

Singapore Education Experience

Prof. Tan Oon Seng
Director of Centre for Research in Child
Development (CRCDD)
National Institute of Education, Singapore

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Hope you are and will be

- Learning something new for yourself....
- Gaining an awareness of the bigger picture of things....
- Seeing new connections and possible innovations...
- Thinking of improve current practices

Purpose of Talk:

A sharing on Singapore Experience to provide key leaders with insights into big-picture thinking and multiple perspectives that are key to understanding the new economy and post pandemic education which have implications on how we can transform education in pragmatic ways.

Helicopter Views

- World Trends
- Real World Work
- Education Ecology

Preparing our Next Generation

- A Generation in term of cohort renewal is about 20 Years.
- History shows us that every 20 years we see a new trend.
- Is it a trend of Growth, Complacency or Destruction?
- The world went through 1900 (Growth), 1920 (Complacency) and face destructions in 1940s.
- Thankfully, Re-Building in 1960's in every sphere brought back a new cycle
- Growth (1980s) but by 2000 Complacency again set up.
- Now 2020s we are at war again this time with the virus, climate, nationalism, threats of war....

Educational Transformation

More of the Same?

$$1+2+3+\dots+\dots+98+99+100$$

Big Picture Approach?

$$\begin{aligned} &1+99 \\ &\quad 2+98 \\ &\quad \dots 49+51 \end{aligned}$$

$$50, 100$$

Overview

- Education Vision
- Journey and Milestones
- Teacher Factor
- Pandemic Lessons
- Digital Transformation
- Thinking about the Future: Challenges
- Discussion, Q&A

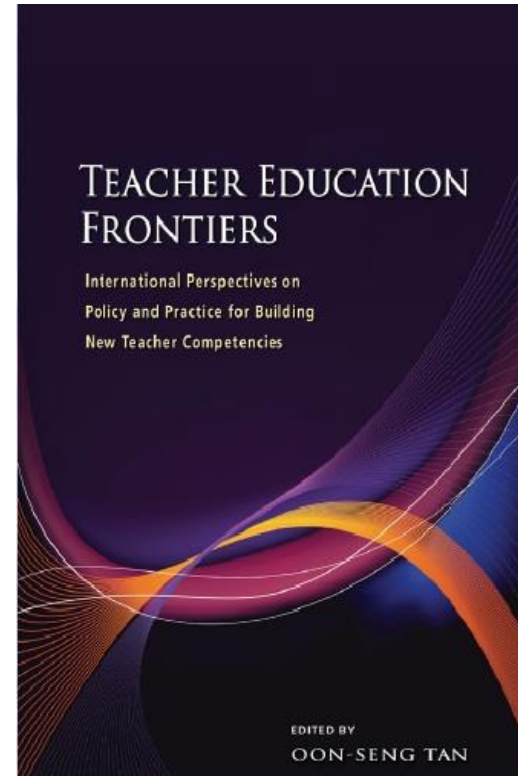
Singapore

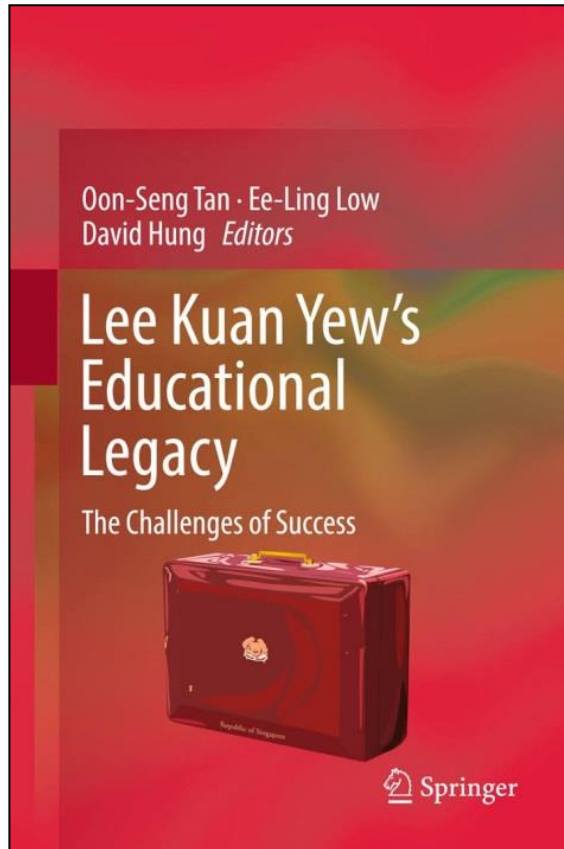
- A small country with limited resources
- **Human resource** seen as no. 1 asset
- **Education** seen as the key enabler



Education is the most important investment in the long haul and the quality of education impacts on

- Nation Building
- People's Capacity for Adaption
- Value Creation
- Values Preservation
- Capabilities for Innovation





The aim of
education
is simple:
A good man and
a useful citizen

- Lee Kuan Yew

Founding Prime Minister
of Singapore

Good man: Values-set

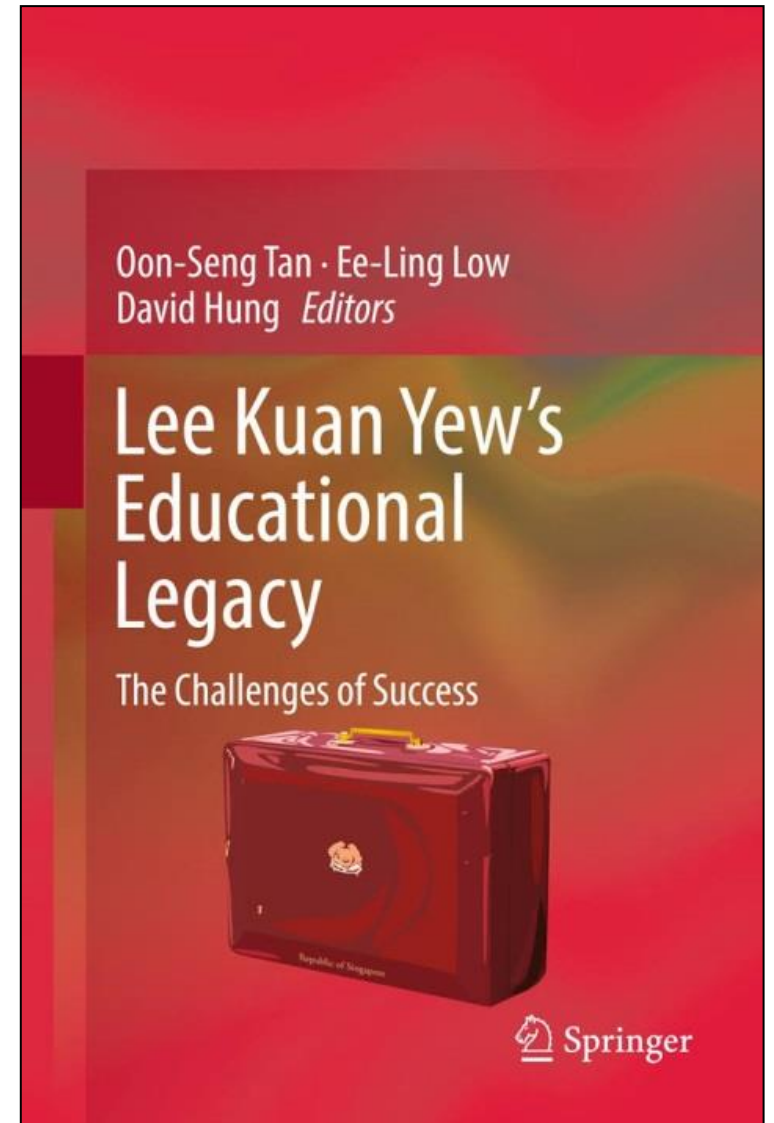
- Character
- Integrity
- Dispositions
- Diligence-Perseverance-Resilience
- Intra-personal qualities
- Social emotional qualities
- Self-directed

