Reciprocal Learning, Pedagogy and High-Performing Education Systems: Learnings from and for Singapore

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Abstract

Employing Connelly and Xu's (this issue) conceptualisation of reciprocal learning, the article explores the potential for reciprocal learning about pedagogy provided by a body of PISA-inspired literature on high-performing education systems. I argue that the opportunities for reciprocal learning provided by that body of literature is rather limited and problematic because of its uncritical acceptance of OECD's basic premises about PISA and because of its employment of the 'best practices' approach to policy borrowing. Using Singapore as a case, I contend that reciprocal learning needs to be informed by the cultural historical narratives behind the development of an education system and a theory of pedagogy that locates the practice of teaching within a broad social, institutional, and instructional context of schooling. I discuss lessons from and for Singapore concerning the purposes of schooling, institutional norms and arrangements, and pedagogical practice.

Arguably 'the most successful enterprise in comparative education' (Hopmann & Brinek, 2007, p. 9), the Programme for International Student Assessment (PISA) has exerted a tremendous impact on education systems and policy around the world. The PISA performance has been seen as 'the surest indicator' of a nation's future economic competitiveness (Takayama, 2017). Based on PISA results, the Organisation for Economic Co-operation and Development (OECD) has identified countries that are the most successful in preparing students for participation in the economy and society. As a result, the OECD creates new 'reference societies' – according to which politicians, educational policy-makers, and pundits are pressured to borrow 'lessons' to boost the educational achievement level of their respective countries (Kamens 2013; Sellar & Lingard 2013).

Also called 'high-performing education systems' (HPES), those new reference societies include Canada (Ontario), China (Hong Kong, Shanghai), Singapore, and South Korea, in addition to Finland – a long-recognised PISA poster-child (OECD, 2016). This leads to a mushrooming of literature (reports, books, and articles) that provides information about these systems, explains the 'secrets' of their top rankings in PISA, and offers lessons or learnings that others can borrow or imitate. However, such learnings are largely treated as unproblematic and unidimensional.

This paper is concerned with *reciprocal learning* – a notion that, at the simplest level, refers to learnings between two or more countries or systems in a two-dimensional and mutually-beneficial manner. The notion, as a deeper level, is rather sophisticated and has been thoughtfully unpacked by Michael Connelly and Shijing Xu as they applied it to their partnership project – 'Reciprocal Learning in Teacher Education and School Education between Canada and China' – funded by the Social Sciences and Humanities Research Council of Canada (SSHRC).

Employing their conceptualisation of reciprocal learning (Connelly & Xu, this issue), the article explores the potential for reciprocal learning about pedagogy provided by the body of PISA-inspired literature on high-performing education systems. I argue that the opportunities for reciprocal learning provided by that body of literature is rather limited and problematic because of its uncritical acceptance of OECD's basic premises about PISA and because of its employment of the 'best practices' approach to policy borrowing. Using Singapore as a case, I contend that reciprocal learning needs to be informed by the cultural historical narratives behind the development of an education system and a theory of pedagogy that locates the practice of teaching within a social, institutional, and instructional context of schooling. I discuss lessons from and for Singapore concerning the purposes of schooling, institutional norms and arrangements, and pedagogical practice. I conclude by addressing the implications for thoughtful, responsible, and two-way policy learning.

Comparative models and reciprocal learning

Comparative educational research is inherently reciprocal. In their conceptualisation of reciprocal learning for the aforementioned project, Connelly and Xu (this issue) identify three comparative models, namely, (1) comparative educational systems, (2) international comparative studies of achievement, and (3) comparative pedagogy. They reviewed these three models to show that they embody three different ways of thinking about reciprocity and, in so doing, articulated their own model of reciprocal learning – (4) collaborative partnership.

Traditional comparative studies of education systems (Model 1) construe reciprocal learning in terms of system comparison. Focusing on macro issues concerning the organisation

and provision of education, traditional comparative research describes and compares various education systems and, in so doing, allows countries to learn about each other. As such, it has very little to contribute to our understanding about pedagogy at the classroom level. Reciprocal learning also takes on a rather simple and straightforward sense. However, it is important to note that in traditional education system comparison, national education systems are regarded as 'distinctive, historic systems'; they are 'apples and oranges: non-comparable' (Kamens, 2013, p. 120).

