EDUCATION INNOVATION IN SINGAPORE

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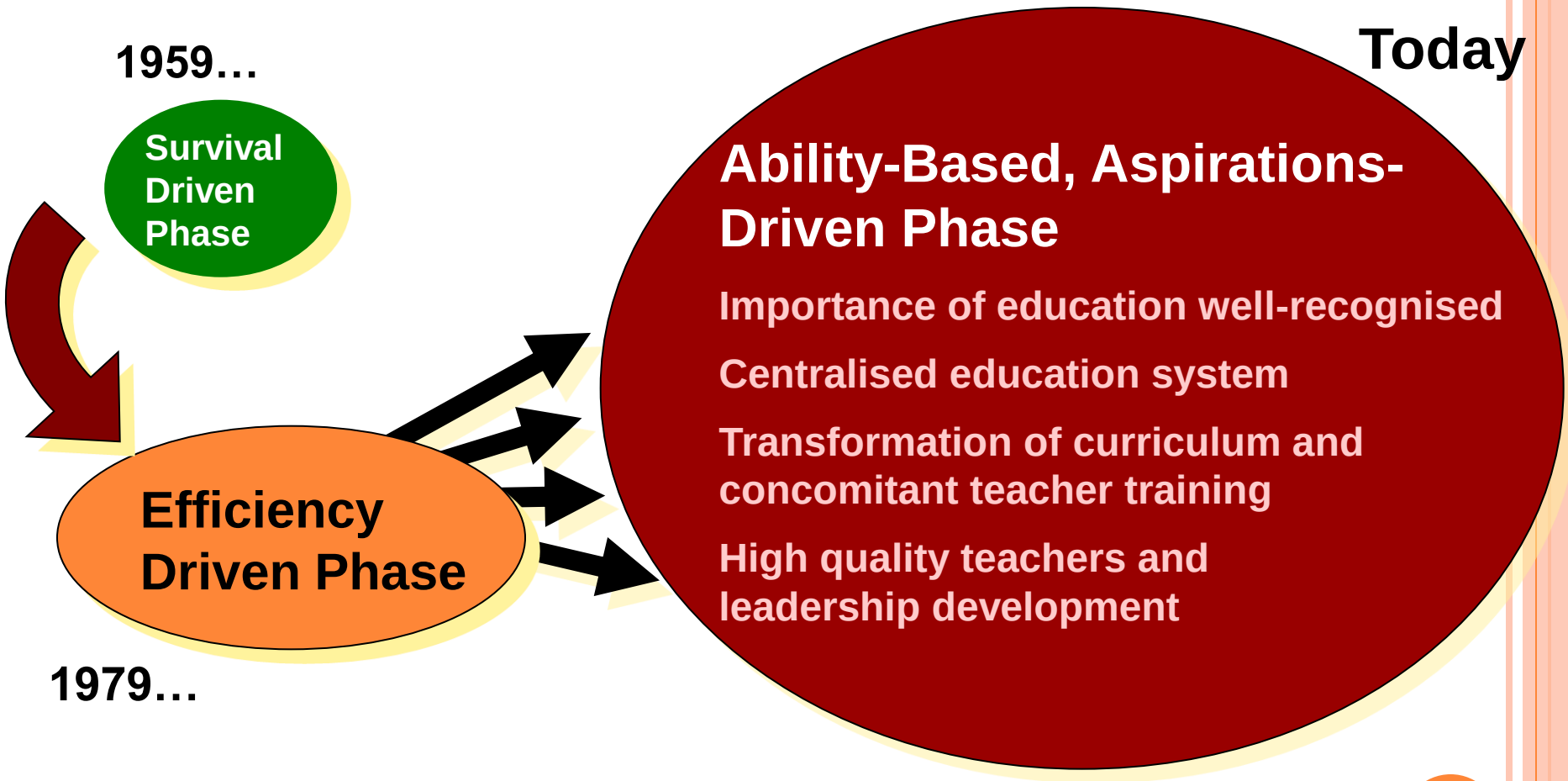
Background