Useful Citizen: Competencies

- Fundamental and Foundational literacies for reasoning and thinking
- Technical and Professional Vocabulary for access to latest knowledge in arts, humanities, science and technology
- Roots, culture, values, wisdom
- 21st Century Skills and Competencies
- Applied Learning

Importance of Education

- “(Education) is the key to the long term future of any people”(Lee 1993)
- Developing every child to his fullest potential
- “In our youth of today are the leaders and citizens of tomorrow” (Lee 1959)
- “The ideal product is the student... who is strong, robust, rugged, with tremendous qualities of stamina, endurance and at the same time with great intellectual discipline, and most important of all, humility and love for his community” (Lee 1966).
- An educated man is one “who never stops learning and wants to learn” (Lee 1977)



MOE Singapore: Student-centric & Values-driven Holistic Education

- Broad and holistic education
- Instill deep values
- Learning for life
- 21st Century
Competencies Framework



Source: MOE, 2015

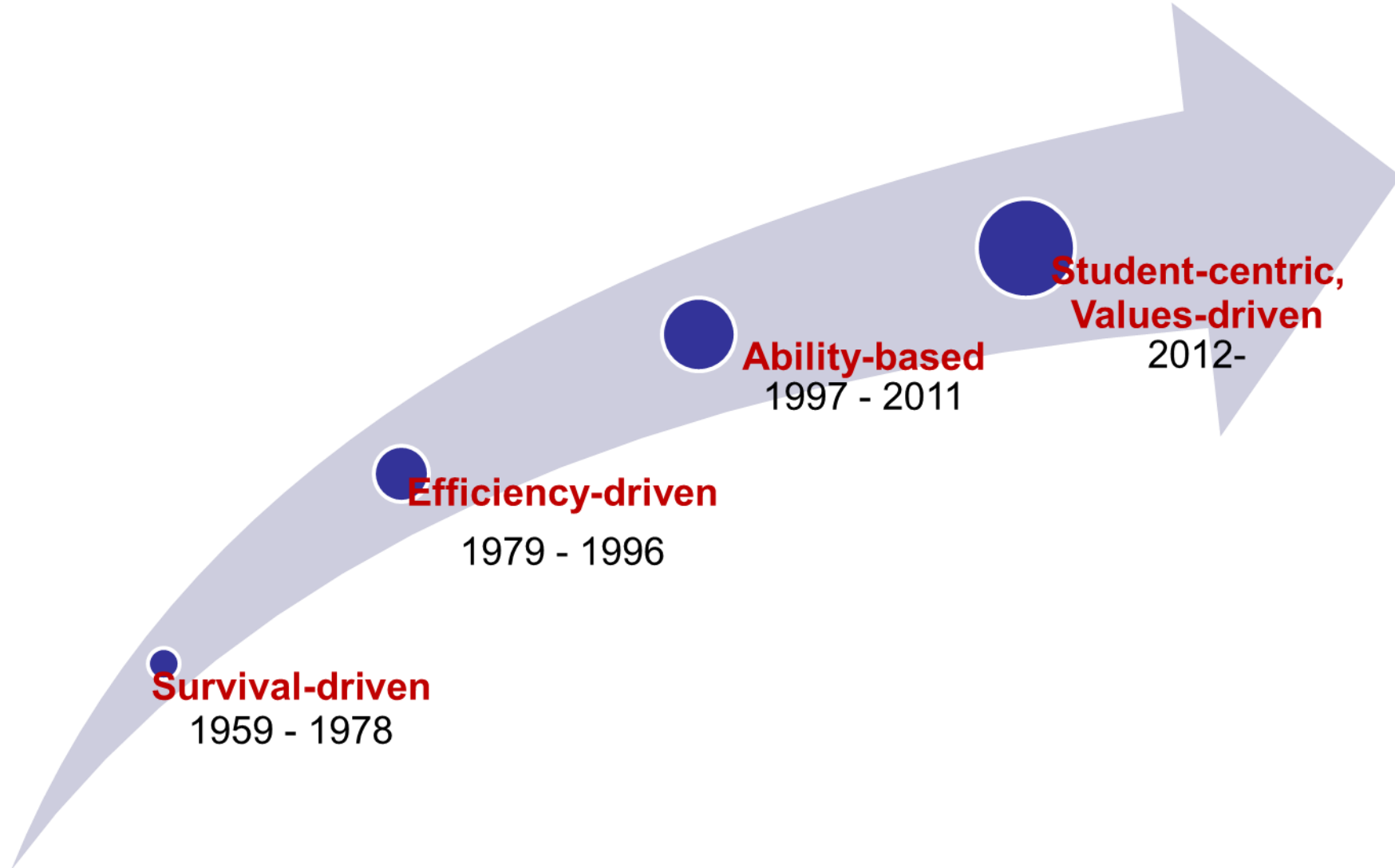
Student-centric, values-drive phase

“Ultimately, education is not what we do to our children. Rather, it is what we do with them, and for them, to bring out the best in each of them. . . We aim for every student to acquire a broad and deep foundation for his lifelong journey (Heng 2013)

“The most critical part, and the test of an engaged learner, is how committed a student is in developing the values and character that will enable him to succeed in life and contribute to others” (Heng 2012)

NIEVLC <http://www.nie.edu.sg/NIEVLC>
and watch the NIEVLC video at
<https://www.youtube.com/watch?v=osnc3VBUEmE>.

Education Policy Journey



Thinking Schools Learning Nation (1997)

“...It is a vision for a total learning environment, including students, teachers, parents, workers, companies, community organisations, and government...Schools must develop future generations of thinking and committed citizens, capable of making good decisions to keep Singapore vibrant and successful in future.”

Goh Chok Tong
Former Prime Minister

Teach Less Learn More (2004)

“The most important gift that we can give to our young ...not just preparing them for a job, but learning to live a life, learning to deal with the world, learning to be a full person, what in Chinese, they say, “xue zhuo ren” (学做人) and in schools, there are plenty of opportunities to learn to be a person...”

Prime Minister Lee Hsien Loong,
National Day Rally Speech 2004

Student-Centric, Values-Driven Education (2012)

“We want them to have the values and character to do well in life, to live in harmony, and to care for one another. We also want them to have strong foundations to seize future opportunities and find fulfilment and success.”

