Improving Educational Quality and Outcomes for National Development in the 21st Century

Reflections from the ADB-THF Professional Learning Programme (2016 and 2017)

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Introduction

In 2015, UNESCO's Sustainable Development Goal 4 laid out an ambitious programme to achieve a quality education for all. There was a strong recognition that with universal access to primary education in literacy and numeracy being generally met, it was time to focus more distinctly on educational quality that was both inclusive and equitable.

This drive for improved educational quality, backed with findings on its strong relation to improved economic outcomes (Hanushek & Woessmann, 2007), comes at a time when governments find themselves compelled to tackle the demands of a) pervasive economic globalisation, b) a thirst for talent and a more educated workforce, c) rising aspirations for upward social mobility, and d) the broader imperative to bring nations to the next stages in the development agenda.

These issues also underscore the Asian Development Bank's (ADB) Strategy 2020 blueprint, which identifies education as one of five core operational areas (ADB, 2016) necessary for establishing inclusive economic and environmentally sustainable growth. For the ADB and its Developing Member Countries (DMCs) who are working together to move up the economic and social equity ladder, there is, therefore, strong recognition across the board of the necessity to tackle existing educational structures and practices to improve educational quality.

To help achieve these objectives, The HEAD Foundation (THF) and the ADB have in 2016 and 2017 equipped over 60 policymakers and stakeholders from 11 DMCs[1], through a Professional Learning Programme (PLP), with key insights and skills on what it takes to improve schooling quality and educational outcomes for national development.

The programme was achieved through a series of keynote presentations conducted by educational and policy experts, coupled with site visits to Singapore's Ministry of Education Curriculum Planning and Development Department (CPDD), the Singapore Examinations and Assessment Board (SEAB)[2], and the National Institute of Education.

Countries in Southeast Asia are diverse in their educational capacities and face inherent realities of widespread geographical and demographic differences. Therefore a key strategy for generalisable educational effectiveness principles was adopted. A guiding framework to organise these strategies was provided by Professor Hitendra Pillay (2017) during his keynote presentation. Figure 1 presents an adapted model.

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1   2016: Bangladesh, Nepal, Indonesia, Sri Lanka, zz   ; 2017: Kyrgyz Republic, Lao PDR, Mongolia, Myanmar, Pakistan, Philippines

2   As the PLP is a continuously evolving programme, the second workshop did not include a site visit to the SEAB. Instead, and as based on participant feedback, there was a stronger focus on Singapore's experience with a) the Technical and Vocational Education and Training (TVET) sector, and b) the alignment strategies in curriculum, teaching and learning.

While the factors leading to improved educational outcomes are certainly not exhaustive, they are closely inter-related. Most notably, these are issues that have an impact on student learning within the classroom – a space where most of the 'magic' of learning crucially happens. Most importantly, this 'magic' can only be effective when all young children have access to quality early childhood development, care and preprimary education so that they are ready for primary school and beyond. This was the fundamental argument in Dr Sheldon Shaeffer's convincing presentation on educational reform for successful learning.

In the interest of capturing and distilling the essence of the PLP presentations, discussions and interactions for the benefit of stakeholders around the region, this policy brief highlights the key themes that emerged and those that demand continued emphasis. Figure 2 provides an illustrated overview.

Figure 2: *Five themes from the PLP*

Theme 1: Catching up in a VUCA world

The VUCA[3] world is a key consideration for the field of strategic policymaking these days. While policies should still be crafted with respect to historical lessons, comparative studies, as well as contextual and present realities, VUCA upends certainty and traditional trajectories to success. By its very nature, VUCA demands that policymakers are prepared for change, and especially change that is unexpected. The goals, and solutions, then are less clear. Sometimes, ambiguity sets in, where 'black swans'[4] fundamentally reshape existing social and economic structures.

At the macro structural level, this could entail events such as the emergence of new technologies, the rise of the gig economy, impact from geopolitical events,
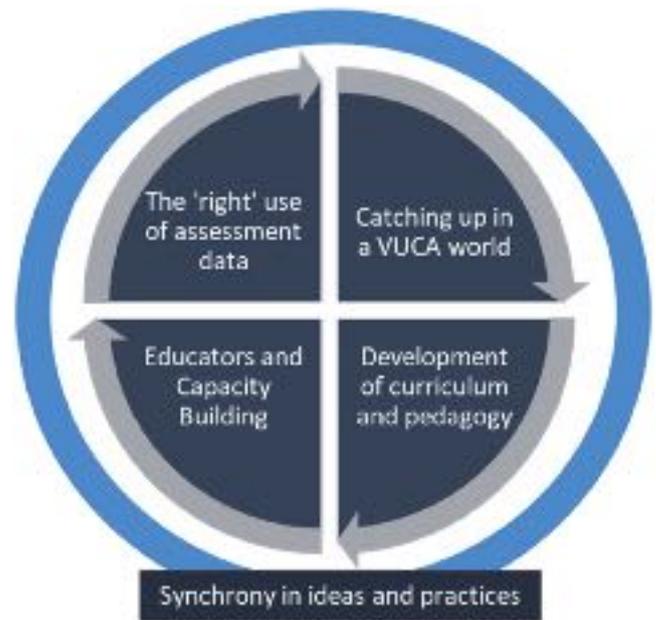
a financial crisis, or even new social risks such as an ageing population as well as unpredictable, natural disasters and their consequences. VUCA captures these changes, and presents the need for policymakers to deeply reflect on and integrate change as a constant in policymaking.