- *Toward a Better Future:* "The Development of Education in Singapore since 1965"
  - the development of education in Singapore over the past 40 years." (p. 13) – In the context of economic, political and social changes since 1965
  - Survival-driven Education (1965–78) (p. 13)
  - Efficiency-driven Education (1978–1997) (p. 22)
  - Ability-driven Education to gear towards knowledge-based economy (1997–Present) (p. 29)

Singapore's Education System



Source: MOE

Survival driven Education (1965-1978)

- Centralized
- Driven by economic exigencies
- Education by drill and practice

  - Languages, Science & Mathematics.
  - Investment in Vocational & Technical Education:
  - Upgrading of teacher education via the establishment of the Institute of Education in 1973
- 'Textbooks for All' policy.
- Intended both to equalize opportunities and because good instructional materials are key to educational quality.

Efficiency-driven Education (1978–1997

- System had become inefficient with high wastage rates, low levels of literacy & numeracy, increasing gaps between labor market needs and school leaver skills.
- In part this was due to more & more students opting for English-Medium education but without home support for language learning.
- The education system was unable to supply the skills needed in the fast-growing economy.

- Introduction of Streaming
- Beginnings of curriculum differentiation to meet needs of pupils with a wide range of home experiences, support, abilities and aptitudes
- Establishment of a Ministry of Science & Technology to spearhead the development of high end technology, science, research & development skills.

Ability-driven education (from 1997–Present)

Publication of *Singapore 21* & *Thinking Schools Learning Nations*

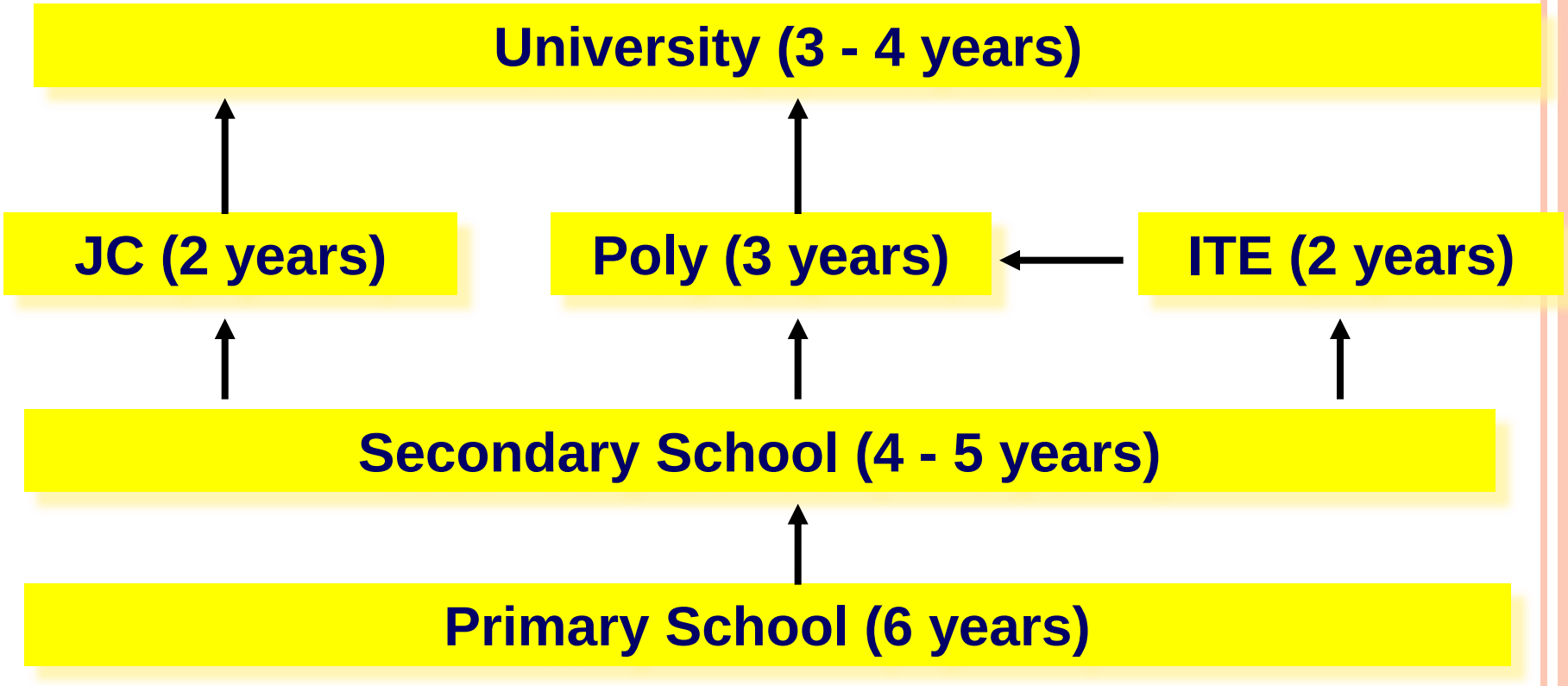
- Globalization, rise of China as a source of cheap labor, advances in automation, increased importance of data & information in economic activity, increased use of information & communication technology, greater importance of innovation and enterprise necessitated economic and educational rethinking.