Mr Heng Swee Keat,
Minister for Education

THE SINGAPORE EDUCATION JOURNEY

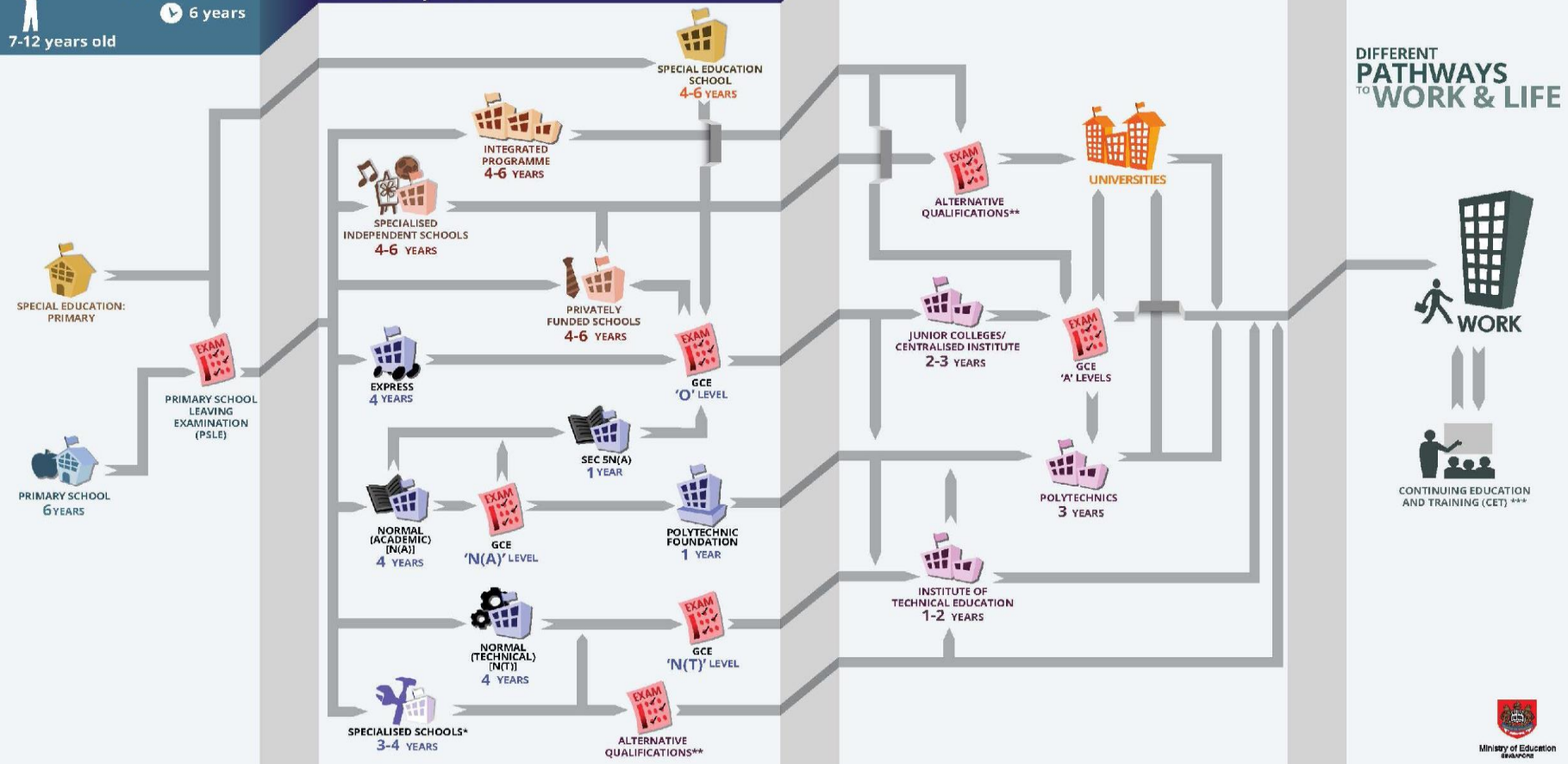
The Singapore education system aims to help our students discover their talents, realise their potential, and develop a passion for learning that lasts through life. This infographic provides an overview of the Singapore education landscape.

PRIMARY 7-12 years old 6 years

SECONDARY 13-16 years old 4-5 years

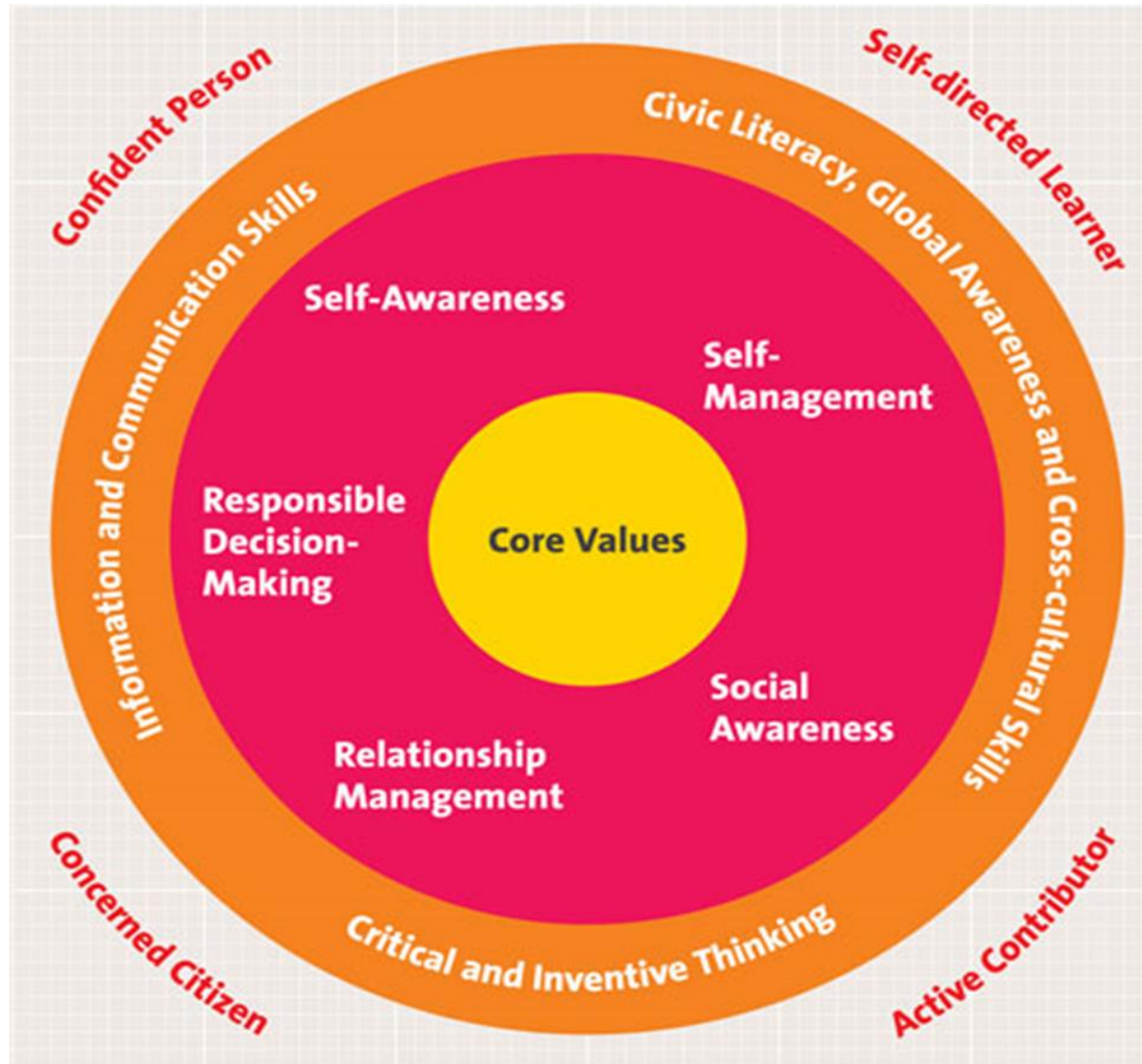
POST SECONDARY 17-22 years old 1-6 years