VUCA and its scenarios impact traditional understandings of human capital development and raises the need for systems to prepare students and future citizens for new, alternate, and uncertain economies and radically changed societies. Existing assumptions of what works must be challenged in this context. Resilience, and adaptability are key to individual and societal success.

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3   VUCA stands for Volatility, Uncertainty, Complexity and Ambiguity. They are various forms of uncertainties that structure futures thinking. See Bennett and Lemoine (2014) for an elaboration.

4   'Black swans', as argued by Nassim Taleb (2007), are rare and unpredictable events which fundamentally shape societies, or the world. While one would ideally seek to prepare for every outcome, a recognition of black swans demands solutions at a higher order – e.g., to be resilient rather than prepare for a specific future.
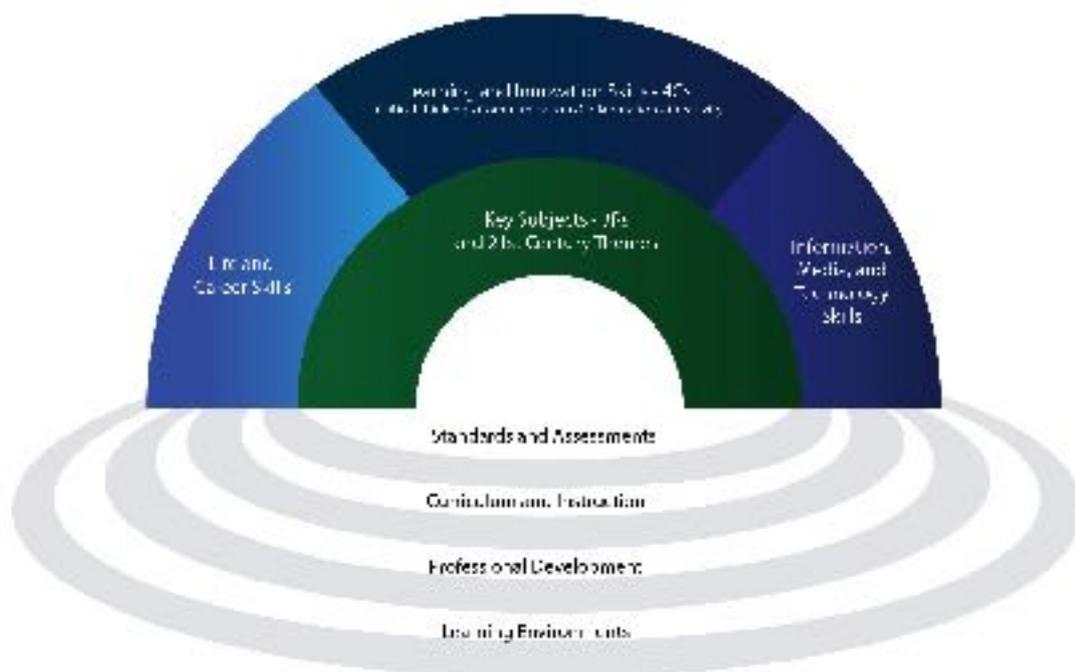
Figure 3: *Framework for 21st Century Learning advocated by the P21 group (P21, 2017)*

It is also in this vein of thought – of VUCA and the 21st century – that Singapore's former Minister of Education Heng Swee Keat argued for adaptability amongst students (Heng, 2013) at a 2013 Education Work Plan seminar:

Instead, individuals need to be adaptable and willing to learn. They need to have the confidence to deal with problems that have no clear-cut solutions. And they need to be able to work effectively with others, across races and nationalities, and to communicate clearly.

Dr Brajesh Panth (2017) pointed out in his presentation that countries needed to prepare their students with future skills for future jobs. With dynamism as part of the new economy in the 21st century, old industrial-era models will be even less relevant.

As a consequence, the role of the educator becomes much more challenging and more than that of an individual who just teaches to prepare students to pass examinations. Instead, he or she is now a facilitator, coach and teacher who devotes his time to the development of a whole spectrum of knowledge, skills, values, and dispositions. In the United States, the P21 group, under advisement from teachers, education experts, and business leaders, has also identified a holistic framework of both 21st century

student outcomes and the necessary support systems to shape them (see Figure 3).

