
OER KNOWLEDGE BITES

OFFICE OF EDUCATION RESEARCH
NATIONAL INSTITUTE OF EDUCATION
SINGAPORE



Educational Paradoxes of the Little Red Dot: *Hugging the Middle for Educational Improvement*

An OER Signature Symposium

by David Hung, Dennis Kwek, Elizabeth Koh,
Jennifer Tan, Kenneth Poon, Tan Liang See & Toh Yancy

VOLUME 4
2017

About OER Knowledge Bites

Launched in May 2016 by the Office of Education Research at the National Institute of Education, Singapore, **OER Knowledge Bites** aims to share education research discussions and issues as seen in the Singapore context. It also serves as a platform for researchers to share thoughts and concepts of education research with policymakers, educators and the public.

For enquiries pertaining to this publication, e-mail Nur Haryanti Sazali: haryanti.sazali@nie.edu.sg

CONTENTS

Introduction	04
The Five Paradoxes of Effecting Change <i>by Dennis Kwek</i>	05
The Paradox of Pedagogies <i>by Dennis Kwek</i>	06
The Paradox of Curriculum Goals <i>by Elizabeth Koh & Jennifer Tan</i>	07
The Paradox of “What is Good” <i>by Kenneth Poon</i>	08
The Paradox of Teacher Agency <i>by Tan Liang See</i>	09
The Paradox of Status Quo <i>by Toh Yancy</i>	10
Summary and Conclusion <i>by David Hung</i>	11

Introduction

The rapid rise of post-colonial nations such as Singapore and Hong Kong is largely attributed to the quality of postcolonial systems of political and financial governance (Crabtree, 2014). “What really jumps out is that high-quality public institutions make a huge difference, whether that is political governance or in the development of financial markets,” says economist Eswar Prasad of Cornell University. “A country like Singapore puts a huge amount of effort into creating a reliable institutional framework that was able to manage growth and investment. Others were much less successful.”

Kishore Mahbubani (2014), Dean of the Lee Kuan Yew School of Public Policy says, “I fervently believe that if Singapore continues ahead on autopilot and assumes that the formulas which carried it forward in the first 50 years will also carry it forward in the next 50 years, the country is headed for trouble.”

Internationally, the Asian system is found to be quite paradoxical, but culturally, we do not give up the deliberate mastery or practice. We are not short of institutional improvements, but we are short on the translational gap. If we build the capacity for emergent improvement, the gap of translation will potentially even out, as the emergent capacity develops to be in line with institutional improvements.

Are these paradoxes enablers or inhibitors? Will they be resolved? Can they be resolved? Or can the tensions create new possibilities for the little red dot? Can teachers and the system continue to walk the tight rope between two opposing forces? Can creative

tensions lead to new educational paradigm shifts necessary to prepare our students for the future?

The series of presentations given at the OER Signature Symposium—held on 1 June 2017 as part of the *Redesigning Pedagogy International Conference* organised by the Office of Education Research (OER) at the National Institute of Education, Singapore—focused on the instructional core, with alignment to the 5 key research areas of curriculum, 21st century competencies, lower-progress learners, teacher learning and professional development, and system studies. The presentations delved into the following paradoxes, which will be covered in this fourth volume of *OER Knowledge Bites*:

- ▶ The Paradox of Pedagogies
- ▶ The Paradox of Curriculum Goals
- ▶ The Paradox of “What is Good”
- ▶ The Paradox of Teacher Agency
- ▶ The Paradox of Status Quo

References

- Crabtree, J. (2014). Five chart of history of post-colonial Asia. Retrieved from <http://blogs.ft.com/beyond-brics/2014/08/29/five-chart-history-of-post-colonial-asia>
- Mahbubani, K. (January, 2014). 2014: The year of big ideas. *The Straits Times*. Retrieved from <http://www.mahbubani.net/articles%20by%20dean/2014:%20The%20year%20of%20Big%20Ideas.pdf>