WORK



* Specialised schools offer customised programmes for students who are inclined towards hands-on and practical learning. These schools include Northlight School, Assumption Pathway School, Crest Secondary School and Spectra Secondary School, which is due to open in 2014.
 ** Alternative Qualifications refer to qualifications not offered by the majority of mainstream schools in Singapore.
 *** Continuing Education and Training (CET) is designed for adult learners or companies looking to upgrade the skills and knowledge of their employees.

21st Century Competencies



The Key Stage Outcomes of Education

At the end of primary education, students	At the end of secondary education, students	At the end of pre-university education, students
are able to distinguish right from wrong	have moral integrity	are resilient and resolute
have learnt to share and put others first	have care and concern for others	have a sound sense of social responsibility
are able to build friendships with others	are able to work in teams and value every contribution	understand what it takes to inspire and motivate others
have a lively curiosity about things	are enterprising and innovative	have an entrepreneurial and creative spirit
are able to think for and express themselves	possess a broad-based foundation for further education	are able to think independently and creatively
take pride in their work	believe in their ability	strive for excellence
have cultivated healthy habits	have an appreciation of aesthetics	have a zest for life
love Singapore	know and believe in Singapore	understand what it takes to lead Singapore

Source: Ministry of Education

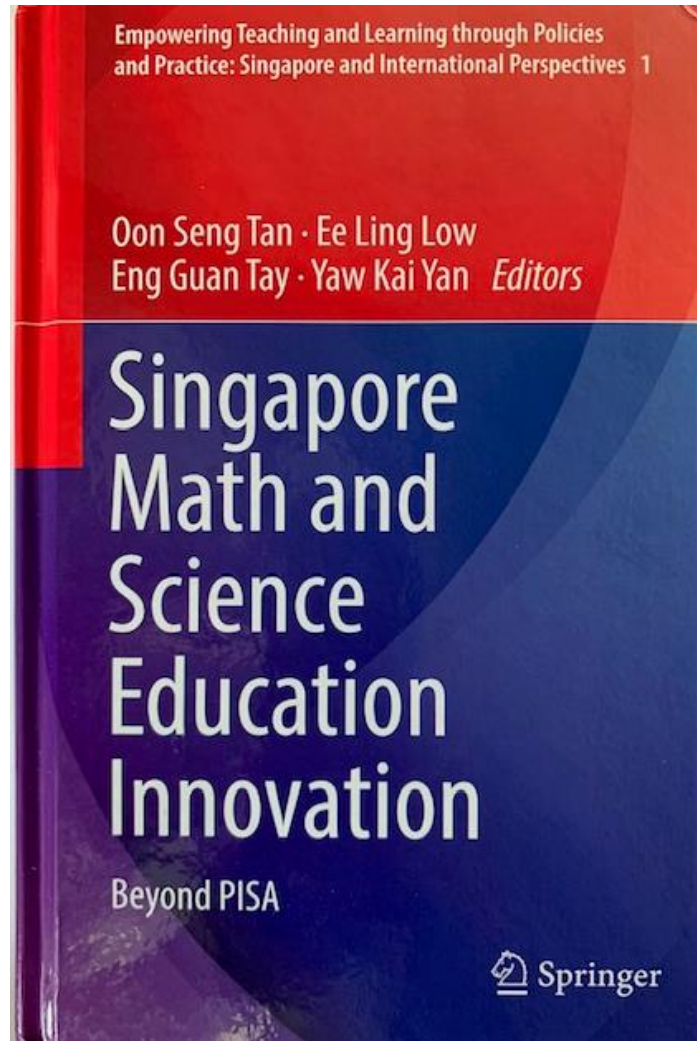
Strong Fundamentals

- Develop children holistically
- Character and values
- Preserve rigour and high standards
- Efficient and effective policies
- Education must suit Singapore context
- Openness to innovation

“Strong Fundamentals, Future Learnings”



Aligning Pedagogy & Curriculum calls for understanding Content, Process and Ecology



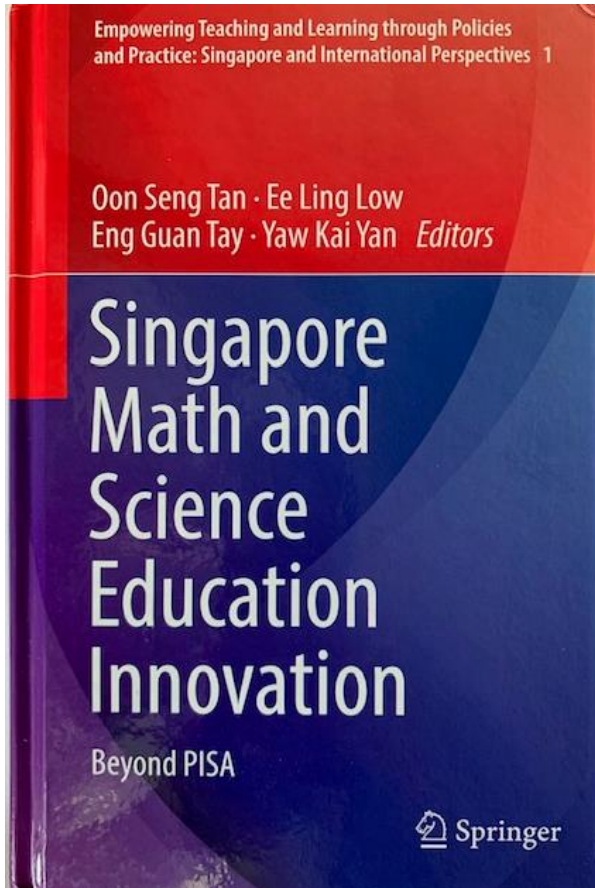
Strong emphasis on Fundamentals

Equip students with the basic knowledge and analytical skills to move up the value-chain, and be competitive in a globalised knowledge-based economy.