Therefore, when setting the broad directions of future-ready educational policies, policymakers should consider the following questions:

1. What challenges are presented to teaching and learning in a VUCA world?

2. What would a curriculum for change and uncertainty look like?

3. Would existing assessment models be sufficient?

4. Is the existing cadre of teachers equipped to meet these demands?

Each DMC country has achieved much in education, having created a basic, largely industrialisation-era model. However, it is clear that for the 21st century – one that is set to embrace change as a constant, much more needs to be done. Curriculum must change, and pedagogical practices must be updated to meet new demands. What then should be considered in the development of new curriculum and pedagogy?

Theme 2: Development of curriculum and pedagogy

The challenge is to develop a curriculum to meet the needs of the 21st century. Fresh thinking is required as to the nature, scope and utility of the content students are required to master. Concurrently, how can existing pedagogies be further developed for ever-changing educational expectations while recognising the inherent limitations in expansive geographies, tight resources and, sometimes, qualified manpower?

In a deeply technological and interconnected VUCA world, non-academic competencies will increasingly be in high demand. Workers would be required to think critically, solve problems, direct their own learning, communicate, and collaborate, among other skills. The World Economic Forum has argued that with the Fourth Industrial Revolution[5], there will be disruptive change to existing skill sets. Core, work-related skills will also be subject to change, possibly rapid change in this evolving knowledge economy.

While the broad argument to raise educational quality is still necessary, the specifics of curriculum redesigning should therefore go beyond the raising of test scores to also meeting the broader purpose of curriculum for national development in a vastly changed future. This new normal in the new century requires educators and policymakers to rethink existing curriculum models – specifically what and how students are being taught.

As suggested by Sarvi and Pillay (2015), there should no longer be an artificial separation of knowledge versus skills. Instead, one should view convergence, and integrated knowledge, as the key (see Figure 4). The authors also argue that integrated knowledge lays the groundwork for creativity and innovativeness – things that are central for participation in the knowledge economy.
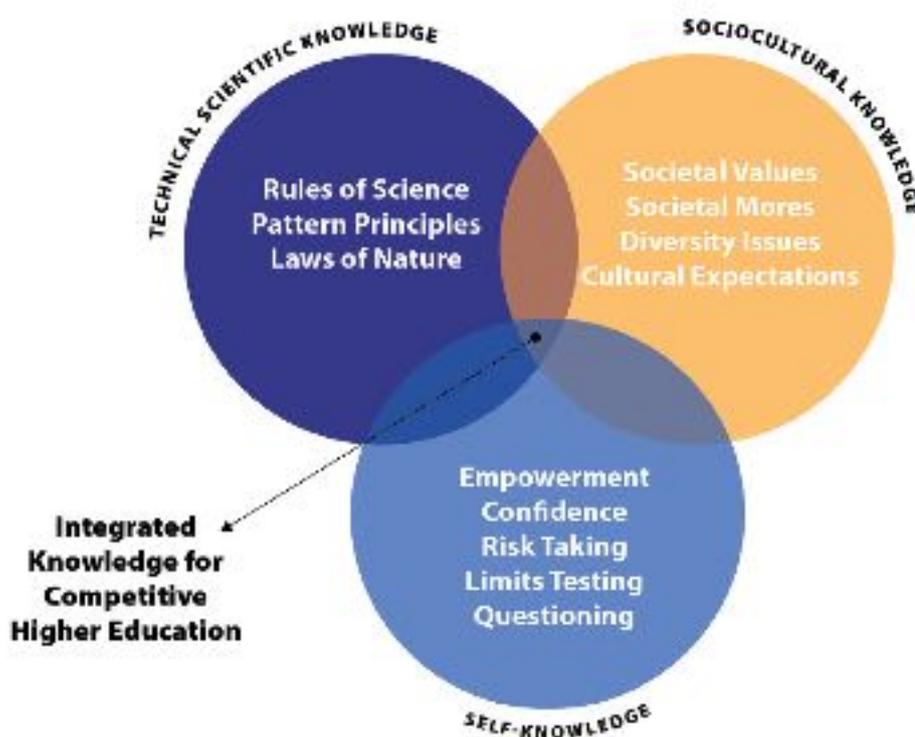

Figure 4: Convergence of knowledge sets into "integrated knowledge" (Sarvi & Pillay, 2015)

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5   This is a term popularised by Klaus Schwab, the founder and executive chairman of the World Economic Forum. Schwab argues that developments in genetics, artificial intelligence, robotics, nanotechnology, 3D printing and biotechnology, amongst others, will lay the foundation for a revolution more comprehensive and all-encompassing than anything humankind has ever seen.