The Five Paradoxes of Effecting Change

By **Dennis Kwek**

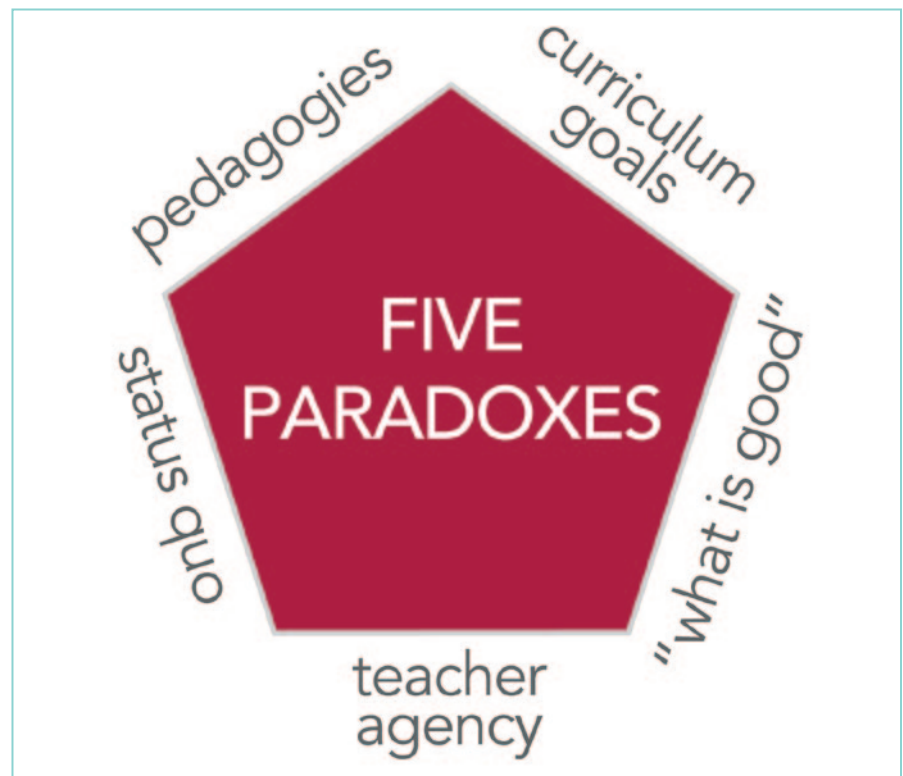
Dennis Kwek is Research Scientist and Assistant Dean of Research Communications with the Office of Education Research at the National Institute of Education, Singapore. His research interests include baseline research, system studies, school innovations, pedagogical research, asian philosophy and pedagogies, and sociology of education.

Since her independence in 1965, Singapore has made remarkable economic progress. Among all the postcolonial nations, only Singapore and Hong Kong have maintained consistent economic growth and subsequently gained the status of developed nations. The book, *Why Nations Fail*, authored by Daron Acemoğlu explains that such economic developmental success can be attributed to one key factor: good public institutions, especially economic, political and educational institutions.

Professor Kishore Mahbubani (2004), Dean of Lee Kuan Yew School of Public Policy, however warns us that Singapore's first 50 years of success does not guarantee her continual success going forward. We cannot rely on the same formula for the country's continued success; we have to constantly adapt, improve and improvise in accordance to the changing needs of the nation.

Within the education landscape, there have indeed been adaptations and improvements in recent years. Since the inception of *Thinking Schools, Learning Nation* in 1997, we have seen the introduction of the cluster system, greater autonomy given to schools and better-equipped leaders attached to schools.

Moreover, in 2005, then Minister for Education Tharman Shanmugaratnam pointed out the need for teachers and leaders in schools to generate new ideas (Shanmugaratnam, 2005). Quality in education will occur when schools and



teachers take ownership of the changes and experiments they wish to implement in the classrooms, and when they give students greater agency.

However, the process of educational change in Singapore will have its own set of challenges and tensions. There will also be increasingly the kinds of paradoxes that we are already beginning to see across the entire educational system. The five paradoxes that follows are worth monitoring as we continue in our efforts to better understand and address them.

References

- Mahbubani, K. (January, 2014). 2014: The year of big ideas. *The Straits Times*. Retrieved from <http://www.mahbubani.net/articles%20by%20dean/2014:%20The%20year%20of%20Big%20Ideas.pdf>
- Shanmugaratnam, T. (2005, September 22). *Speech by Mr Tharman Shanmugaratnam, Minister for Education, at the MOE Work Plan Seminar 2005*. Seminar conducted at the Ngee Ann Polytechnic, Singapore.