Strong fundamentals will ensure application of knowledge and skills in unfamiliar real-life situations

- Singapore's experience demonstrates that students:
 - possess strong fundamentals
 - are adept at applying knowledge and skills in solving novel real-life problems
 - can navigate in computer-based environments, work with less structured data, interact and uncover relationships

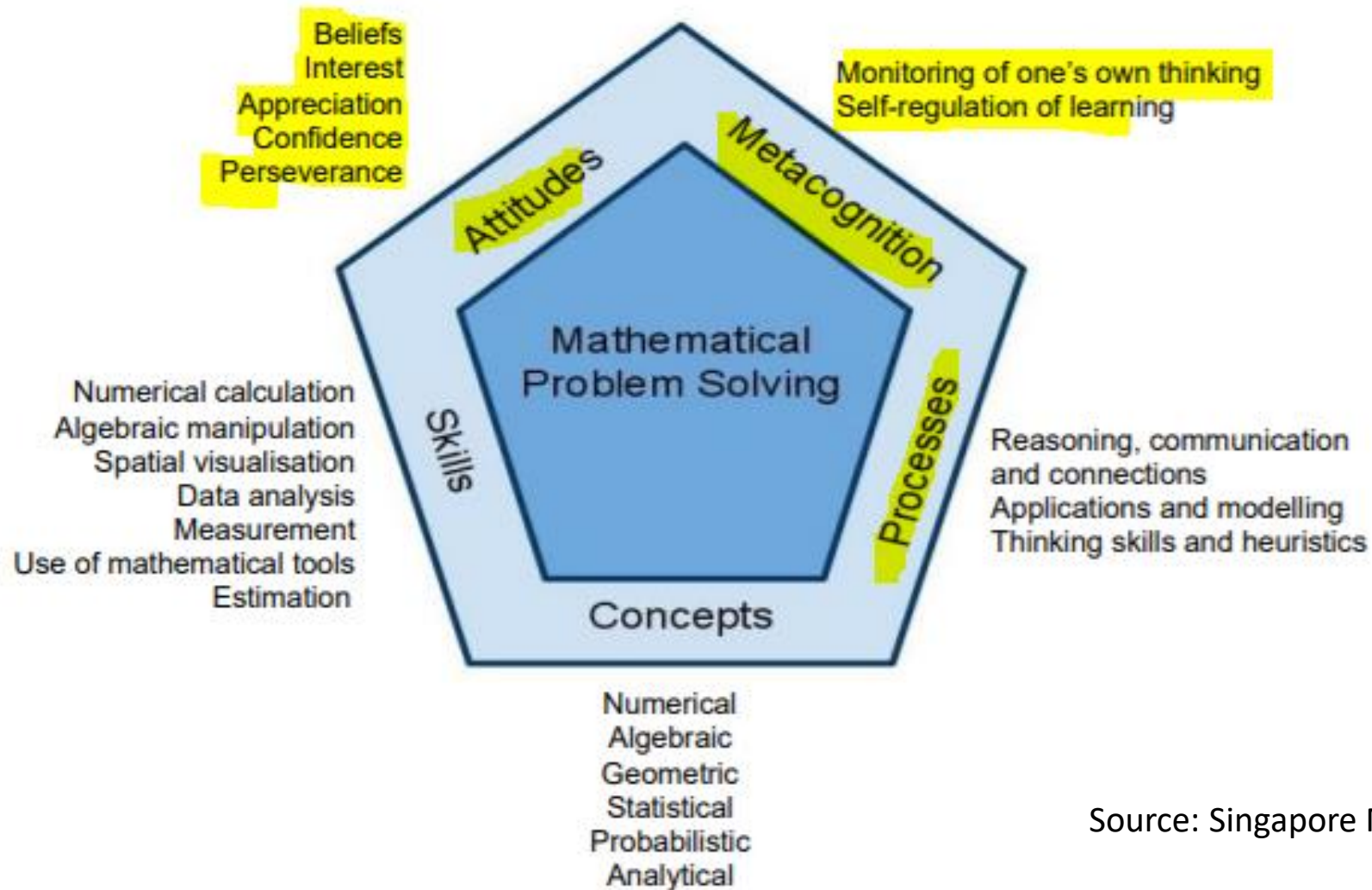
Students have the **strong fundamentals to meet the challenges of employment and life-long learning in the 21st century**

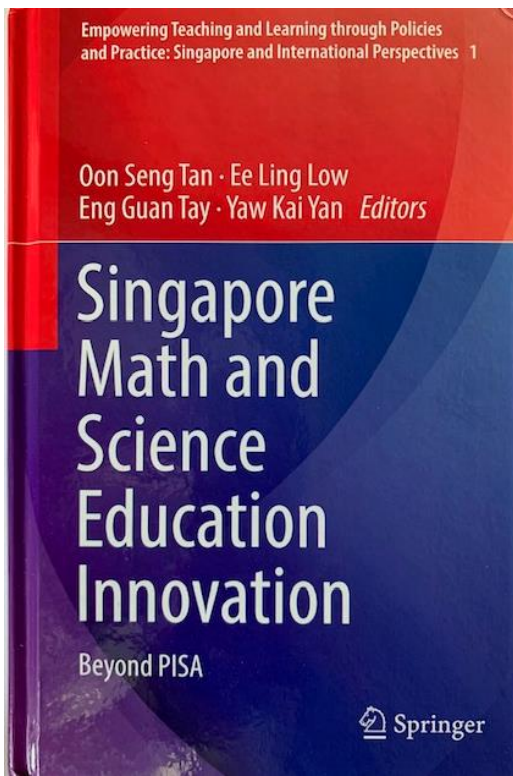


There is no “Singapore Math”
and no magic in
Sing Math Textbook or
resources!

- Mathematics is a study of patterns
- Math curriculum – process for positiveness
- In short: PICTURE and POSITIVE EMOTIONS

Get Emotions Right!





Aligning Pedagogy & Curriculum calls for understanding Content, Process and Ecology