Nevertheless, it is also important to recognise that these aspirations must be relevant to existing educational systems, the societal make-up, and the prevailing economic models.

As countries necessarily differ in their capacity to enact changes, one significant equaliser can be the effective utilisation of Information and Communication Technologies (ICT) within existing educational structures. Professor Lim Cher Ping argued in his presentation that the use of ICT in education can maximise the learning and development outcomes of students across the tenets of *Quality*, *Equity*, and *Efficiency (*see Figure 5).

Specifically, ICT can be effectively utilised to update pedagogical methods (i.e., professional development) as well as to enhance learning for the student (Lim & Natarajan, 2017). Further, equity in terms of opportunity to learn can be significantly enhanced in countries with geographically diverse populations.

Dr Uma Natarajan revealed that her research on the use of TPACK[6] in Indonesia indicated that technology was a useful way to improve pedagogical practices, and it also had a positive impact on a teacher's confidence to design 21st century learning models.

For the student, skills in ICT and technological literacy is also a crucial component for the 21st century. A mastery of technology would enable learning to take place anywhere, and at anytime. When one considers the necessity of lifelong learning that pushes the boundaries of a traditional school-work-retire cycle, technological literacy becomes a strong enabler for any individual to continuously participate in new forms of productive activities.

As a consequence, policymakers need to address the following questions:

1. How should curriculum be reshaped to meet 21st century needs? What is valued and should be prioritised?

2. What are the socio-economic-cultural factors that can inhibit or contribute towards curriculum change?

3. What are the knowledge skill-sets needed for a student in a reformed, social division of labour?

4. How can ICT be effectively used to develop pedagogy for teachers, and learning for students?

5. Can effective implementation of ICT in education across the nation bridge the quality divide between public and private schools?

The VUCA world in the 21st century has brought about new demands for educational systems in both developed and developing countries. Yet, while there is a strong desire to catch up in the knowledge economy, countries should be cognisant of the perceived value of any attempt in curriculum reform. On one hand, the curriculum should be responsive to existing societal and economic needs. On the other hand, it should also empower students for future life and work. One negative outcome could be that teachers may soon find themselves overloaded by curriculum requirements, with little capacity to teach.

Although the effective implementation of ICT in education can help develop relevant pedagogical practices for the new century ahead, ICT is also not a panacea because of a) cultural and learning beliefs, b) structural limitations, and c) the prevalence of scarce resources. Even within an ICT-enriched environment, it is clear that the roles and abilities of the educator are vital.

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6   TPACK stands for Technological Pedagogical Content Knowledge. The theory recognises that ICT should not simply be added to existing teaching practices, but instead reworked and reshaped as a new teaching design to integrate content and learning around ICT.
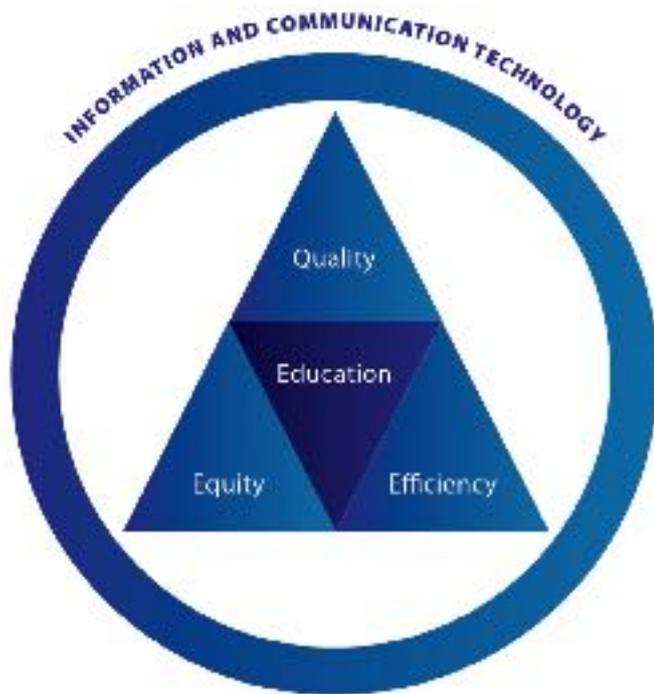
Figure 5: The three tenets of education where ICT can play a strategic role, adapted from Ra, Chin, & Lim (2016)
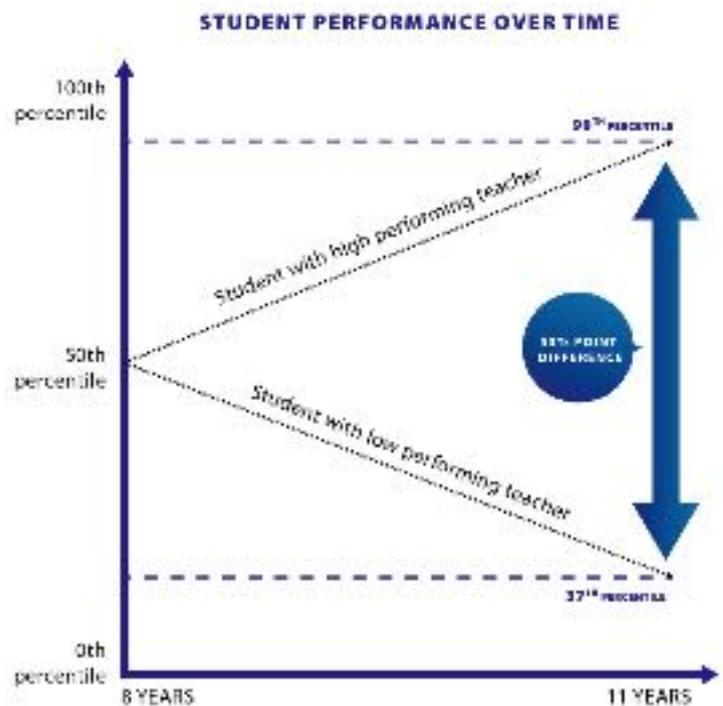