PERFORMATIVE & INQUIRY-BASED PEDAGOGIES

The Paradox of Pedagogies

By *Dennis Kwek*

Looking at research conducted since 2004 that monitors both the systems level as well as the classroom level, we are beginning to see two dominant streams of pedagogical change: One is what is known as “performative” pedagogy and the other is what is now increasingly known as “inquiry-based” pedagogy.

Performative pedagogy denotes the kinds of practices and pedagogies that are used primarily to prepare students for examinations. Such practices and pedagogies usually involve teacher-directed instruction aimed at maximum transmission of knowledge necessary for doing well in examinations. However, at the same time, we are beginning to see forms of inquiry-based pedagogy in the system, where the focus is on discipline-specific learning and conceptual understanding as a result of students’ own inquiry.

Nevertheless, it is difficult to strike a balance between these two types of pedagogy. Parents have the tendency to value good examination results for their children because Singaporean employers place high value on such quantitative outcomes. Therefore, it seems only pragmatic for teachers to prioritise performative pedagogy.

At the same time, the professional values of the vocation push teachers to go *beyond* performative thinking—to encourage students to learn, be passionate about their learning and think beyond the boundaries of their schools. These are the kinds of tensions that occur within the system. So, how then do we address them?

A substantial amount of work has been done on building research-policy practice partnerships between the National Institute of Education (NIE), Ministry of Education (MOE) and schools. The focus is not just on monitoring the system for general shifts in practices, but also on what is going on in the classrooms. In particular, the Office of Education Research (OER) at NIE is looking at and trying to understand the science of emergent improvements that are observed to be happening from the ground up.. The researchers hope to see how they can leverage on pre-existing MOE-built infrastructures, so that teachers and schools can have the kind of agency necessary to evolve their pedagogies.

The Paradox of Curriculum Goals

By **Elizabeth Koh & Jennifer Tan**

Elizabeth Koh is Research Scientist and Assistant Dean of Research Translation with the Office of Education Research at the National Institute of Education, Singapore. Her research interests include 21st century competencies, educational innovations and technology.

Jennifer Tan is Senior Research Scientist and Assistant Dean of Knowledge Mobilisation with the Office of Education Research at the National Institute of Education, Singapore. Her research interests include creativity & 21st century competencies, and learning technologies & analytics.



While Singapore might have achieved its goal of academic excellence, educational researchers, policymakers and teachers alike are concerned about the next goal of preparing our learners to face and overcome future challenges and uncertainties by attaining 21st century competencies. However, these two sets of goals are seen to be parallel and do not complement each other; there seems to be a tension between the respective hard skills and soft skills involved in achieving the different goals. Many of our pre-existing pedagogies do not seem well-equipped to build both performative excellence and 21st century competencies.

Nevertheless, 12 research projects that were able to bridge the gap between these two opposing aims. These pedagogies shared a few common salient features:

- ▶ a shift from monologic to dialogic pedagogies
- ▶ more process-oriented learner-agentic types of assessment.
- ▶ seamless learning between learning inside and outside of the classroom environment
- ▶ assessment tools that cater to both 21st century competencies as well as academic goals

One signature project in particular was *WiRead*. It was a very tight collaboration between a school as well as the Principal Investigator of the project. The project made use of multimodal social-dialogic learning as a platform for students to learn English, which engaged them in critical discussion over multimodal texts and helped them learn in a dynamic and visual way while developing critical thinking. The use of a learning activity profile was also helpful for the students.

These trials have shown an increase in learner engagement, emotional engagement, student-teacher relationship and also critical thinking. Despite the paradox between pursuing 21st century competencies and traditional academic excellence, it is possible to reconcile the two disparate goals.



The Paradox of "What is Good"

By **Kenneth Poon**

Kenneth Poon is Associate Professor of Early Childhood and Special Education at the National Institute of Education, Singapore where he concurrently serves as Associate Dean (Research Quality) at the Office of Education Research. He is a clinical psychologist and was trained in early intervention with 20 years of experience working with children with risk and developmental disabilities.

It is important that teachers' have positive and accurate expectations of their students. Nevertheless, the studies have allowed an understanding that that many of these lower-performing students can do better when provided with additional support. Some researchers have therefore called for increased differentiation in the classroom instruction of lower-performing students.