Model 2 is represented by comparative studies of student achievement such as The Trends in International Mathematics and Science Study (TIMSS) initiated by the International Association for the Evaluation of Educational Achievement (IEA) and Programme for International Student Assessment (PISA) conducted by the OECD. Such studies provide the information of relative rankings of participating countries in academic achievement measured by standardized tests. They give rise to a significant body of literature that explains the success of high-performing systems and draws 'lessons' for low-performing systems to borrow or emulate. Reciprocal learning, as Connelly and Xu observe, is limited and unidimensional; it is as if high-performing systems have nothing to learn from low-performing ones.

As with Model 1, Model 2 has very little to contribute to reciprocal learning about pedagogy as it 'skips the classroom to focus on student outcomes' (Connelly & Xu, this issue, p. xx). In contrast to Model 1, Model 2 sees education as a 'cultural project of world society' rather than a distinctive national cultural project. Accordingly, system comparison, which encompasses all aspects of education, is 'not only possible but required for advancing knowledge' (Kamens, 2013, p. 124).

Model 3 is represented by Robin Alexander's conception of comparative pedagogy developed on the basis of cultural comparative studies of pedagogy of five cultures: France, Russia, India, USA, and England. Pedagogy refers to 'the observable act of teaching together with its attendant discourse of educational theories, values, evidence and justifications' (Alexander, 2009, p. 29). Furthermore, pedagogy constitutes a complex field of practice embedded in the multiple layers of context, including (but not limited to) state, system, school, and classroom. As such, this model provides abundant opportunities for reciprocal learning about pedagogy between countries, as will be further discussed below.

Model 4 creates much richer opportunities for reciprocal learning as the model emphasizes 'knowing how and knowing that with respect to cultural differences at the system level, at the school level, at the classroom level and at the student achievement level' (Connelly & Xu, this issue, p. xx). It stresses the importance of knowing the 'cultural and historical narratives' behind two different education systems involved which 'provide frameworks for understanding and appreciating educational similarities and differences', while also fostering reciprocal learning (Connelly & Xu, 2017, p. vii). Furthermore, it requires that people from the two systems work together and make inquiry together, leading to learning with one another and from one another or building 'a two-way bridge in which two-way learning occurs' (Connelly & Xu, this issue, p. xx).

PISA, high-performing education systems and reciprocal learning

I now turn to explore the opportunities for reciprocal learning about pedagogy provided by the body of literature on high-performing education systems which, as hinted earlier, is based on or reflects Model 2.

As noted already, the OECD not only provides the information of relative rankings of participating countries in PISA but also identifies which systems are high-performing according to their respective PISA results. Accompanying this is a mushrooming of a corpus of reports by the OECD and other organisations or agencies that describes the characteristics of those high-performing education systems and draws 'lessons' for low-performing ones (e.g. Barber, Chijioke, & Mourshed, 2011; OECD, 2010; Tucker, 2011). Riding on the wave of those reports, many educational researchers and scholars have published books on high-performing systems, thus adding to this growing body of literature (e.g., Darling-Hammond & Rothman, 2011; Darling-Hammond et al., 2017; Marsh & Lee, 2014; C. Tan, 2012). Authors of these reports and books collect information about the 'strengths' of selected high-performing systems by reading policy documents, published reports and websites and by talking with policy-makers and educational experts. Based on this, they recommend strategies for other countries to borrow for the purpose of raising their achievement levels. A common assertion is that teacher quality is the key to improving student academic performance. Accordingly, it is believed that in high-performing systems teacher quality is ensured at the point of entry through highly selective teacher recruitment and is enhanced through effective initial teacher education and continuing professional development.

There are issues that lead me to believe that those lessons or strategies have no direct impact on the PISA performance of students in those high-performing systems and that the body of literature has very little to contribute to reciprocal learning about pedagogy. Of all the school

factors that could affect student academic outcomes, it is teachers' pedagogical practice or what teachers do in classrooms with students that has the most effect (Hattie, 2009; M. M. Kennedy, 2010). The quality of teachers and strategies (pertaining to professional development and school learning community, etc.), Hogan et al. (2013) assert, only have a minimal effect on student academic achievement. Furthermore, the cultural historical narratives— that underlay the development of an education system – and the institutional rules and arrangements – that regulate and shape the work of teachers – are largely ignored or unexplored. And learning is taken as if it is one-way, unidimensional, with high-performing systems having nothing to learn from low-performing ones.