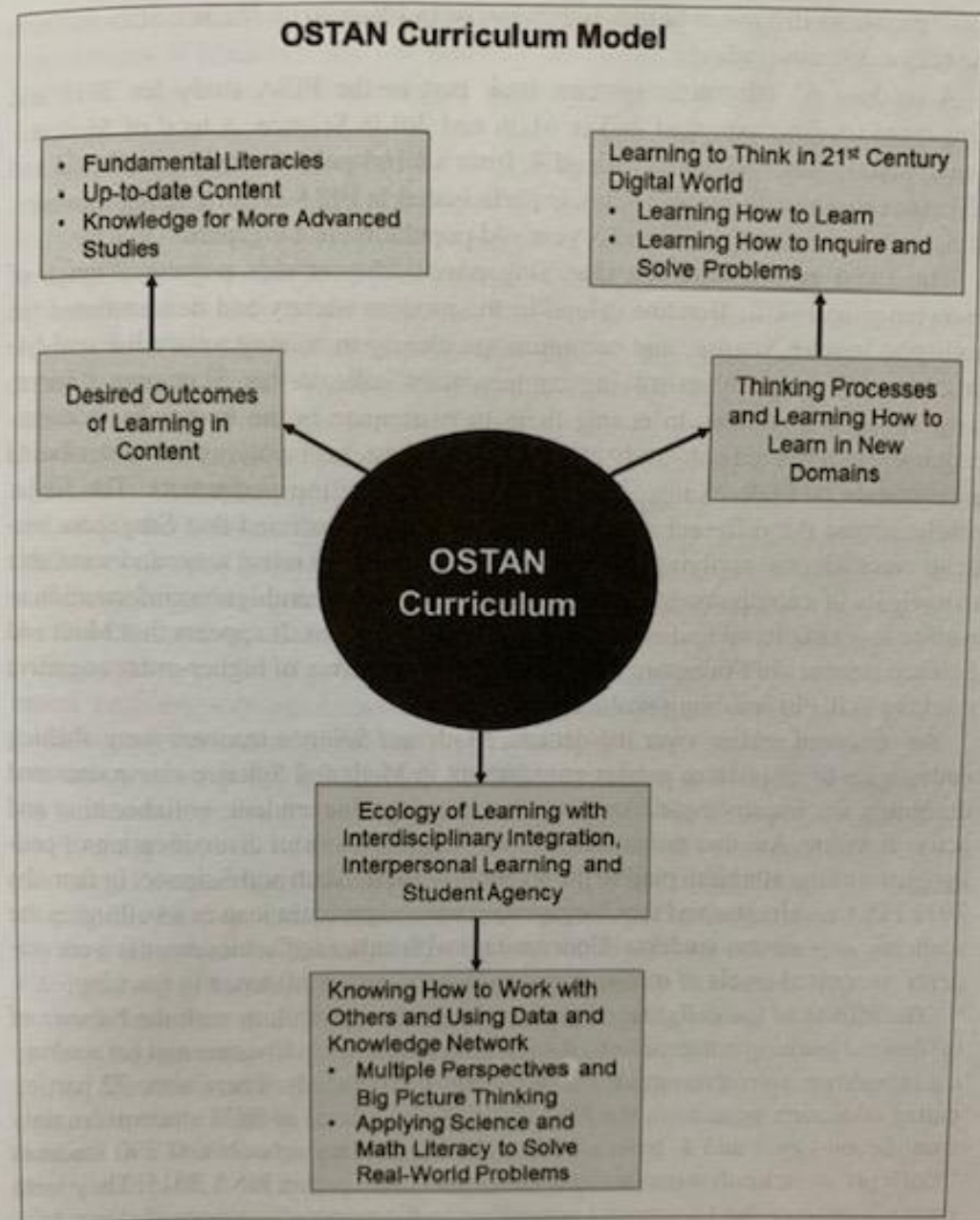


Fig. 2.10 OStan curriculum model.

Mathematical Problem Solving

- Integrity of Data - Accurate source of information
- Relevant Data - Appropriate use of data
- Analysis of Data - Math logic (e.g. Inferential logic $A \Rightarrow B \Rightarrow C$)
- Predictive Use of Data - Extrapolation, Intepolation and Rigor in Pattern Recognition
- Decision Making from Data



HUMAN ARENA



DIGITAL ARENA



SUSTAINABILITY
ARENA



GLOBAL ARENA

Prof Tan's DIGICEP Shifts

Digitization (e-world, e-ways, e-living...)

Intergeneration +
Interdisciplinary

Global market and
engagements
(cross boundaries,
cross cultural,...)

Inquiry thinking +
Immersive
experience

Creative call (Make
something!)

Enterprise (Sell
something!)

Data Driven
Practice, Profiles
and Portfolios

Responding to DIGICEP



What to do less?



What to do more?



What to phase out
and in?



What to connect?



When to do creative
destruction?

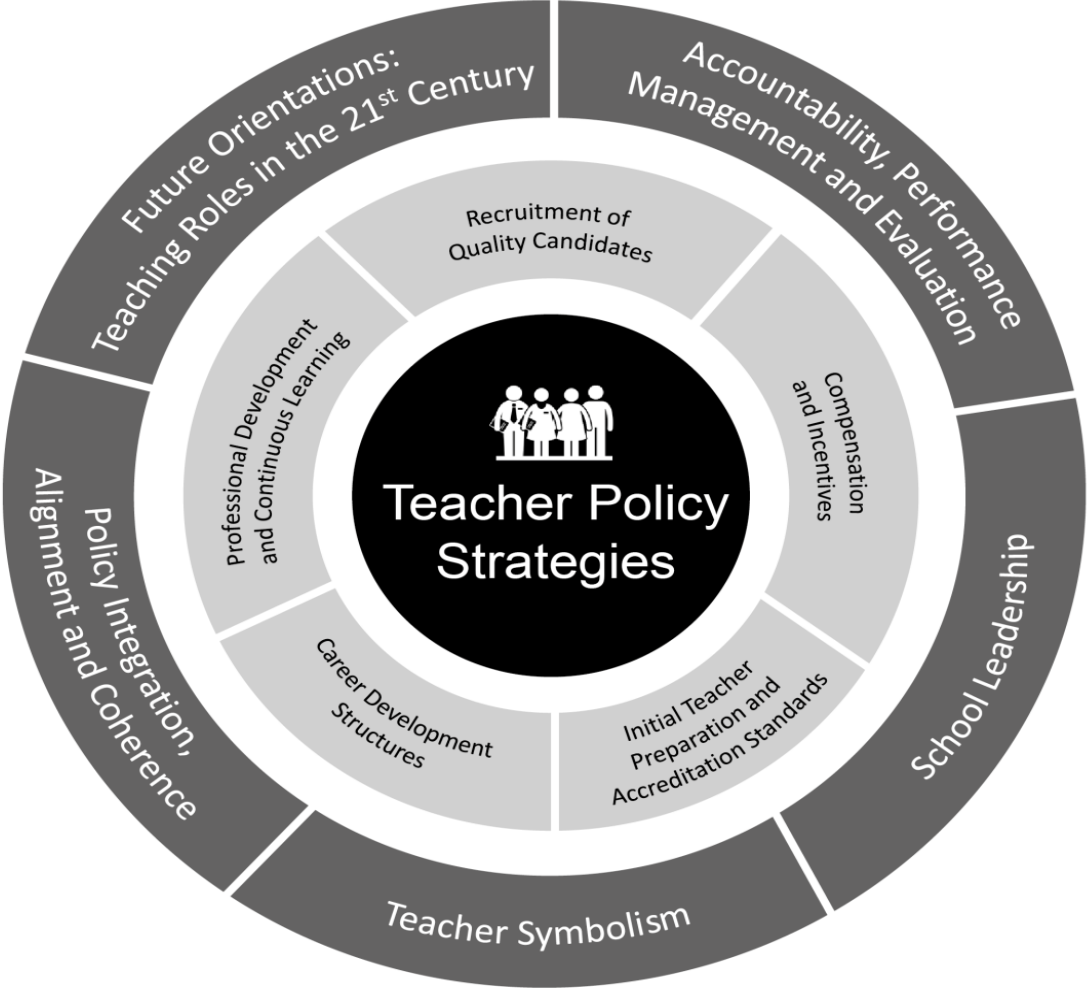
Every **STUDENT** an **ENGAGED** learner

Every **SCHOOL** a **GOOD** school

Every **TEACHER** a **CARING** educator

Every **PARENT** a **SUPPORTIVE** parent

Teacher Quality = Integrated Teacher Policy Strategies



Teacher Symbolism.

A talk a gave to Ministers of education and education leaders worldwide at the OECD Paris PISA Conference Dec 2018.