Up till today, the education of lower performing students has focused largely on their academic performance. However, with the focal shift in our education system towards the inclusion of socio-emotional goals, it is perhaps time to re-evaluate our expectations and goals for lower-performing students.

Education research has shown that students with poor academic performance often share certain characteristics and background conditions.

Common Characteristics and Background Conditions of Lower-Performing Students

- ▶ May have shorter attention spans
- ▶ May require some help to overcome challenges over cognitive processes such as their working memory and/or anxiety
- ▶ May have some forms of special educational needs
- ▶ May come from less advantaged home backgrounds

What can we do, moving forward? First, the focus must be on both domains: to develop strength while at the same time, compensating or remediating areas that require support. Research suggests that lower-performing students' learning can be facilitated when the teachers are provided with sufficient training and time in their weekly timetable. Teachers need to learn to use different lenses to understand their students and their different abilities in order to offer targeted support for each students' areas of needs.

Support can also be more holistic. Schools can support their teachers by not only creating spaces for teachers to learn, but also by fostering holistic whole-school approaches to supporting these students.



The Paradox of Teacher Agency

By **Tan Liang See**

Tan Liang See is Senior Research Scientist and Assistant Dean of School Partnerships with the Office of Education Research at the National Institute of Education, Singapore. Her research interests include teacher learning, professional development, gifted education, differentiated instruction, and pedagogical inquiry.

While we would like to make instruction more student-centered, teachers remain an important part of the education system. As Professor John Hattie found in his research study, high quality teachers contribute up to 30 per cent of their students' achievements (Hattie, 2003). As such, even in student-centered pedagogies, teacher training remains essential.

Teachers have a long career trajectory that can be divided into two parts. The first part is initial teacher education (ITE). NIE runs its own teacher education programmes according to principles of adult learning derived from OER's research.

Principles of Adult Learning

- ▶ Lecturers should embody and model good professional values.
- ▶ Courses should cover critical competencies such as subject content knowledge, pedagogical skills and most importantly, classroom management.
- ▶ Cooperative culture should be inculcated and coupled with modelling and learning through doing.

The second part of teacher education takes place when teachers begin their actual teaching in schools, as part of their professional development. There are also several OER projects that document their learning at this stage.

Key Findings of Teacher Learning

- ▶ A sharing and cooperative school environment help develop beginning teachers into strong and experienced ones.
- ▶ A strong and structured mentoring system is very helpful for beginning teachers.
- ▶ Positive attitudes and strong learning orientation on the part of the beginning teachers are strong factors.
- ▶ Quality of teaching and career longevity are strongly correlated to teacher preparedness to face real issues and challenges on the ground.
- ▶ Teacher education is a continuous learning process throughout one's career pathway and does not end upon leaving NIE.

As teachers are more receptive to incremental changes rather than drastic ones, it helps if these changes are built into their work routine in a gradual manner. This is partly because they already struggle with finding the time to reflect on their own pedagogical practices and many seem unfamiliar with the steps required to be responsive to changes. As such, flexibility, adaptability and capacity are required on the part of the teacher.

Nevertheless, school leaders are an important agent of pedagogical change,

and if they are successful in enunciating the mission and vision of what they are trying to achieve, they can shape the culture of interaction in their schools and facilitate pedagogical change effectively. The Singapore Teaching Practice (STP), which was launched at the 2017 Redesigning Pedagogy International Conference, focuses on how such positive classroom culture can be raised.

The next step is to establish robust theory-practice links between teacher learning and schools. We can then discover which are the more sustainable pedagogies and how, or if they have been adopted by the fellowship of teachers. Efforts must also be made to map the dichotomy between autonomy and hierarchical structures, before developing the quality of teacher learning as a community. The issue then is to focus on building epistemic change and knowledge in curricular design rather than on simply implementing learning tasks and lessons. Teachers must also unpack what it means for them to be self-driven and self-reflective in their pedagogical practices.

Reference

Hattie, J.A.C. (2003, October). *Teachers make a difference: What is the research evidence?* Paper presented at the Building Teacher Quality: What does the research tell us. ACER Research Conference, Melbourne, Australia. Retrieved from http://research.acer.edu.au/research_conference_2003/4



EMPOWERING EDUCATORS

The Paradox of the Status Quo

By **Toh Yancy**

Toh Yancy is Research Scientist with the Office of Education Research at the National Institute of Education, Singapore. Her research interests include leadership studies, innovation diffusion and the systemic influences that affect schools' capacity to sustain technology-enabled pedagogical innovations for student-centered learning.