- Cultural globalization was putting pressure on identity formation, civic and moral values.

Ability-driven education (from 1997–Present)

- Teaching strategies of an ability-driven education system
  - *The Potential of Singapore's Ability-driven Education to Prepare Students for a Knowledge Economy*
  - The recognition of individual talents and abilities and ways to harness the range of abilities
  - Ministerial Statement by Minister Education RAdm Teo Chee Han: Maximising the potential of everyone and recognition of different talents and abilities (p. 2)

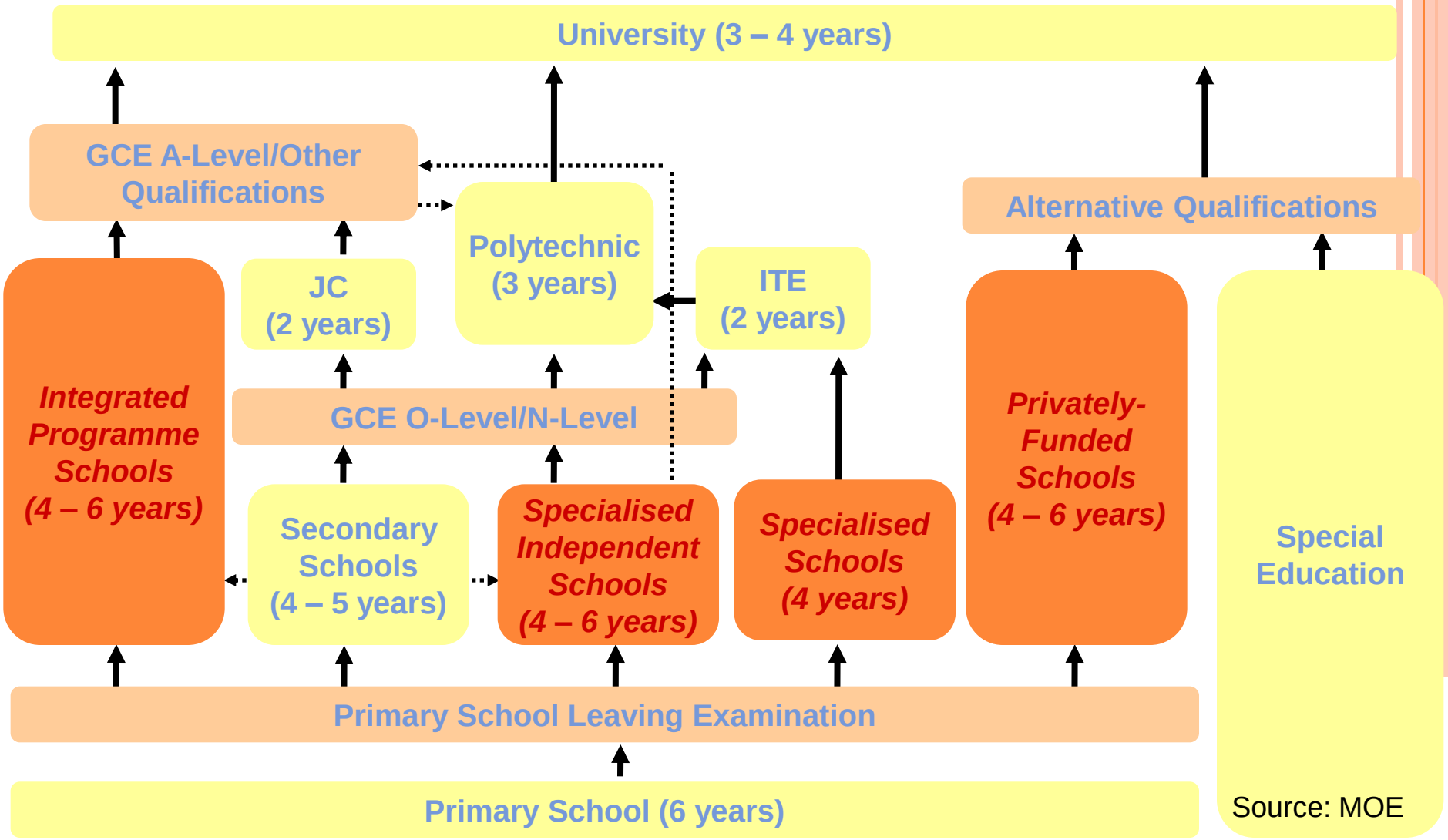
Traditional Education Structure



Source: MOE