Overall, the body of PISA-inspired literature on high-performing education systems is framed within the framework of the OECD's 'best practices' discourse that advocates educational policy borrowing across the boundaries of societies and cultures. It promises significant improvement in educational outcomes for low-performing systems by learning about 'what works' in high-performing systems. However, whether those practices or strategies identified in the body of literature are causally linked to a system's high performance in PISA is an open question. There is little or no empirical evidence to justify the identification of those best-practices (cf. Takayama, 2017).

There are other deeper issues that have to do with an unquestioning acceptance of the OECD's basic premise and 'best practices' discourse. The assertion that PISA results provide the 'prime indicator of the quality of schooling' is seldom put into question (Hopmann, 2008). PISA, together with other international comparative studies such as TIMSS and PIRLS, perpetuates a 'common sense view' of education that equates the quality of schooling with students' academic achievement in a limited number of curriculum domains, particularly

language, science, and mathematics (Biesta, 2009). This, at least in part, has to do with what Biesta (2009) calls 'learnification' of educational discourse – the global shift towards talking about learning rather than education – in which questions about the purposes and content of school education virtually disappear. Furthermore, the above mentioned strategies or lessons simply will not work because they, Biesta (2007) observed, ignore questions about 'what is educationally desirable' and restrict 'the opportunities for educational practitioners to make such judgments in a way that is sensitive to and relevant for their own contextualized settings' (p. 20).

The limited and problematic opportunities for reciprocal learning, I believe, has to do with the lack of attention to historical cultural narratives and the lack of a theory of pedagogy that locates teaching within a broad social, institutional, and instructional context of schooling.

A theory of pedagogy for reciprocal learning

Informed by Models 3 and 4, I now articulate a theory of pedagogy for reciprocal learning. According to Alexander (2000, 2004), the practice of teaching is situated in a social context (culture, self, and history), formalized and legitimated in an institutional context (national and local policy, school as an institution) and a school/classroom context (children, learning, teaching, and curriculum). There three layers of context can be further articulated as:

- **Societal context.** Histories and traditions that are essential for making sense of what education is; values and norms that inform and shape a society's views of education, schooling, teaching and learning; larger social and political forces that shape the institutional and classroom practice.

- **Institutional context**. Transnational, national, state, and policies that define education in a society; curriculum policies that prescribe or proscribe what is taught and how;

institutional categories such as school types, grade levels, programs, school subjects assessment, and examination requirements that organize, structure, or regulate practice; teacher education, professional development, and curriculum resources that support teaching practice.

- **Instructional context**. Classrooms, labs, and informal places where teaching and learning take place; school structures and culture of teaching; the experience, background, and competences of teachers; the experience, interaction, and learning of the individual students; student's attitudes, background, and characteristics. (Deng, 2017)

These three layers of context, each with sublayers, are interrelated and interdependent; they together constitute the reality of schooling as a whole and are the necessary foundation on which to make sense of what teaching is, how it is regulated and organized, and how it is conducted.

Teaching is a *socio-cultural* practice in that it occurs within a particular socio-cultural context. The historical cultural narratives concerning the development of an education system give meaning to what teaching is in a society. They, in the words of Alexander (2004), 'anchor it firmly to the questions of human identity and social purpose without which teaching makes little sense' (p. 12).

Teaching is also an *institutionalized* practice that occurs within a particular institutional context. It is institutionalized in the sense that it is practically embedded in the institution of schooling that regulates and supports the activities of teaching. This is achieved by means of institutional categories such as school types, grades/levels, school subjects, schedules, groupings, roles, promotions, assessment requirements, and so on (Deng, 2017).

In classrooms, teaching is a *practical*, *deliberative* practice. Teaching 'takes place in a specific context and responds to requirements and expectations' in the form of concrete events,

activities, and organizations (Alexander, 2004, p. 11). It is practical in the sense that a teacher

works with specific content, specific students, and specific materials in a specific classroom

context (Schwab, 1970/2013). The work of teaching calls for deliberative decision making

toward particular purposes and objectives (Deng, 2017).

Learnings from and for Singapore

With this theory of pedagogy, I now discuss opportunities for reciprocal learning about pedagogy

between Singapore and other countries. I first lay out the historical cultural narratives underlying

the development of the Singapore education system and then discuss learnings about the

functions of education, institutional rules and arrangements, and classroom practice.