At the macro level, we can see a conundrum of dualities in our tightly coupled education system. We have to consider how to move in order to balance 21st century competencies with traditional content and the need for translating policy into practice.

The exo level deals with how school leaders can forge partnerships across schools to galvanise support, optimize resources and resolve socio-technical infrastructure concerns through the four "carryover" effects (structural, socio-cultural, economic and epistemic).

The meso level shows that school leaders need to ensure policies travel deep in their own individual school's context. The upward percolation of feedback is less evident at this level.

Based on OER's project findings, the micro level shows that autonomy can be both welcomed and feared. There is some ambiguity towards this autonomy, as some teachers prefer prescription.

Nevertheless, the capacity of the teacher is an important factor. Some schools adopt an outsourcing model for innovation but this negatively affects the ownership of such capacity. Autonomy can be moderated by several factors.

Factors Moderating Autonomy

- ▶ socio-cultural norms and expectation of the schools
- ▶ strong views and voices of parents
- ▶ how school leaders perceive innovation in terms of levelling up their performance
- ▶ congeniality and trust in terms of leveraging autonomy to carry out innovations

OER project findings also show that some schools are working on collaborative modes with layered accountability. Some school leaders are empowering middle managers to be decision-makers and are willing to relinquish their power in terms of curriculum and pedagogical matters such

as classroom observation, to name a few. The leadership practices and challenges surfaced have implications on Leadership on Learning.

Implications on Leadership on Learning

- ▶ The collectivist belief leaders forged helps to create opportunities for successes to cascade to other schools.
- ▶ It encourages a convergence of vision, goals, cultural norms and common inter-mental models while respecting multi-perspectives among diverse social partnerships and dualities in our system.
- ▶ The emergence of synergistic interactions among actors has the potential to produce new capacities to balance centralised prescription and decentralised autonomy.
- ▶ We can leverage the social capital and physical resources resulting from any level of the subsystem.
- ▶ Alignment of system structure and policy helps to create organisational affordances, routines and sustainability.

Summary and Conclusion

By *David Hung*

David Hung is Professor and Associate Dean of Education Research with the Office of Education Research at the National Institute of Education, Singapore. His research interest focus on learning, in particular, social cultural orientations to cognition and communities of practice.



Despite our past successes, there is still a need to change and adapt to the demands of the future. We have covered—in the sections above—three theories and five paradoxes that depict hybrid pedagogies reflecting “good learning”.

We have also learnt that there is no sharp distinction between what students can achieve in inquiry-based learning and when they are taught to the test. Student’s test scores can improve even under an inquiry-based pedagogy. As such, the two pedagogy types are not dichotomous.

What is crucial is teacher quality, and this is enforced through certification and on-the-job learning. However, there must still be top-down support for bottom-up initiatives even while power is being decentralised. It is necessary for the school, cluster and network levels to help build safe environments for teachers to evolve their epistemic beliefs in service to innovation and change creation.

Nevertheless, the crux of the entire process of change lies not only in teachers’ capacities but in their beliefs as well. The typical teacher fears the negative consequences of letting go of performative pedagogies while fully knowing that change is inevitable. Hence, some amount of assurance and handholding is necessary. However, many teachers are still concerned about completing the curriculum and preparing their students for examinations within the given curriculum time constraints.

Students’ emotions also play a very important part, especially for lower-progress students. This is why student agency needs to be heightened. We need not only domain-specific interventions, but also domain-general interventions on this front.

Still, a sound theory of good learning is necessary before inquiry can take place. Peer observations of model teachers who have successfully pushed through the tensions and paradoxes are necessary

to support learning and to show that students are actually learning not just in traditional ways but also in the ways of the 21st century competencies.

The five paradoxes remain, however, and exist at different levels of the system. Our ability to understand them will allow us to decipher how to bridge the gap between institutional improvements from the top and emergent improvements from the ground. Teachers make up the most crucial part of the whole equation and supporting their journey must remain our focus in educational research.



An Institute of



A publication of the Office of Education Research,
NIE/NTU, Singapore © 2017