Figure 6: Cumulative and residual effects of teachers on future student academic achievement (Sanders & Rivers, 1996)

Theme 3: Educators and Capacity building

New policies are urgently needed to improve teacher quality, and through such improvement, the quality of teaching. Teachers are key agents within the classroom, and when coupled with effective school leaders who practise instructional and distributed leadership, can significantly improve student learning outcomes. How then can nations create policies and conditions for teachers to facilitate content mastery as well as the 'soft skills' needed for the future?

There needs to be a move, therefore, from a quantitative approach, i.e., recruiting more teachers to one that focuses on developing teacher quality. Sanders &

Rivers (1996) have demonstrated that the high-performing teacher can have a substantial impact on a student's performance (see Figure 6).

What then can be done to improve the teacher? On one level, research, as demonstrated by that done at Singapore's National Institute of Education, plays a crucial role in shaping teacher and teaching outcomes. The Office of Educational Research (OER) at NIE has invested heavily in researching classroom practices of Singapore teachers; a huge amount of data is now informing policymaking, teacher education and classroom practice.

Moreno's (2005) work provides a useful framework to identify the areas where educational research can be conducted: phases, topics, and how knowledge can be generated (see Figure 7).

Although the global literature, and the prevalence of best practices can inform educational policymaking, there must be a distinct recognition of the contextual and cultural limits to these generalisable lessons. Gopinathan & Deng (2016) note that there are social, cultural, and institutional factors that limit lessons learnt from high performing educational systems. Similarly, Hogan (2014) recognises that there are distinct historical and institutional factors that influence the logic of teaching and learning.

As a result, what is needed then is indigenous research and knowledge to better equip the teacher with the right tools and strategies that can then be used to maximise a student's learning.

Yet, while the right evidence-based training can be conducted at teacher training institutions, just as important are who gets recruited, and how a teacher is continuously developed throughout his or her career (Gopinathan, 2017).

The Singapore experience is that the top third in each cohort are recruited for the teaching profession. This raises the basic standards of educators as well as contributes to a strong cultural regard on education's importance within the larger society. It is the professionalism of the teaching cadre that is important in setting a high barometer for a society's expectations in education.

Strategies are also needed to excite and retain the trained teacher within the educational field. While Professional Development is an important goal to improve pedagogies and the self, Career Development is the complementary policy to meet a teacher's longer-term career aspirations. Singapore adopts a three-track system for all classroom teachers to head into: teaching, leadership, and the specialist (see Figure 8). Each track is important in a larger education ecology.

Figure 7: Examples of various influencing factors in research on teacher quality development adapted from Moreno (2005)

Next to teachers, school leaders are crucial to developing schools as learning organisations, contributing to teacher satisfaction and enhanced student learning outcomes. School leadership, identified as the second-most important factor within schools to improve a student's learning outcomes (Leithwood, Harris, & Hopkins, 2008), has therefore a strong role in shaping an empowering environment for both students *and* teachers.

Professor Allan Walker (2017) highlighted in his presentation the importance of creating the system leader to deliver sustainable results. The expectations of a school leader are high, and in addition to leading development within schools, the school leader must be cognisant of system goals as well as a community's aspirations (see Figure 9).