Historical cultural narratives

Singapore's transformation from a fishing village – with no natural resources – to a first world

country over four decades has been dubbed by the OECD as the 'Asia's success story of

Singapore'. Behind this remarkable transformation is the development of a post-colonial

education system (1956 – 1987) that lays the foundation for the 'success' of the Singapore's

education system today. The development needs to be understood through a set of historical

cultural narratives — the formation of English-knowing bilingualism, the development of a

uniform curriculum needed for an industrializing economy, the enhancement of social cohesion,

and the introduction of a tracked school system – that gives rise to current shared beliefs about

the role of education, institutional policies/rules and arrangements, and pedagogical practice in

classrooms. The limit of space at my disposal prevents a detailed rendering of these narratives.

At the risk of oversimplification, I provide a highly condensed version of the narratives through a

brief historical sketch of the key educational policies implemented by the government to confront the political, economic, and social challenges Singapore was facing during its early phases of history.

After gaining independence from the British Empire in 1956, Singapore suffered from acute underdevelopment and a high unemployment rate. It was socially divided along racial and religious lines, with Chinese, Malays, and Indians as the three main ethnic groups, and with diverse religions – such as Buddhism, Taoism, Islam, Hinduism, and Christianity – being practiced. Inherited from the colonial government was a segmented school system consisted of Chinese-, Malay-, and Tamil-medium schools, and a few English-medium schools, with differing curricula and examination requirements. Access to school was limited and student dropout rates were high (Gopinathan, 1974).

The government had to face four major challenges in developing a post-colonial education system:

- To achieve an acceptable settlement on the medium of instruction,

- To provide school learners with the knowledge and skills needed in an industrialising economy,

- To use schools to build and enhance social cohesion and citizenship values, and

- To seed an education culture of high quality founded on merit-based opportunities (Gopinathan & Mardiana, 2013, p. 17).

Four important educational policies were implemented in the light of these challenges:

- First, there was a commitment as enunciated in the All Party Report on Chinese Education to 'equality of treatment' for all four official languages – a formula with English as the medium of instruction, and with Malay, English, Mandarin and Tamil as

four official languages.... This is a political–linguistic settlement that has stood the test of the time. On the one hand, there is a commitment to equality with respect to language rights of the three main ethnic groups. On the other hand, there is a recognition of the necessity and value of English as an international language to Singapore, mastery of which would provide social and individual advantages, and it has undoubtedly helped Singapore's socio-economic modernisation.

- Second, the government mandated and implemented a uniform and common curriculum (taught in English) to replace the Chinese-based, Malay-based and English-based curricula in the old system. There was initial resistance to this policy to weaken ethnic-based schools but rapid economic growth in the 1970s strengthened the position of English as an economically valuable language. The curriculum was a modern one centred on the study of mathematics, science and languages, with technical subjects as a supplement. Such a curriculum was regarded as essential in producing a labour force required for the industrialisation Singapore was undergoing.

- Third, in response to heightened social tensions that accompanied massive socio-economic change, the government introduced civics and citizenship education to help students understand the purpose and importance of nation building, cultivate their civic responsibilities, and teach them to appreciate the desirable elements of both Eastern and Western traditions... The emphasis was on the responsibilities of citizenship – rather than citizen rights – and the promotion of a communitarian mind set.

- Fourth, the government made a firm commitment to meritocracy.… In the meritocracy, academic grades were held as primary measures of the students' ability and effort, irrespective of their social and economic backgrounds. Prestigious scholarships went to

high achievers. Possessing good academic credentials was seen as the most important

factor for their career prospects and their future social and economic status. Also, rapid

economic growth which rewarded credentials and substantial social mobility reinforced

meritocracy and helped to create a high aspirational society, especially amongst the

Chinese. (Deng & Gopinathan, 2016, pp. 454-455)

With the provision of universal free primary education in the late 1970s, the government

has succeeded in the first phase of transforming and modernising the education system.

However, such a radical transformation was fraught with problems. After the

implementation of bilingual policy and the common curriculum for about 20 years, evidences

surfaced of high attrition, semi-literate school graduates, and the bilingual policy falling short of

its aims. The then Deputy Prime Minister, Goh Keng Swee, diagnosed the problems and

concluded that ability differentials, not unreasonable curriculum standards, were the cause (Goh,

1979). As a result, the New Education System was implemented in 1980, with the creation of a

two-tiered curriculum (which required students to learn both English and mother tongue) and a

three-track system (which tracked students into three streams, Normal Bilingual, Extended

Bilingual, and Monolingual) at the primary school level. [1] Three similar streams, Special,

Express, and Normal, were also established at the secondary school level.[2] The three streams at

the primary school levels were later replaced with EM1 (in which pupils took English and

mother tongue as the first language level), EM2 (in which pupils studied English as the first

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[1] In Normal Bilingual stream, students take English and one mother tongue, and take Primary School Leaving Examination (PSLE) at the end of Primary 6. In Extended Bilingual stream, students also take English and one mother tongue but sit for PSLE at the end of primary 8. In Monolingual stream, Students focus on learning English and basic numeracy; they are prepared for vocational training.