DIVERSIFYING THE EDUCATION LANDSCAPE

Present Education Structure



Source: MOE

Facilitating More Pathways and Choices

- Integrated Programme Schools
- Specialised Independent Schools
- Specialised Schools
- Privately Funded Schools

Source: MOE

Post Secondary & University Education

- Institute of Technical Education (ITE)
- Polytechnics
- Singapore Institute of Applied Technology
- Autonomous Universities

Source: MOE

Singapore's Quality Education Approaches

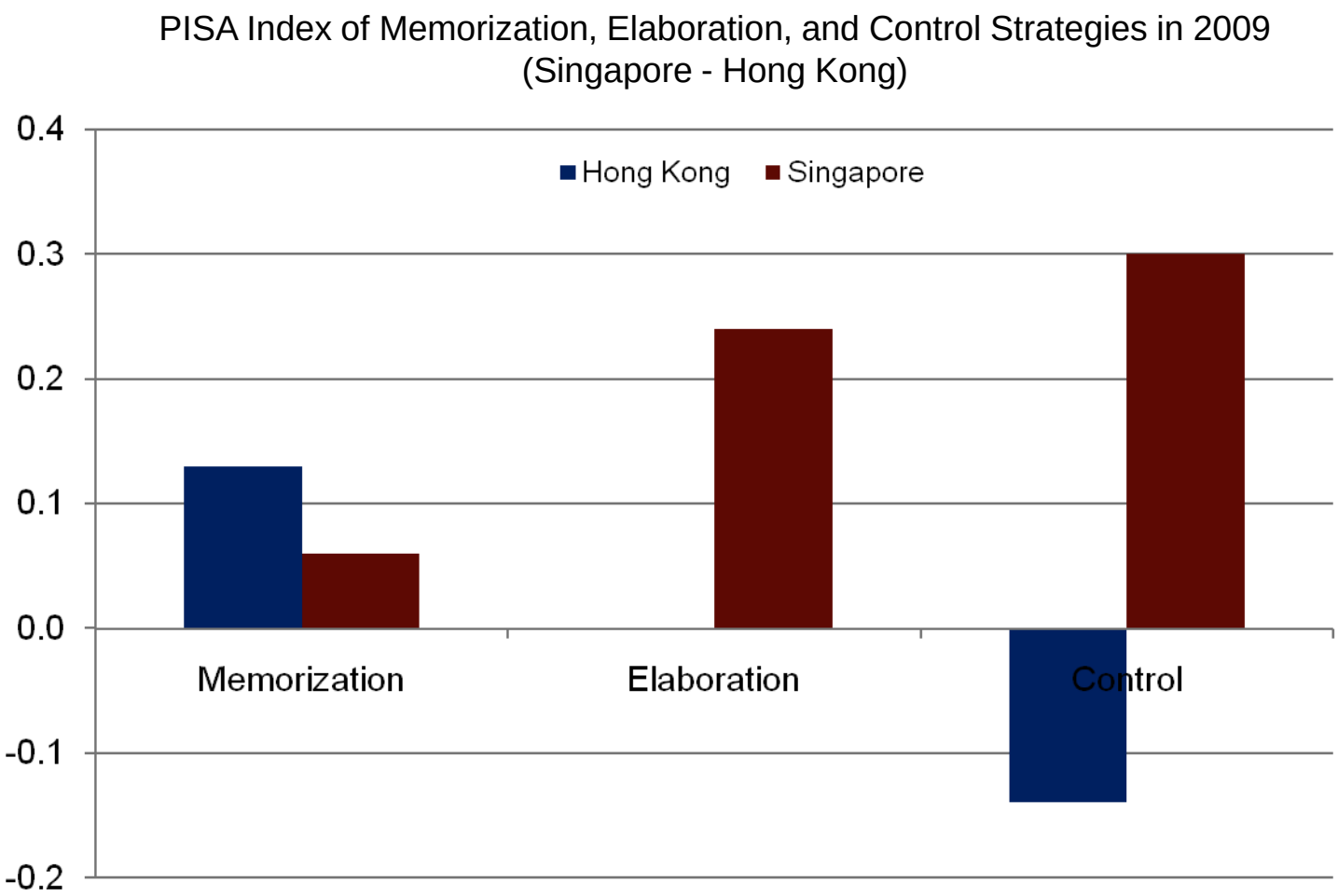
- Achieving excellence from young
- Educational reform from Quantity to Quality
- Teach less and learn more (TLLM)
- Thinking Schools, Learning Nation (TSLN)
- IT Master Plan