As a result, Walker proposes that educational leaders should embody seven principles of strategic leadership:

1. Futures orientated and have a future strategy

2. Evidence-based and research-led

3. Getting things done

4. Opening of new horizons

5. Fit to lead

6. Making good partners

7. Doing the 'next' right thing

To improve educational outcomes, the school leader must create the right environment, e.g., through distributed leadership or instructional leadership, for teachers. To meet the goals for national development, the school leader must align the school's practices within the larger system. In Walker's words, no school, after all, is an island unto itself.

In this regard, the key policy related questions are:

1. How are teachers recruited, developed, and retained within the system?

2. How can teachers be developed as professionals?

3. How can school leaders be developed to better meet the needs of the system, the community, and the school?

Educators (both teachers and school leaders) will constantly remain a vital institution in developing the student cognitively, emotionally and socially. However, the kinds of learning environment created hinges deeply on how teachers view themselves and how they deliver learning through context-specific pedagogical practices. Educational research and professionalisation of the teaching cadre can help in that regard. Yet, any research output will only have impact if the meanings behind it are internalised by teachers as essential in shaping instructional practice.
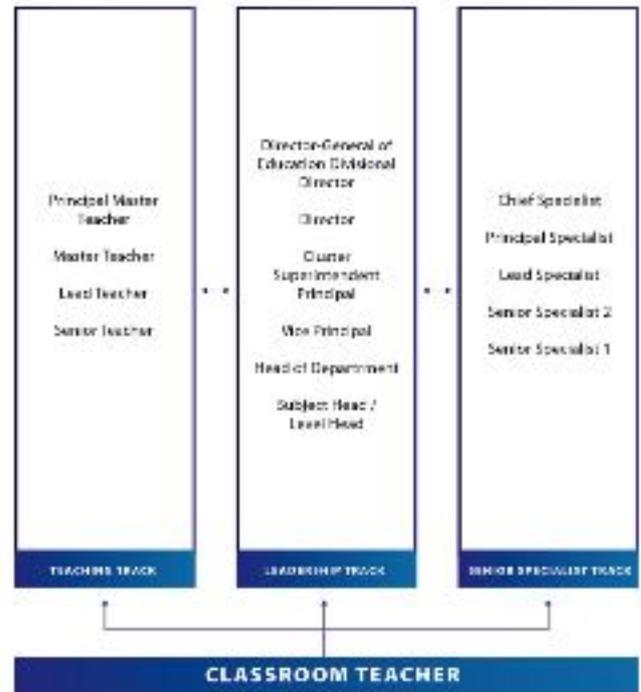

*Figure 8: Career Tracks for Teachers
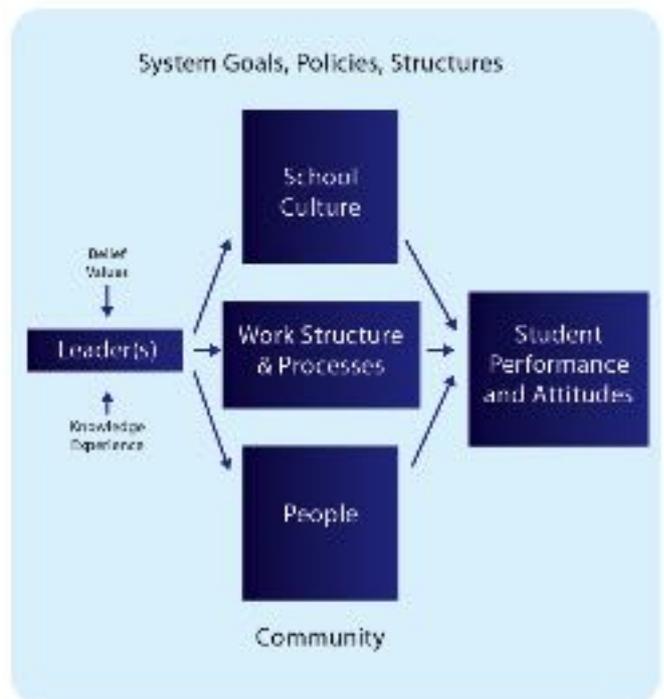(Ministry of Education, Singapore, 2017)*

*Figure 9: Leading for Sustainable Results
(Walker, 2017)*

The 'right' learning environment is also a result of the school leader who can facilitate a teacher's teaching, growth, and development. In addition, the school leader must also consider the need for their schools to meet system objectives, achievement of standards, and whether the students graduating are prepared for participation in the 'real' world. This places significant demands on the school leader who needs to constantly review a cohort's development. It is in this context where assessment data can play a role – to review, reflect, and implement the 'right' changes.

Theme 4: The 'right' use of assessment data

In the last 20 years, the discourse on educational change and quality has progressively shifted from a focus on input, to learning achievement outcomes at both a national and global level. The popularisation of international education comparative benchmarks like OECD's PISA, TIMSS or PIRLS has shone a spotlight on how national educational systems perform in relation to other nations (see Figure 10). Concurrently, the use of assessments for comparative purposes is in line with a neoliberal, accountability movement where there is a strong need to justify educational spending and to ensure educators deliver the necessary outcomes.