[2] In Special stream, students learn English and Chinese at the first language level, and take 'O' level exams at the end of secondary 4. In Express stream, students learn English at the first language level and mother tongue at the second language level, and take 'O' level exams at the end of secondary 4. In Normal stream, students take a reduced curriculum and site for GCE 'N' level exams at the end of secondary 4.

language and mother tongue as the second language), and EM3 (in which pupils took English as the first language and attained oral proficiency in mother tongue). And the three secondary school streams were replaced with Express, Normal Academic (NA), and Normal Technical (NT) – into which students were placed based on their performance in Primary School Leaving Examination (PSLE).

As a result, the structure of a Singaporean model of bilingual education based on English-knowing bilingualism and differentiated tracks was put in place. Another important development was curriculum standardisation made possible through the establishment of the Curriculum Development Institute of Singapore in 1980, which was tasked with the development of syllabi, instructional guides and textbooks for all schools. Still another significant development was the establishment of the Institute of Technological Education (ITE) which provided technical vocational training for school graduates who had completed 10 years of education. Polytechnics were established with the mission to train middle level professionals to support the technological and economic development of Singapore. Eventually, as Deng and Gopinathan (2016) observed, 'a national education system geared to the needs of an industrialising economy [a larger proportion of students enrolled in polytechnics than in universities] eventually took shape, supplanting the segmented system inherited from the colonial period' (p. 456).

However, streaming practice within such a differentiated, exam-based meritocratic school system had serious social and political consequences. It led to the stigmatisation of those students placed in lower streams, the formation of 'elite fortresses', and the perpetuation of inequality in the system (K. P. Tan, 2008). Accordingly, there was a nation-wide obsession with excelling in examinations. As Cheah (1998) observed, 'examination results are seen as the way into the top streams and the top schools in the country, and to that end, parents, students, and

teachers are all drawn into the competition' (p. 196). All of this contributed to the formation of an extremely instrumental conception of education shared within the society – which is economically-driven, exam-oriented, and social mobility-directed.

To ameliorate the negative impacts on disadvantageous students, the government has created flexibility and provided 'pathways and bridges' (Ng, 2009, p. 2) for students at the low end of the educational spectrum. At the primary school level, the two-tiered curriculum has been altered by creating wider curricular options. The subject-based banding policy has been introduced as 'a move to dismantle the rigidity of the two-tiered curriculum structure by providing weaker learners with 17 choices of subject combinations across the two levels of the Standard and Foundation curriculums' (Gopinathan & Mardiana, 2013, p. 24). At the secondary level, the new NA curriculum and revised NT curriculum have been implemented to allow more pathways built into the NA and NT streams. [3] Furthermore, specialised schools for potential drop outs and those for the vocational stream have been established.

All things taken into consideration, it is fair to say that the State has been able to tackle the aforementioned four challenges effectively. As Gopinathan and Mardiana (2013) observed,

> …the Singapore state was able to set new goals of education, one more appropriate to a post-colonial situation, unify a fragmented system, win public support for often contentious policies e.g., bilingualism, technical and vocational education, and develop and implement major changes in the curriculum. Curriculum reform has resulted in the emergence of a Singapore-centred identity, deepened social cohesion and transformed and upgraded skills of school leavers and strengthened knowledge of and respect for difference. A system of high-stakes examinations, the Primary School Leaving

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[3] According to Gopinathan and Mardiana (2013),

> The new NA curriculum planned for implementation in 2013 will provide two new 'through-train' pathways for students who do well in their Singapore-Cambridge General Certifi cate Examination (GCE) N-level examinations via direct admission into the polytechnics, and to the higher diploma courses in ITE. NA students may also take a maximum of any two GCE 'O' Level examination subjects at Secondary 4 from an expanded range of subjects (MOE n.d.). A similar revamp of the NT curriculum allows for a closer articulation of subject choices across the NA and the NT streams, thus enabling NT students to take on subjects of the NA curriculum. (p. 24)

Examination (PSLE), 'O' and 'A' levels, ensured effort on the part of students and a system-wide emphasis on performance. (p. 21)

To sum up, Singapore's present education system is 'the outcome of a distinctive set of historical, social and institutional circumstances, and of strategic central planning and implementation of educational policies by a strong-willed government in response to unique political, economic and social challenges' (Deng & Gopinathan, 2016, p. 456). Viewed in this perspective, education is a distinctive national cultural project – rather than a 'cultural project of world society' as conceived by the OECD and other organizations noted earlier.