Some notable achievements

- Singapore students have consistently come out tops in **TIMSS**
  - In **1995**: ranked within the top 3 positions, with the exception of Pri 4 Science (1st in Math and Science at Sec 1 and 2; 2nd and 1st in Math at Pri 3 and 4)
  - In **1999**: 1st in Math, 2nd in Science (Sec 2)
  - In **2003**: 1st in Math and Science at both Pri 4 and Sec 2
  - In **2007**: 1st in Science at both Pri 4 and Sec 2; 2nd in Math at Pri 4 and 3rd in Math at Sec 2

- The **TIMSS 2007** survey of students, teachers and principals also affirms that Singapore schools are well-equipped for Math and Science instruction, and that our schools provide a safe and conducive environment for learning
- Singapore emerged 4th among 45 education systems which participated in **PIRLS 2006** (the Progress in International Reading Literacy Study)
- The latest **PISA** release (2010): Singapore is ranked among the top 5

PISA Learning Strategies 2009



Source: OECD (2010)

McKinsey report (2007)

- Singapore is recognized as one of the world's top-performing school systems, along with countries like Finland, Hong Kong and Japan
- Singapore system is managed from the centre and this is used to drive improvements in performance (p. 40)
- Teaching is regarded as an attractive and high-status profession in Singapore society (p. 22)
- Noteworthy that in the 2007 McKinsey Report, Singapore and Finland received the highest coverage and mentioned in parallel.

McKinsey report (2007)

- "*The quality of an education system depends ultimately on the quality of its teachers*" (p. 23)
  - In Singapore, teachers are recruited through a single, state-wide selection process jointly managed by the MOE and NIE (p. 17)
- High-quality professional development (both pre-service and in-service) is delivered to the teaching workforce through NIE (p. 27)
- Almost US$10 million is spent each year on research into better instructional practice, undertaken by NIE (p. 37)

Thinking School, Learning Nation (late nineties)

- "Thinking schools": involved the development of future generations of thinking and committed citizens, capable of making good decisions to keep Singapore vibrant and successful in future.

- “Learning nation”: about creating a culture of lifelong learning, and developing the ability to adapt and respond quickly to change.