Yet, the value of assessments – be it at the international or the national levels – is when deep nation-centric data analysis is conducted to understand where and why underperformance occurs. Assessments, data, should then be less about who has succeeded in the system; rather, its focus should be on why and where underperformance occurs and what can be done to raise the floor.

Professor Esther Ho (2017a) made the case during the workshop that the value of such international comparative assessments is in the contribution they can make to the promotion of quality and equality of basic education across countries. Fundamentally, these assessments provide evidence for the necessity of educational reform such that more students can benefit from better learning experiences (Ho, 2017b).

What is useful from these comparative assessments is that they can provide detailed insights that highlight shortfalls in learning. When the data is understood against existing teaching strategies, one can identify areas for pedagogical improvement. In other words, the strength of benchmarks like PISA or TIMSS have less to do with their comparative natures across countries, but how they can ideally serve a diagnostic function, to improve educational policies and teaching strategies in an evidence-based way.

As noted by Profs. Ho and Gopinathan, in the cases of Hong Kong and Singapore, a strong assessment structure has provided rigour in ensuring a degree of educational performativity. However, for students and parents, assessments, especially those that are used for selection purposes have also contributed towards a logic of efficiency in education. It perhaps comes as no surprise then that the private school tuition industry in both countries is a significant aspect of a student's lived experience. There are thus increasing questions

Countries	Science	Reading	Math
Singapore (1)	256	535	564
Japan (2)	238	5 6	532
Finland (5)	231	526	51
Korea (11)	216	5 7	524
United Kingdom (15)	205	498	492
Germany (16)	309	500	506
Netherlands (17)	509	503	512
Switzerland (18)	506	492	521
Ireland (19)	503	521	504
Norway (24)	498	5 3	502
United States (25)	496	497	470
OECD Average	493	495	490
Viet Nam (15)	525	487	495
Indonesia (53)	403	397	386
Thailand (65)	415	409	42

Figure 10: PISA Results from OECD (2016)

over whether the drive for efficiency and quality has come at the expense of a student's wellbeing.

Therefore, the policy-related questions with regard to assessment are:

1. How can assessments at the national level play a stronger role in countries achieving their national education outcomes?

2. What can be done to balance emphasis on performance with equity and a student's wellbeing?

3. With the long tail end in education outcomes, across the 11 countries, how can assessment data be used by policymakers and teachers to improve educational outcomes?

Although this policy brief has started with Prof. Pillay's conceptual framework of the five factors in thinking about improving educational outcomes (see Figure 1), the integrative feature that ties the factors together is a 'circle of alignment'. Be it in ideas or practice, there must be a synchronisation and a logic in how things can get done for improved systemic outcomes.

Theme 5: Synchrony in ideas and practices

There is a distinct need to consider *synchrony* on multiple levels: horizontally and vertically. Horizontally, for any educational reform to be successful, a 'whole-of-government' approach is needed that ties the ministries of education, manpower, national development, and finance, etc. closer together.

One of the key components contributing to Singapore's success is the tight integration and link between education and economic development. In his presentation of Singapore's TVET development, Dr Varaprasad noted that education has always been for a larger purpose within society and the economy. Comprehensive economic master plans, attempts to forecast trends in the labour market, and the identification of skills gaps amongst the next generation of workers, have been the foundation for the push to

develop students with the necessary skills and knowledge (see Figure 11).

These close linkages were particularly clear during each of the three phases, and the upcoming 4th phase of Singapore's economic development (see Figure 12).
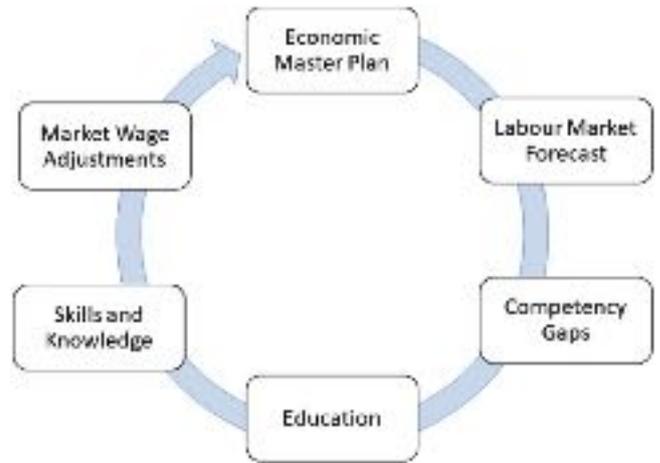
Figure 11: Tight link between education and economic development (Varaprasad, 2017)

Figure 12: Four phases of Singapore's economic development

Successful 'use' of education for national development has been a key variable in Singapore's success. A whole-of-government perspective prevails across the Ministries of Education, Trade & Industry, and Manpower. Students are taught for individual development, but they are also crucially shaped for participation in the market. This horizontal partnership across the government demonstrates the tight link between education for economic and national development.