The role of school education

The historical cultural narratives behind the development of the education system brings to the fore the role of education shared within Singapore society and culture:

1. Education as a means for economic reconstruction;
2. Education as a platform to shape a new identity, and build a nation out of disparate, often contending ethno-linguistic groups, and
3. Education as a means for social mobility and personal advancement. (Gopinathan, 2014)

To call attention to this conception of the role of education is to question the pervasive belief about education in the West. Nowadays many western countries have lost their faith in the role of schooling as a public institution. In academic literature it has been fashionable to decry the significance of schooling, and indeed be sceptical about the role schools can play in social and civic functions. Such a pessimistic, cynical view of education is unwarranted in view of the crucial role of education vis-à-vis the 'Asia's success story of Singapore'. The historical cultural narratives behind the development of the Singapore's education system provides important

lessons for other countries – concerning how school education can contribute to economic restructuring, nation building, and social mobility.

However, as noted above, the conception of education shared within Singapore's society and culture is highly instrumental: Education is a means to external aims, social, economic, and political. What is lacking is a perspective of education that views the individual as a unique human being, with distinctive interests, values, and potential. From this perspective, the central purpose of education is to produce individuals that are free and unique in their own ways, rather than the specimen or normalized members of the society. For this, Germany, albeit relatively low in PISA league tables, has important lessons for Singapore. According to the German ideal of what it means to be educated encapsulated in the concept *Bildung*, education in essence is a process of self-formation, encompassing the development of intellectual and moral powers, the cultivation of sensibility, self-awareness, liberty and freedom, and the dignity of the individual (Hopmann, 2007; Humboldt, 2000). The process of self-formation provides the essential precondition for developing the critical and creative potentials of the individual and enabling him or her to fulfil social responsibilities and functions (Deng, 2015).

The Singaporean conception of education gives meaning and significance to the practice of teaching and what it means to be a teacher. In Singapore teaching is an activity that has to concern itself with national building and economic development and growth. Teachers are expected to play an important role in preparing students for the economy through equipping them with necessary knowledge and skills and for the multi-racial and multi-cultural society through cultivating in them respect for religious and racial differences. They are also under pressure to reform their pedagogical practices in response to the new demands and challenges pertaining to

nation building and economic development, as indicated in the various reform initiatives under the framework of Thinking Schools, Learning Nation (see Deng, Gopinathan, & Lee, 2013).

Institutional policy/rules and arrangements

The historical cultural narratives also shed light on the institutional policies/rules and arrangements – English-knowing bilingualism, meritocracy, a national curriculum with different school types and tracks, and high-stakes examinations – that serve to regulate and direct the work of teachers. Such institutional rules and arrangements give rise to a strong alignment between curriculum, assessment, and pedagogy which is crucial in ensuring the maintenance and improvement of academic standards, particularly in mathematics, science, and languages (Hogan et al., 2013).

Then, an explanation for Singapore's consistent high rankings in PISA is in order. The national curriculum centres on the development of students' competences in mathematics, science, and languages – the three subjects tested in PISA. Furthermore, there exists a strong commitment to academic rigor and standards, underpinned by the principle of meritocracy and enforced by national high-stakes examinations, which has lifted the floor under the quality of teaching and learning for all students, regardless of race and gender, throughout the school years (Deng & Gopinathan, 2016).

In this regard, Singapore can offer learnings for other countries such as the US and the UK about how to develop and implement a strong national curriculum focusing on mathematics, science, languages, and technical subjects with high academic standards. Schleicher (2011) drew similar lessons based on his observations of schools in Singapore and conversations with senior officers from the Ministry:

The academic standards set by Singapore's Primary School Leaving Examination [PSLE] and O-and A- levels are as high as anywhere in the world, and that is also what you see from their results in PISA. Students, teachers and principals all work very hard towards important gateways. Rigour, coherence and focus are the watchwords [our emphasis]. Serious attention to curriculum development has produced strong programmes in maths, science, technical education and languages and ensured that teachers are well-trained to teach them.