- The TSLN vision required a fundamental review of curriculum, pedagogy and assessment so as to develop in students creative thinking and learning skills required for the future. To achieve the TSLN vision, schools would be given greater autonomy

Singapore's curricular response: Curriculum 2015

Source: MOE, p. 22

C2015 Student Outcomes	Associated C2015 Skills & Mindsets
• **Confident Person** • Thinks Independently/ Communicates effectively/Has good inter-personals skills	• Thinking skills/Communication skills/ Collaborative skills/Interpersonal skills/ Leadership skills
• **Self-Directed Learner** • Takes responsibility for own learning/ Questions, reflects, perseveres/ Uses technology adeptly	• Self-management skills • Problem-solving skills • Information and media literacies • Technological literacy and skills
• **Concerned Citizen** • Is informed about world and local affairs/ Empathises with and respects others/ Participates actively	• Multicultural literacy • Cross-cultural skills • Civic literacy
• **Active Contributor** • Exercises initiative and takes risks/Is adaptable, innovative, resilient/ Aims for high standards	• Planning skills • Management and organizational skills • Innovative skills

Soft Skills
21st Century
Competencies

Other Initiatives

- PERI (2008)
- JERI (2010)
- SERI
- Integrated Programme
- Multiple pathways – independent schools, specialised schools, exemption from O Level…
- School clusters, COP (Community of practices)
- SAT – Teacher-led culture
- Flexibility in a centralized education system

PERI

- PERI' refers to the Primary Education Review and Implementation Committee. It was set up by the Ministry of Education in October 2008 to look at ways to raise the quality of primary education.
- A key recommendation by the Committee was a better balance between the learning of knowledge and the development of skills and values to better prepare our children to thrive in a fast-changing and globalised future. MOE accepted the PERI recommendations in April 2009.
- In line with the recommendations, a range of enhancements will be implemented in primary school education over the next few years. The enhancements include developing our children holistically through engaging teaching methods, building a quality teaching force, and enhancing school infrastructure to provide a more conducive learning environment. The aim is to make learning enjoyable and meaningful for your child, while developing in him the desired skills and values that will put him in good stead for the future.

SERI 2010

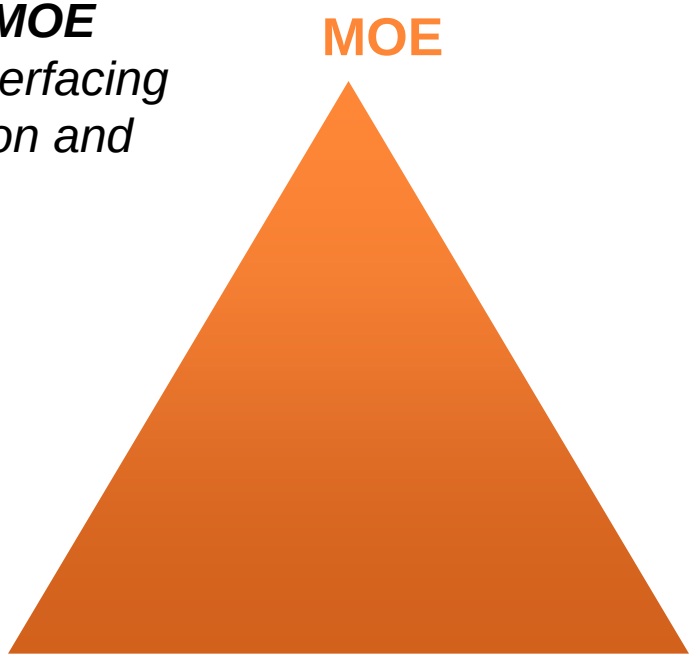
- Greater social-emotional support and career guidance.
- It aim is to nurture students through their adolescence, and better prepare them for learning, for post-secondary education and also for life.
- It recognises that adolescence is a time of identity formation, of asserting independence and of changing relationships for secondary students.
- It is also a phase of growth and experimentation, and a preparatory stage for adulthood.
- Greater social-emotional support and career guidance will also be provided to students through Student Centres in secondary schools, a Career Guidance Portal, profiling tools and overseas learning journeys.
- There will also be more dialogue between secondary school principals with post-secondary institutions to strengthen educational delivery.
- Character and Citizenship Education (CCE) and Co-Curricular Activities (CCA) are two parallel platforms that will further complement the teacher-student relationship to develop students.
- A dedicated Character and Citizenship Education (CCE) Unit will be formed within the MOE to co-ordinate and synergise efforts across various domains such as National Education, Social-Emotional Learning and Civics and Moral Education.
- The Ministry of Education (MOE) will look into introducing second-tier competitions to increase the opportunities for students to take part and practise their skills in the chosen sports, as well as to strengthen the acquisition of soft skills and character development through these activities.
- These recommendations are in addition to the recommendations to create multiple pathways in the secondary school landscape to strengthen ability-based education.

