should prepare students for the demands and responsibilities of real-world citizenship.

Q: Why are you so passionate about this?

A: It grew out of an ongoing conviction that I wasn’t going to learn anything in school if I couldn’t see how it affected me in real life.

The subjects that captivated me most were those that made me think and feel, that made the vital connection between my intellectual and emotional life. So Literature was my favourite subject. It made me think and feel deeply about the lived realities of the human condition.

Now, I want to do the same for my English language and literature students what my best teachers did for me. I want students to see the significance of what they are studying in relation to a world beyond that of assignments, examinations and grades.

Q: How did you come to be interested in education research?

A: I had the good fortune of being in an independent school that valued research pursued by teachers as part of an ongoing professional development programme.

One of the requirements of the programme was an independent school-based research project, where teachers could analyse and evaluate elements of school curriculum, or conduct action research on their own classroom teaching. Teachers were also encouraged to present their research findings at local conferences.

Over the years, I became excited with the possibilities and implications of teacher-led research, particularly the idea that teachers themselves can be stewards of their own professional learning, and sponsors of school-wide curricular reform.

Q: How has your teaching experience affected the way you view research?

A: As a school teacher, I was still very interested in research and scholarship. I didn’t want to give up that part of learning, and tried to read books and journal articles whenever I could. Teaching is such a busy job that there is hardly any quality time to do this, so it is good to have a school culture that actually encourages that.

My teaching experience taught me to value the role of research in enhancing teachers’ professionalism. I think teachers need to have that kind of intellectual stimulation, the same kind they provide for their students.

If all they do is just teach to the test, or win performance awards and plaudits, then they become no more than passive administrators, rather than thinking professionals like doctors and lawyers.

Q: What do you think research can bring to the classroom?

A: This has to do with the so-called theory-practice nexus. To what extent can theory truly benefit practice? How does practice relate to theory?

The traditional notion is that theory is the knowledge that has been scientifically gathered by researchers and put out there in scholarly journals and books for practitioners to apply. According to this view, good teaching practice ought to be a reflection of good theory.

The more progressive position—and the one I subscribe to—argues that both theory and practice are mutually informing. Theory is knowledge that has been systematically codified and disseminated, but that knowledge alone is not sufficient to carry on to good practice. Theory is always in the process of evolving and changing, and practitioners have a leading role in advancing this process.



My teaching experience taught me to value the role of research in enhancing teachers’ professionalism.

*- Warren Mark Liew,
English Language and Literature
Academic Group*

Warren Mark Liew is our Language Ed Editorial Adviser for *SingTeach* in 2011. He recently joined NIE as Assistant Professor with the English Language and Literature Academic Group. He taught in a secondary school before pursuing his PhD.

Teachers should be excited about research. For those really interested in research, it will be a transforming experience.

- Warren on the benefits of research

Q: What does this mean in practical terms?

A: At the end of the day, practice has the ultimate say. Real-world practice can always refine and redefine theory. And I think academics can learn a lot from school teachers.

Going into the classroom is a reality check. It's hard to fully comprehend the complexities and challenges of teaching otherwise. It's not so easy to be a theoretician or an academic, to write papers and read, but it's even more difficult to practise what you preach.

It would be ideal to have researchers go back to the classroom every now and then and do the work of teachers, and for teachers to exchange places with academics and do their kind of work in return.

Q: How can teachers engage with research in education?

A: I think it has to begin with a research culture in schools that prizes teachers' active engagement with scholarship, and encourages them to adopt a stance of active and critical inquiry in their everyday work.

Research shows that the way to make teachers more professional is to have a learning programme that is sustained and ongoing, that makes teachers constantly reflect on their work in light of new knowledge. Professional development is about empowering teachers to be knowledge producers and not just knowledge consumers.

There ought to be a practicum element even in one-shot in-service workshops and seminars. Teachers shouldn't just go to conferences to listen and enjoy the buffet lunches. They should go to these conferences to present their classroom research. It helps when they have audiences who are willing to critique their work and make them accountable for their research findings.

Q: What do teachers stand to gain from this?

A: I understand that not many teachers have an appetite for research, partly because of the misconception that theory is esoteric and academic, whereas practice is relevant and real.

Teachers should be excited about research. For those really interested in research, it will be a transforming experience. Research can stand to benefit teachers if teachers think of themselves as researchers in their own right.

ScienceED

Where Research and Teaching Meet

What happens when you put an industrial chemist in a classroom? For Dr Tan Kok Siang, it sparked off a chain of events that led to his pursuing a PhD and an academic career in education.