However, there are serious issues in the system. As will be made clear below, the national curriculum, coupled with high-stakes examinations, steers classroom practice towards a kind that is didactic in nature and largely traditional, directed towards a transmission of academic content and examination preparation. In particular, the current high-stakes examination system 'inhibits or constrains the willingness and opportunity of teachers to change their instructional practices in line with current policy priorities' that promote more-student centred, constructivist ways of teaching (Hogan et al., 2013, p. 9). Furthermore, the Singapore's education system is low in equity: there is a 'long tail' in performance distribution; socio-economic status (SES) seems to have a significant impact on the academic achievement of students (K. J. Kennedy, 2013). [4] This might suggests that the multiple pathways designed to ameliorate issues of inequality noted

[4] While no information is available on how the sampling of students for PISA tests in Singapore was actually conducted, it is reasonable to believe that the procedure, developed by the OECD, takes into account of the social, economic, and ethnic backgrounds of students. The OECD is committed to 'diversity data collection practices, focusing on racial, ethnic and indigenous identity' (OECD, 2018, p. 6). A two-stage sampling procedure was implemented: 'The first stage consisted of sampling individual schools in which 15-year-old students could be enrolled'. In the second stage, 'Experts from the PISA Consortium performed the sample selection process for most participating countries and monitored it closely in those countries that selected their own samples' (OECD, 2015, p. 155).

Then, Singapore has important things to learn from other education systems. How would

the national curriculum and examination system be reformulated in a way that supports, rather

than constrains, more student-directed, constructivist pedagogical practice? How would the

school system deal with the impact of SES on school achievement? How would the system be

restructured to combine equity with excellence? In this regard, Finland can teach Singapore

important lessons. As Schleicher (2011) observed, 'You can mandate good performance, but you

need to unleash greatness. Finland provides an example for how you can shift the focus from a

regulating towards an enabling policy environment.'

The nature of pedagogical practice

I now discuss reciprocal learning about pedagogical practice. What is the nature of pedagogical

practice in classrooms? What sorts of activity, instructional resource, and method do

Singaporean teachers regularly employ in classroom teaching? Such questions have been

investigated by David Hogan and his associates at Centre for Research in Pedagogy and Practice

(CRPP) within the National Institute of Education (NIE).[5] The findings can be summarized as

follows:

- Classroom teaching is largely driven by content coverage and preparing students for

  semester-end and high-stakes examinations, with the primary focus on the transmission

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[5] CRPP is a research centre that, established in 2003 and funded by the Ministry of Education, aims at
providing a comprehensive empirical, interpretative, quantitative and qualitative picture of the Singapore
school system.

of knowledge and skills contained in the national curriculum (represented by teaching and examination syllabi).

- Accordingly, classroom teachers tend, to a large degree, to rely on whole-class forms of lesson organisation, with whole-class lectures and question-and-answer sequences (IRE) as the dominant methods. They also depend heavily on textbooks and instructional materials and provide students with a significant amount of worksheets and homework, with a special focus on their mastery of specific procedures and problem-solving skills.

- When teachers do make limited use of constructivist pedagogical methods – such as checking prior knowledge, monitoring understanding and providing formative feedback – they largely do so for the purpose of getting students to know the correct answers rather than developing their conceptual understanding and higher order thinking. Classroom talk, largely dominated by teachers and used mostly for checking content mastery, does not lead to extended conversation and critical thinking on the part of the students (Deng & Gopinathan, 2006, pp. 459-460; also see Hogan, 2014; Hogan et al., 2013).

In other words, what emerges from the findings is a 'hybrid pedagogy' (Hogan et al., 2013) that relies heavily on direct instruction and traditional pedagogical practices and, to some extent, adopts constructivist techniques mostly for content mastery and examination preparation. It is this pedagogy that serves to explain in part Singaporean students' success in PISA (Deng, Gopinathan, & Lee, 2013; Hogan, 2014; Hogan et al., 2013).

It would be tempting to propose, as would 'best-practices' advocates, that what low-performing countries should learn from Singapore is its pedagogy. However, this pedagogy, as indicated earlier, is regulated and shaped by a centralised education system with a national curriculum and is powerfully driven by high-stakes examinations which stream students into

various school types and curriculum tracks based on their examination performances (Gopinathan & Mardiana, 2013; also see Hogan et al., 2013). Then, one simply cannot pick and choose so-called 'best practices' without being concerned about the larger social and institutional context of which they are a part. The unique institutional arrangement of a high-performing system places a powerful constraint on what can be borrowed from the system.