NIE's Education Research Funding Programme (ERFP)

- MOE has provided three cycles of research funding for education research at NIE – S$48 million for 2003–2008, S$96 million for 2008–2012, S$111 million for 2013-2017
- A policy-driven, evidence-based **RD&I framework** forms the basis of the research conducted at NIE, which is aimed at improving the quality of teaching and learning in Singapore schools

Impacting MOE

- *Policy interfacing*
- *Translation and Scaling*



Continuous journey towards excellence

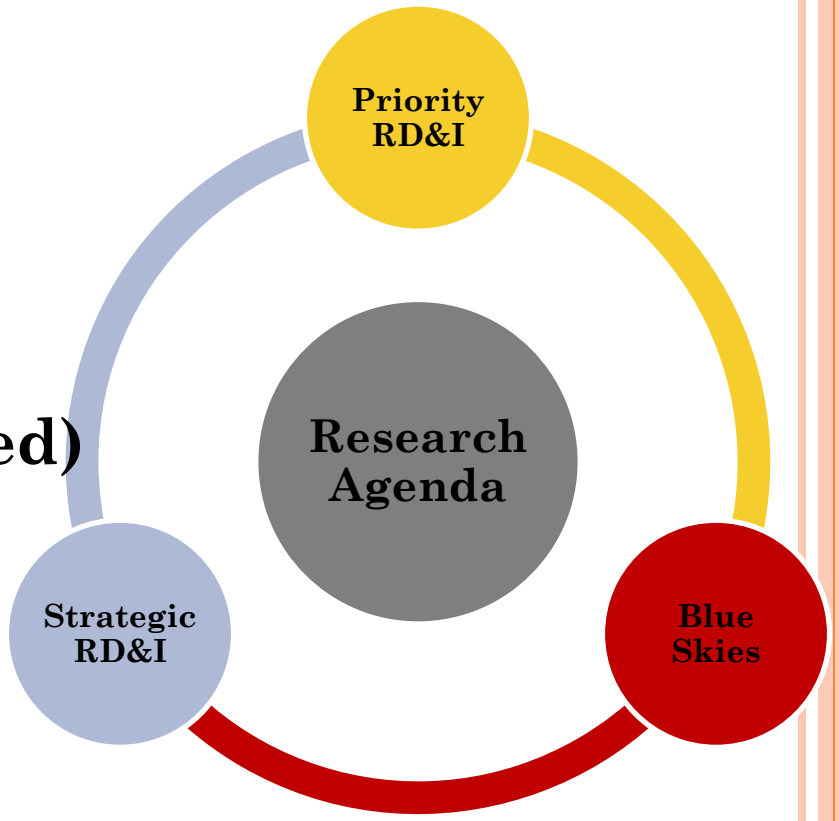
Impacting NIE

- *Capacity building*