To tell of all the events that led to this former chemist becoming a teacher of teachers would take too long. Upon reflection, Kok Siang says it has been a happy meeting of his interests in science and education, learning and reflection, teaching and research.

When asked which interests him more—teaching or research—Kok Siang is hard-pressed to give an answer. “My interests in research and teaching are related,” he says. “I’m still a teacher!”

Kok Siang's passion for relating learning with research and with the real world is clearly evident. For him, knowledge must resonate with life.

Q: Tell us more about how your interest in research developed.

A: I was always interested in lab work because I'm trained as a chemist. So when I joined teaching, and I realized that it was an important part of the science curriculum, it got me thinking about how we can make science meaningful to the students through lab work.

When I came into NIE and embarked on my doctoral research, it so happened that at that time, the national curriculum was reformed to include school-based science practical assessment. I zeroed in on how students designed science experimental set-ups to solve a lab practical problem.

This led me to problem-based learning, which I realized is very relevant to lab work. Basically, every lab activity we do in the industry has to do with solving problems.



My interests in research and teaching are related. I'm still a teacher!

- Tan Kok Siang,
Natural Sciences and Science
Education Academic Group

I was interested in how this could be applied to young learners and chanced upon some literature on reflective learning.

Q: You seem to be very passionate about reflective learning. How does reflection improve learning?

A: When you make students reflect, they ask very interesting questions. And from my teaching experience, I've found that reflecting really improves on their quality of thought, even in adult learners. Why? Because they see things they didn't see before. This gets them excited, and they ask more questions. So in a way, it raises the level of awareness and the level of energy.

Now that I've completed my doctoral research, I'm moving on to other areas like reflective assessment—that is, how we can assess students on their learning through a reflective approach.

When some teachers came to know about this, they were quite interested, especially with the Ministry's focus on 21st century competencies. While I am not suggesting a reform in assessment now, we can at least help train students to be more reflective.

The more inclined a student is to reflection, the more likely the student would be able to generate relevant information to solve a problem. If students have this habit of learning, I think it will help them to be more effective in handling life's challenges.

Q: Why do you think teachers are apprehensive about doing research?

A: I think many teachers feel that research is about all these big projects, and they don't know where they fit in. So, you've shared a paper—what's next? How does this help me? They can't see themselves plugged into it because they can't see the connection between the research and practice.

Going back to my work experience as a chemist, when my clients had a problem and needed to solve it quickly, they would go to the developmental scientist, not the research scientist. The research scientist required more time and resources, and the take-back could not be guaranteed. But the developmental scientist would look at the problem and deal with it straightaway.

Back to the classroom, research in education can be seen as basic research and action research. When a problem occurs in the classroom, you can't say, "Look, something fundamental is wrong and we need to stop and fix it first." Basic research can help, but it's going to take years.

With action research, you are doing research as you are teaching. I see it as parallel to the developmental work that is done in the industry. Being at the forefront of teaching, teachers should be actively engaged in action research in order to improve your teaching. It will be able to help your students' learning and, at the same time, it will also raise your profile as a professional.

Q: But teachers are so busy. How can we encourage them to engage with research?

A: I think most teachers who have not bought into research probably think that experience counts more than research. For them, seeing is believing. If they can see that my action research is showing results, that my classes are improving, they may be more inclined to try it out as well.

I try to help teachers see their place in research—how what they do will impact on their students' learning and, eventually, impact on their own professional status. If we can involve them in small ways, I think they will buy into it.

Q: So being involved in research actually aids in teaching?

A: While doing my doctoral research, I found that having more knowledge about research matters really helped me—I could see things I couldn't see before. It helped me to be sensitive to problems and the methods used to solve the problems.

I would encourage teachers to embark on basic research, but start with a personal learning interest. It also helps to form partnerships with collaborators.

Teachers are very experienced. As a researcher, I would like to capitalize on their experience. Sometimes, you need the expertise of both parties to form a good partnership.

Because we're not just teaching to deliver the curriculum—we're teaching to develop it, to improve on it, we're teaching to motivate students. Research with teaching can do this.

Being at the forefront of teaching, teachers should be actively engaged in action research in order to improve your teaching.

- Kok Siang on why teachers should engage in research

Tan Kok Siang is our Science Ed Editorial Adviser for *SingTeach* in 2011. He is a Lecturer with the Natural Sciences and Science Education Academic Group at NIE. He used to teach in a secondary school before embarking on an academic career.

Through the Lens of Research

Teaching Fellow Tan Liang Soon is always looking for possibilities. How can learning be improved? How can teaching be done differently? What else can we do? For Liang Soon, “research” is just another word for the exploration that he is constantly engaged in.