It is important to note that such a pedagogy, while instrumental in preparing students for PISA and academic tests like PSLE and 'O' level, is ineffective in preparing them for the 21st century economy which calls for higher-order, complex thinking, creativity, imagination, and entrepreneurial thinking. In fact, the Singapore's government has been well aware of this limitation and has embarked on radical pedagogical reforms over the last two decades (see Deng, Gopinathan, & Lee, 2013). In view of this, what Singapore can learn from other countries such as Finland and Canada is how classroom teaching can be conducted in a way that develops conceptual understanding and fosters critical thinking, creativity, and innovative and entrepreneurial capability. To this end, the current high-stakes examination system in Singapore must be reformed, and teacher professional autonomy enhanced.

There is seemingly a paradox. Singapore's pedagogy is largely conservative, directed toward the transmission of predetermined content in the curriculum and examination performance. Yet PISA, as claimed by the OECD (2004), is forward-looking and future-oriented, with the ambition of testing skill in authentic contexts needed for life and work in the 21st century. To reconcile this paradox, we need to question this basic premise. PISA tests, framed by the test taking situation and in the form of paper-and pencil items, do not live up to the OECD's promise of testing real-life skills and competences in authentic contexts (Sjøberg, 2007). Moreover, the claim that PISA measures the competences needed for 21st century is

unwarranted; the OECD provides neither sufficient justifications nor systemic research evidence for. As Hopmann (2008) wrote,

> There is no research available that proves this assertion beyond the point that knowing something is always good and knowing more is better. There is not even research showing that PISA covers enough to be representative of the school subjects involved or the general knowledgebase. PISA items are based on the practical reasoning of its researchers and on pre-tests of what works in most or all settings – and not on systematic research on current or future knowledge structures and needs. (p. 438)

Furthermore, we must question the other premise of the OECD mentioned earlier – that PISA results are the prime yardstick of the educational performance of an education system. The primary function of school education as conceived in PISA is *economic*—developing competences for the economy in the 21st century. Such a conception entails a narrowing of the function of education, thus reducing the social, civic, and educational significance of an education system.

Concluding remarks

Employing Connelly and Xu' conceptualisation of reciprocal learning, I have explored the potential for reciprocal learning about pedagogy provided by a body of PISA-inspired literature on high-performing education systems. I have argued that the opportunities for reciprocal learning provided by that body of literature is rather limited because of its one way, non-reciprocal attitudes, because of its uncritical acceptance of OECD's basic premises about PISA, and because of its employment of 'best practices' approach. Using Singapore as a case, I have argued that reciprocal learning needs to be informed by the cultural historical narratives behind the development of an education system and a theory of pedagogy that locates teaching within a broad social, institutional, and instructional context of schooling. I have also discussed lessons

from and for Singapore concerning purposes of schooling, institutional norms and arrangements, and pedagogical practice.

To advocate this conception of reciprocal learning is to call for responsible, thoughtful, and two-way policy learning on the part of those systems preoccupied with *policy borrowing* – centring on the 'import' of best-practices or what works from high-performing systems without a careful consideration of the social, cultural, and institutional contexts of those systems (cf. Lingard, 2010; Newman & O'Donnell, 2016). To some extent, this call resonates with Bob Lingard's argument that effective policy borrowing entails *policy learning* which requires a 'careful consideration of national and local histories, cultures and so on' and taking 'account of research on the effects of the policy that will be borrowed in the source system' (Lingard, 2010, p. 132). This article goes beyond Lingard by arguing for a kind of policy learning that is multi-faceted, more sophisticated, and bidirectional. It entails an intellectual inquiry into the historical cultural narratives behind the development of the source system, into institutional policies, norms, and arrangements, and into the nature and form of classroom practice. It rejects the OECD's reductionist conception of the function of education – together with the use of PISA results as the chief yardstick for measuring the quality of an education system – and embraces a much broader conception of the role of education. Furthermore, it assumes reciprocity between two or more education systems enriched by mutual inquiries into each system's historical cultural narratives, institutional policies, norms, and arrangements, and nature and form of classroom practice. This is guided by a belief in 'equality in educational relations between two societies' (Connelly & Xu, this issue, p. xx)—in the sense that each has something to offer to the other. Such learning can be made possible by creating opportunities for policy-makers, educational researchers, and classroom teachers from two or more systems to work together and

make inquiries together, leading to learning with one another and from one another, as exemplified in the partnership project 'Reciprocal Learning in Teacher Education and School Education between Canada and China' (see Xu & Connelly, this issue).

Acknowledgements

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