- ➔ <https://www.youtube.com/watch?v=ZGgFjxhVOso>

Video on Teacher Symbolism

Teacher Symbolism. A talk a gave to Ministers of education and education leaders worldwide at the OECD Paris PISA Conference Dec 2018.

https://entuedu-my.sharepoint.com/:v:/g/personal/tanlc_niestaff_cluster_nie_edu_sg/EXuJ9tJXepRNIB1O-CUIFFIBsxUuvLGufNI6tnWljmY9bw?e=BQVQMQ

Policy Integration

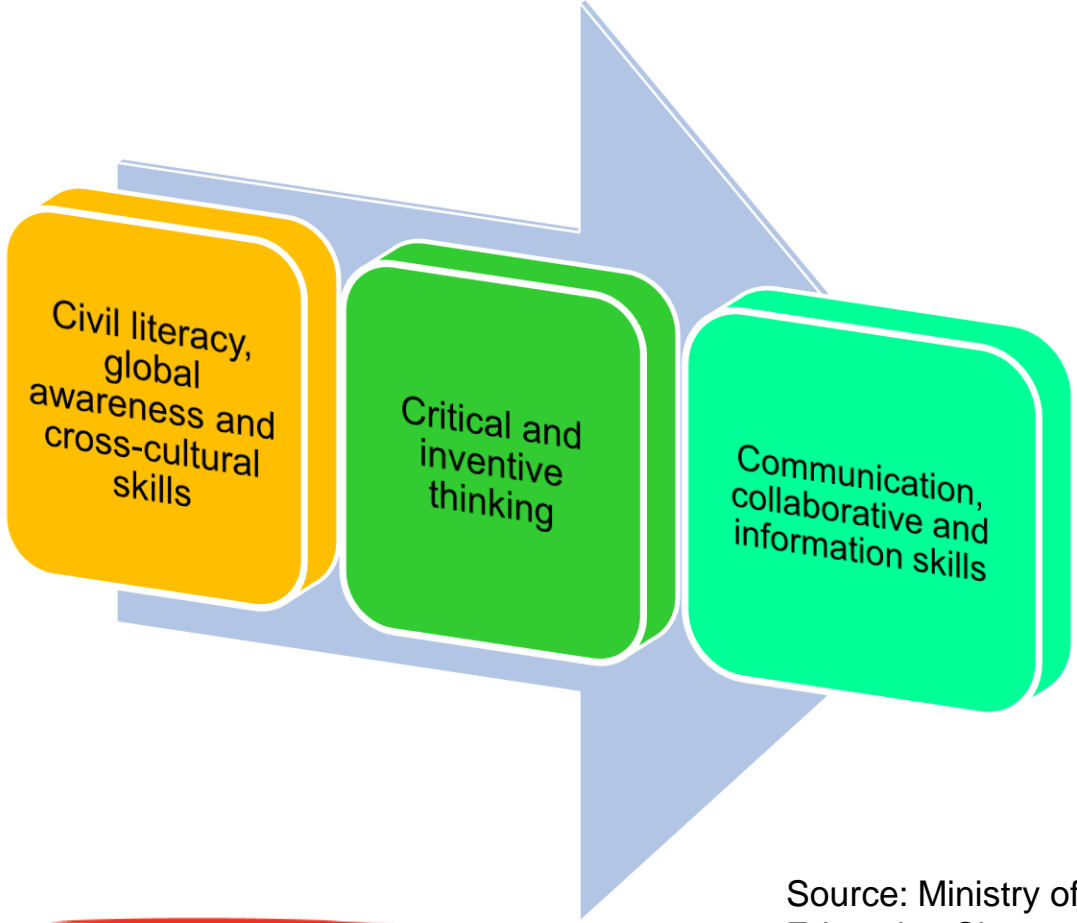
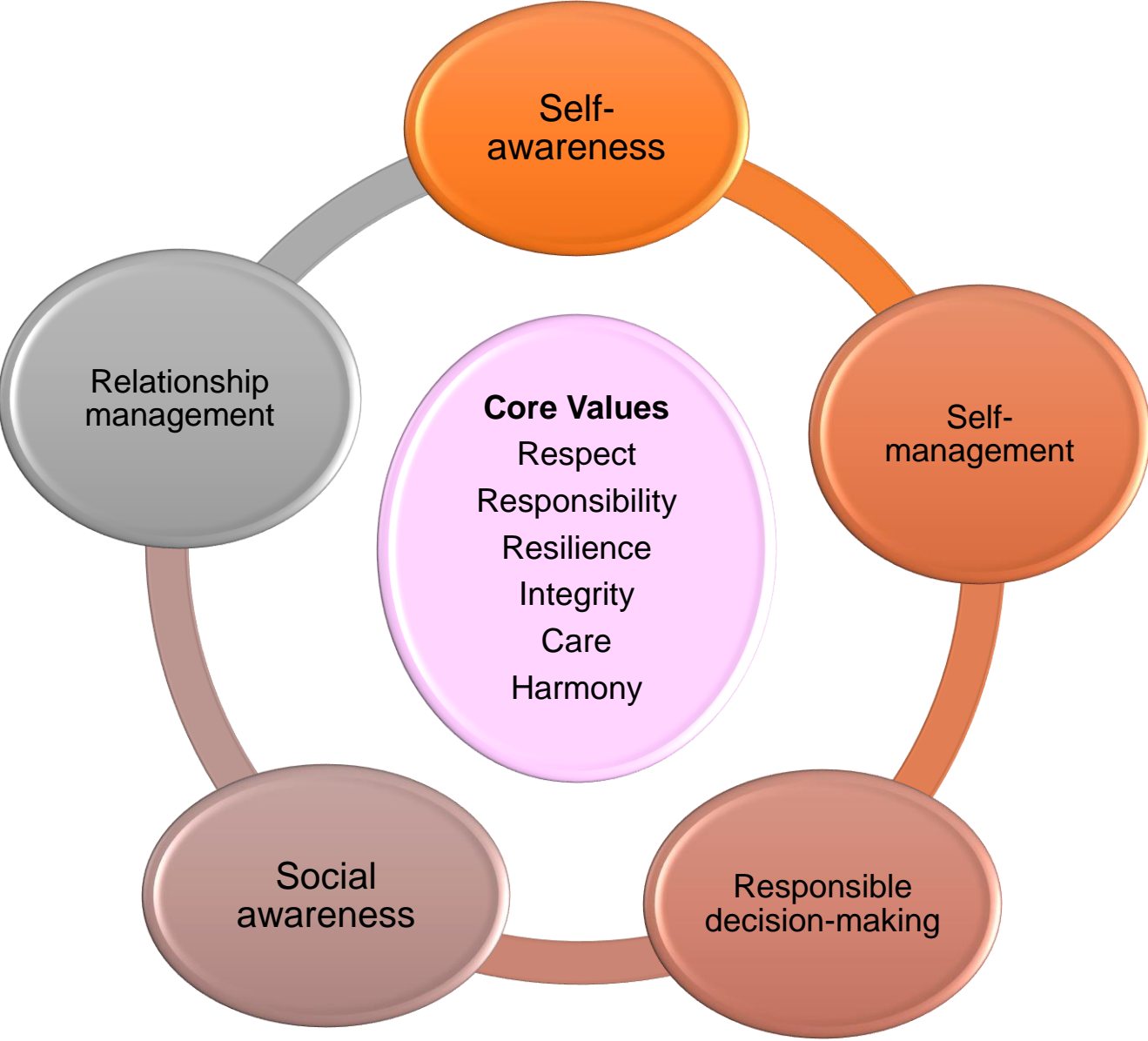
Key Principles