It's a two-way thing. Because when you are teaching, you understand the unique sort of challenges that practitioners face in class.

- Tan Liang Soon,
Mathematics and Mathematics
Education Academic Group

Even as a teacher, Liang Soon was always seeking ways and means to combine theory and knowledge with teaching practice and learning.

His explorations—in schools and in the Educational Technology Division (ETD) at the Ministry of Education (MOE)—have led to some innovative developments to benefit learning both within and beyond his field of Math.

When asked to describe the role of research in relation to teaching, one word says it all for him: *Significant*.

Through the lens of research, he can more clearly see what is and what can be—myriad possibilities that can significantly impact practices today and influence the future of learning.

Liang Soon has found some of his answers through integrating research and practice. His present secondment to teach Math at NIE has opened up new opportunities to bridge theory and practice.

Q: Tell us about some of the innovations you developed when you were teaching.

A: One aspect I was looking at was how we can integrate ICT meaningfully into learning and teaching. I think ICT has potential for developing certain skills in pupils. However, it needs to be undergirded by pedagogy.

In the school where I was teaching, we were exploring how collaborative learning can take place by leveraging on ICT. Because we were trying an integrated curriculum approach, we worked with different departments.

We wanted students to be engaged in collaborative problem solving across the Chemistry and Biology domains. We designed a problem task situated in a “detective game” setting. Students had to go around the school to investigate this “murder” case and, at the same time, collaborate through a virtual platform. We also created an e-Portfolio system for developing and showcasing students’ learning dispositions.

Q: Would you say your experience as a teacher influenced your research?

A: Definitely. It has helped to augment that iterative process between theory and practice in the translation research that I’ve done as an attempt to improve practice.

I’ve been involved in small-scale action research back in school, with the e-Portfolio project, which is practice-based. That was back in 2006/2007. I shared the idea at one of the CPDD seminars, and I believe the e-Portfolio team in NIE is now working with MOE to try this out. I’m encouraged to see that it is moving forward.

I was also doing programme-level research when I was in ETD, to evaluate the FutureSchools programme. We looked at various aspects, like how the ICT-enabled learning and teaching was designed and developed on a school-wide level, and the influence of school-level and environmental factors. This research was very important in informing the next phase of the FutureSchools programme.

Q: What do you think is the place of research in the classroom?

A: I feel it boils down to practice-based research. Especially when you talk about “teaching less, learning more”—teaching for understanding, effective teaching, engaged learning for the students.

If teachers at the classroom level believe in and want to work towards such meaningful and engaged learning, they really ought to see their students—whom they interact with constantly—as the best mirror of their teaching.

But in order to do so, you need to have some kind of systemic or structured approach. I’m alluding to some type of action research.

Q: You mean, teachers have a role to play in bridging research and practice?

A: It's a two-way thing. Because when you are teaching, you understand the unique sort of challenges that practitioners face in class.

But teachers can't do it alone. And researchers can't work in silos; they have to engage continually with teachers in schools. If practitioners can have that constant conversation with researchers, this will help both parties to understand each other.

Back in ETD, this was common practice. We worked with researchers to do design-based research in schools, where the researchers were really engaged with teachers on the ground, to better understand the learning and teaching needs and difficulties.

At the same time, the interaction allows teachers to better appreciate the theoretical basis that researchers come with. The teachers will see that they can learn something new if the researchers share their perspective, and they are able to link what they are doing with what the empirical evidence shows.

Q: How do you think teachers can benefit from research?

A: I think it really all boils down to teachers as reflective practitioners. It has helped me as a teacher, to reflect on my practice as a teacher. It has also helped me to view things at a macro level, like in how the FutureSchools programme was being implemented.

I am now doing an exploratory study on the mathematical modelling (MM) experiences of secondary school pre-service teachers. MM is a key component of the new Math syllabus but it is pretty new in its implementation and teachers still lack the confidence to do it. So I'm doing this study to find out how I can structure my course to impact pre-service teachers' confidence and competence in carrying out MM with their students.

So from action research in schools, to programme-level evaluation, and here with my teaching and exploratory study, I would say the whole experience has been significant.

Tan Liang Soon is our Math Ed Editorial Adviser for *SingTeach* in 2011. He was recently seconded to NIE as a Teaching Fellow with the Mathematics and Mathematics Education Academic Group. He taught in a secondary school before pursuing his Master of Science and Master of ICT in Education.