Vertically, alignment is also necessary from the political leadership, to the policymakers, to the educators on the ground and to the community and parents who have an active part to play in pushing for quality in education. Although traditional ideas of educational effectiveness are kept to stakeholders within schools, a child's involvement in learning is a result of what the school does and how he or she is shaped by home and community environments.

When parents are strongly invested in their children's learning development, they can help shape educational outcomes.

Prof. C. Dimmock argued in his presentation (2016) based on his study on the Vietnamese reform experience that future reform agendas in ASEAN nations should emphasise capacity building in 3 key areas:

• Policy guidance – clear guidance from policymakers/administrators on policy aims, justification, expectations, and general guidance on implementation.

• School culture – the building of positive school cultures that empower and support teachers and leaders during reform process.

• Adequate preparation of leaders and teachers for implementating and managing change, e.g., ability to see connections between renovations (reform), strategic plan to implement reforms and adequate human resource allocation.

Therefore,

• What more can and needs to be done to promote greater coherence and alignment across existing sets of actors in educational policy development?

• For longer-term reform strategies, how can more complex and deeper synchrony, both horizontally and vertically, be achieved in ensuring success of reform initiatives?

One key question to consider: how will these national goals interact with the complex field of individual aspirations, personal aptitude and talents, and the broader need for societal and economic fulfilment?

Policy Recommendations

This policy brief for 'Improving Educational Quality and Outcomes for National Development in the 21st Century' is an attempt to highlight the key lessons arising from the presentations and discussions held during the ADB-THF PLP.

In addition to the five themes discussed, there are five policy recommendations that can also be drawn from this analysis:

1. Curriculum reform for a VUCA world is insufficient on its own. There must be synchrony in both leadership and teacher capacity building as well as appropriate assessment structures.

2. Educational effectiveness cannot be achieved when systems do not understand why some schools succeed and why some fail. Educational research and a deep analysis of assessment data can provide valuable insight to these questions.

3. Educational reform, often established by policymakers, must resonate with educators at the frontline. This form of vertical synchrony is necessary for a whole-of-system approach towards improving educational outcomes.

4. Policy pronouncements without well-thought out implementation strategies wouldn't work. Barriers to successful implementation include:

- Mandated, top-down reform, resulting in lack of buy-in from school stakeholders and unfavourable attitudes towards the adopted reform.

- Lack of understanding and insufficient time for principals, teachers, and other stakeholders to implement the new strategies required under the reform.

- Inadequate efforts to build school capacity to implement school reform including school resources, school stakeholder knowledge of roles and responsiblities, as well as lack of leadership skills.

5. The recognition of a VUCA world presents both challenges and opportunities. Although traditional trajectories to success are questioned in this new normal, systems are freed to explore alternate models of national development. Instead of being constrained by the past, one can consider this global restructuring of 'how things work' as an opportunity to chart an avenue of effective educational change that is unique, and contextual, to each individual country's needs.

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About This Policy Brief

The
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Human Capital & Education for Asian Development

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 TheHEADFoundation
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 The Head Foundation

The HEAD Foundation (THF) is a charitable organisation set up in 2013 in Singapore to contribute to the development of Asia. As a think tank, we focus on issues around:

Human Capital   **Education**   **Leadership**   **Sustainability**

With an in-house research and project management team, we aim to influence policies and create positive social impact which will contribute to the sustainable development of Asia. We support the adaptation of good models and best practices in light of the contexts and priorities of the Asian communities we serve, and promote public awareness of issues in our fields of expertise.

Our Work
- We support research and social initiatives related to the issues we focus on in Asia
- We publish book series, newsletters, research reports and policy documents to disseminate knowledge and share opinions
- We host regular public talks to create awareness and share knowledge with our community
- We run workshops and training programmes with scholars, researchers and experts from around the world

Our People
- Our Advisors and Fellows share their extensive experience and leadership. They are instrumental in helping the Foundation shape its projects and programmes and build new alliances.

- Our management and operation team comprises specialists from across the region. They bring with them management skills, domain knowledge and execution experience from multiple business and nonprofit sectors.

Our Partners
- We provide a collaborative and inclusive platform for a multi-disciplinary approach to scholarship, policy reform and programme development.

- We partner with like-minded global and regional experts and institutions to advance our common goal of empowering Asia's advancement through education and human capital development.

- We collaborate with individuals and organisations that bring along with them expert knowledge, resources and on-the-ground networks to help achieve our goals.

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