Unity of vision with
stakeholders playing
distinct but
complementary roles

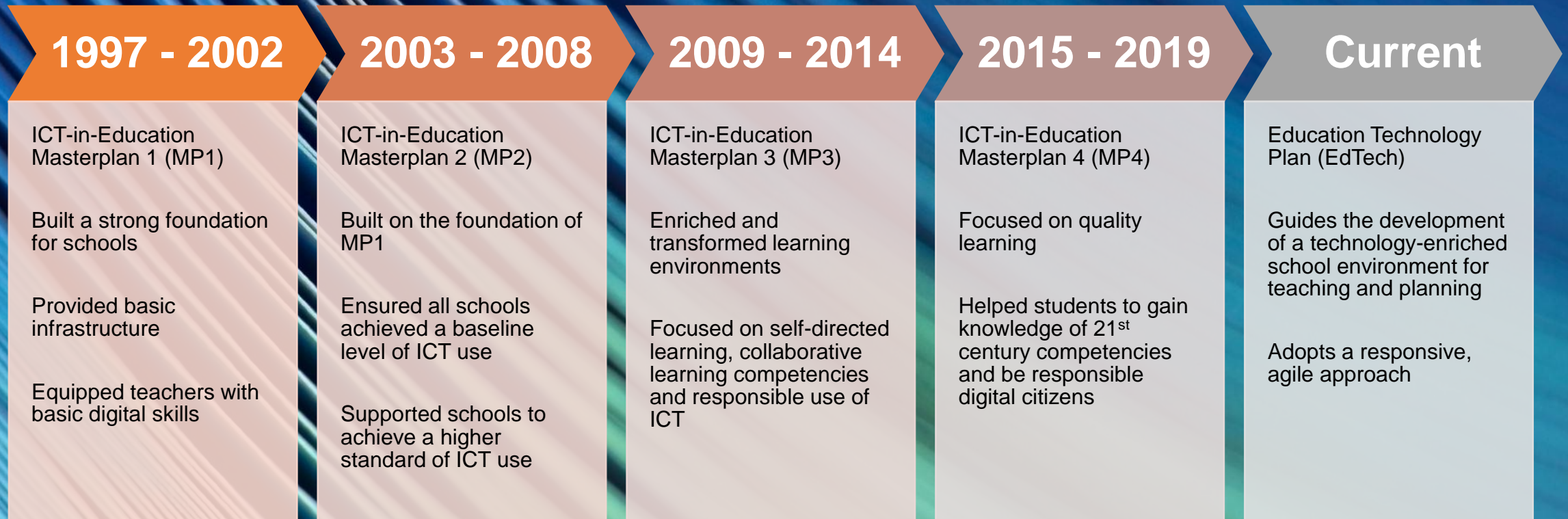
Communication and
collaboration between
all stakeholders

Mediating layers for
larger educational
systems and networks

21st Century Competencies Framework



Educational Technology Journey



Educational Technology Plan

Aim:

Guide the development of a technological ecosystem and key platforms for learning

Seeks to:

Maintain a broad overall 10-year vision from 2020 to 2030

Build agility in recognition of the emergent and rapid changes in technology

Vision

Self-directed

Help students to develop intrinsic motivation and take ownership of their learning via pedagogy, tools and curriculum

Personalised

Customise the pace and path to cater to a child's needs through creative learning experiences

Connected

Connect students' learning experiences to the community and the world

Human-centred

Use data to understand how students' interests, attitudes and motivations can optimize learning

VS1: Students as future-ready digital learners

- Self-directed learners – take ownership of their own learning, able to monitor themselves independently, and explore and sustain their interests beyond the curriculum
- Connected learners – able to collaborate with peers, community, and the world
- Digital learners – able to find, think, apply, and digitally create

VS2: Teachers as designers and facilitators

- Designers of learning experiences – design physical and virtual learning environments, customize learning to cater to students' needs, and iterate the design of learning experiences for students' continual improvements
- Skillful practitioners – influence technology to mediate learning interactions between students, curriculum, and the community
- Digital learners – continually develop themselves professionally and keep up to date with technological developments for teaching

VS3: Schools as Responsive Environments

- Adopt an EdTech planning process – able to quickly adapt to emergent needs and apply data-driven insights to improve teaching/learning practices
- Develop a school environment – continually improving ICT infrastructure and systems and reimagine learning spaces

VS4: Active Partners who Support Technology-Enabled Learning

- Inform and support parents – understand benefits of technology-enabled learning and implement strategies to scaffold students' digital learning at home
- Committed industry partners/ active community collaborators to support the EdTech Plan

EdTech Learning Experience

Students engage in multiple technology-mediated interactions with:

- Student – Content
- Student – Peer
- Student – Teachers
- Student – Community

Pre COVID-19

18th Century
Time Table
Fragmented
Regimentation
Fixed to Chair

19th Century
Curriculum
Analytic
Disconnected
Fixed to Test

20th Century
Pedagogy
Didactical Non-
Participatory
Fixed to a
Teacher

Post COVID-19

21st Century
Time Table
Flexible
Immersive

21st Century
Curriculum
Integrative Deep
Connected

21st Century
Pedagogy Design
for Engagement
Self Initiated
Learning
Participatory
Open Resource

Challenges revolving around education and pressing issues to deal with

- A. Dealing with an increasingly complex and digitalized environment
- B. Student mental health and wellbeing

Singapore government's educational objectives for the future (B.I.G M.A.D)

B: Big picture and sense-making

I: Innovation

G: Grit

M: Multiple pathways to success

A: Authentic assessment

D: Digitization and dialogue

Singapore government's educational objectives for the future



- **Digitalization and Dialogue**

- **Digitization**

- Singapore's Educational Technology Plan for the future

1. Empower students' self-directed learning with *Personal Learning Device (PLD) and blended learning (HBL)*
2. Enhance personalization of students' learning experience using AI, *e.g. Student Learning Space*
3. Connect students in collaborative networks through digital making, *e.g. programming robots, coding, producing music, 3D printing*
4. Harness technology for learner-centred assessments, *e.g. e-Formative assessment, National e-Examinations*

Current

Educational Technology (EdTech) Plan

The [EdTech Plan](#) guides the development of a technology-enriched school environment for teaching and learning. It adopts a responsive, agile approach and structure to help MOE react quickly to technological and contextual changes to ensure the effective use of EdTech for quality teaching and learning.

Singapore government's educational objectives for the future

- **Digitalization and Dialogue**

- **Dialogue**

- More collaborative learning and emphasis on community and group talent rather than individual contribution
- Peer-learning and group-based learning
- Not just for students, but also for teachers and educators, e.g. Singapore Learning Designers Community. Consisting of more than 20,000 educators, they come together to share, learn and collaborate on technology-enabled learning.
- Broaden teachers' perspectives, e.g. short-term attachments outside education system – in public and private sectors.

Thank You

B: Big picture and sense-making

I: Innovation

G: Grit

M: Multiple pathways to success

A: Authentic assessment

D: Digitization and dialogue