TeacherED

Seeing Research in Action

Lee Yim Ping is not your typical educator. To describe her career in education as remarkable would be an understatement. It all started with a willing heart, a questioning mind and a listening ear.

Yim Ping started off as a teacher in a junior college. Since then, she has taught at four schools (both secondary and pre-university) and served in at least three departments at the Ministry of Education (MOE). She has also obtained two Master's degrees and a doctorate in education in the process.

Currently seconded to NIE for the second time—the first was as a Teaching Fellow with the Math department—Yim Ping is now with the Centre for Research in Pedagogy and Practice.

More recently, she played a pivotal role as part of the team tasked to roll out MOE's *Teach Less, Learn More* vision to schools, particularly in developing the Research Activist programme.

All these have given Yim Ping a unique perspective on learning and teaching, as well as the place of research in all of this.

Q: Tell us more about your current involvement in research at NIE.

A: In MOE, there are three tracks for an education officer: the Leadership Track and the Teaching Track, and a third called the Senior Specialist Track was created in 2000.

Officers on the Senior Specialist Track are expected to engage in educational research with a strong focus on application. We do translation research; this kind of research informs policy and teaching.

A number of researchers in NIE offered to take some of us onboard. I work with Professor Lazar Stankov on a research project to examine how Singaporean students' non-cognitive skills differ from students in other countries.



My role in research work is to ensure that the findings can inform learning and policy.

*- Lee Yim Ping,
Centre of Research in Pedagogy
and Practice*

My role in research work is to ensure that the findings can inform learning and policy. I'm interested in understanding how schools attempt to use the findings to inform their school-based research or department curriculum projects.

Q: How has your previous experience influenced what you do now?

A: When I first started teaching, I had a principal who believed that if teachers want to be relevant and responsive to the learning needs of our students, it is important to have a deep understanding of how the learners view the way we work.

I learned a lot from him. His leadership showed me that everything is interconnected. I like to see how everything fits together. So when asked to do something new, I see it as something that would give me another perspective.

My years at MOE HQ also taught me the importance of having strong fundamentals as well as exposure on the ground. In policymaking, understanding the stakeholders is important—not just principals and teachers, but students as well.

Q: Has your teaching experience affected the way you view research?

A: Rather than how teaching has influenced the way I view research, I found that research has expanded my teaching horizon.

Research has helped me to be more reflective and critical in seeing the possibilities of improving learning and teaching. The writings of other education researchers and practitioners inspire as well as instruct me.

Through reading and doing research, I find affirmation that learning and teaching are dynamic in the way they shape the world of students and teachers.

Q: You have been actively involved in helping teachers become involved in research. Tell us more about this.

A: When the Curriculum Policy and Pedagogy Unit (CPPU) was established in 2006, we took on the Prime Minister's vision at that time—*Teach Less, Learn More* (TLLM)—and tried to make meaning out of it. What does it mean to schools?

I was working with a group of “research activists”. They are teachers who were given protected time to examine the impact of their school curriculum projects. Through the school-based research, we hoped to build research literacy among schools.

The TLLM movement encourages top-down support with ground-up initiatives. Schools were invited to propose ways to enhance the curriculum, and there would be top-down support in terms of funding, training and consultation.

Findings could be based on a small sample. Schools can try out an innovation or a strategy and once they see what works, what doesn't and what can be different, they could extend it to other classes, levels, or even other subjects.

Q: How do you see the relationship between teachers and researchers?

A: What I learned from the research activist programme is that research has a place in teachers' lives. It is not about teachers doing research from the beginning to the end but to take on roles that are meaningful to them.

Teachers bring with them “inside” knowledge of the school ecosystem. Their insights provide validation to data interpretation. They are the lens to help the researchers make sense and meaning out of the data and, together with the researcher, to plot future directions and recommendations.

Q: How do you think education research can benefit schools?

A: When I was with CPPU, we encouraged schools to share their findings. We noticed that “teacher sharing” has a stronger traction with other teachers.

What researchers can do is to first understand what is important in the school so they will be able to match it. We need to identify areas that are important to the schools, policymakers and researchers.

Research knowledge belongs to both the academic researchers and the practitioners. Teachers also feel more empowered when they have opportunities to work in partnership with academic researchers. Together, they can create a synergy that will bring education to a higher plane.

Research has helped me to be more reflective and critical in seeing the possibilities of improving learning and teaching.

- Yim Ping on the value of research

Lee Yim Ping is our Teacher Ed Editorial Adviser for *SingTeach* in 2011. She returned to NIE in July 2010 as a seconded staff with the Centre for Research in Pedagogy and Practice. Prior to that, she was involved in various projects at MOE.