- *Strategic positioning*

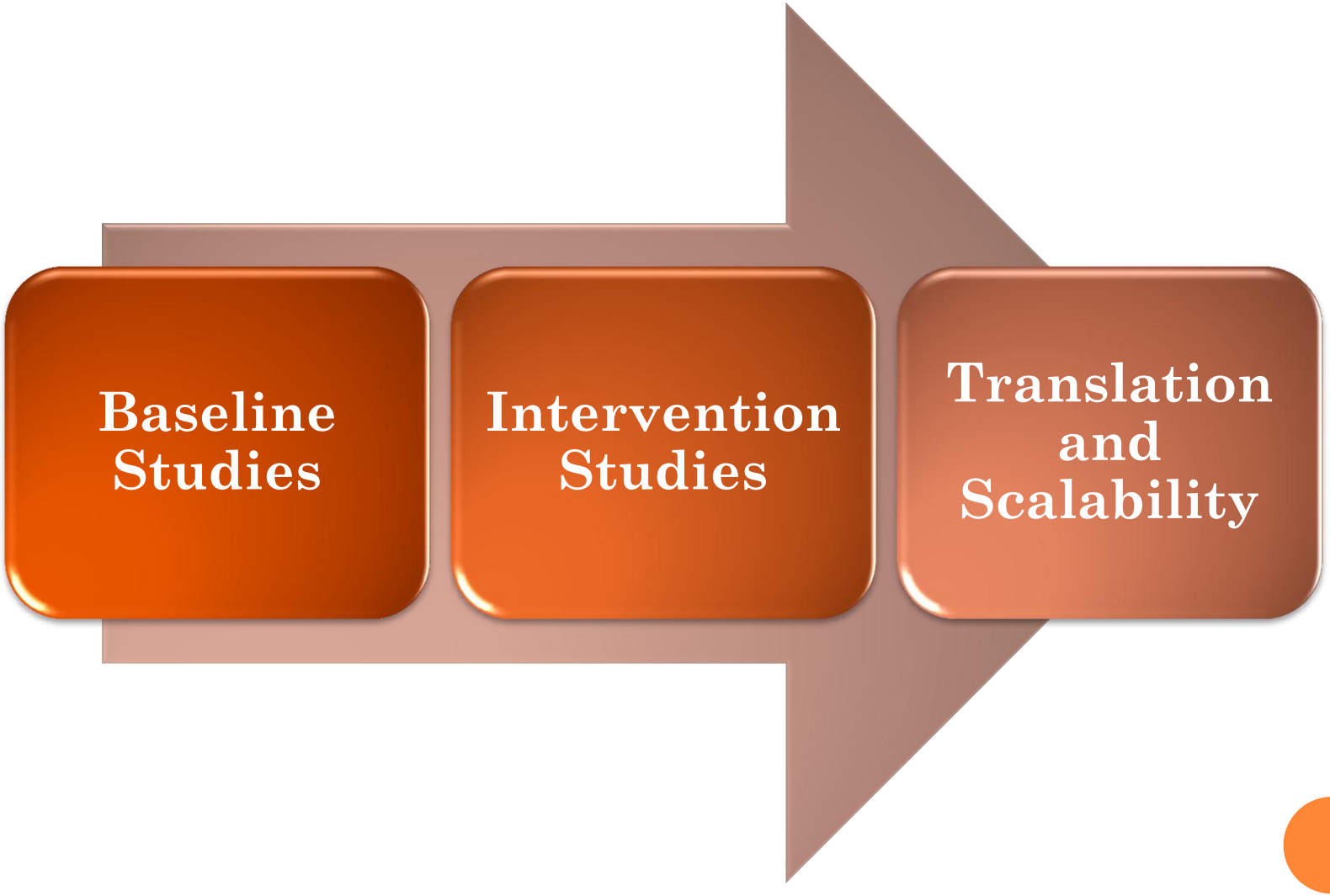
Impacting Schools

- *Changes in pedagogies*
- *Teacher Professional Development*

- **Priority RD&I**
  - Current realities and evaluation of policy enactments, e.g., language policy and implementations
  - Immediate needs
  - E.g.: monitoring pedagogy-policy (e.g., PERI) implementations with a view to informing MOE
- **Strategic RD&I**
  - Staying 5 years ahead
  - E.g.: new media for 21st century learning, mobile learning
- **Blue Skies (Investigator-led)**
  - Pre-empt the future needs
  - 10 years ahead
  - E.g.: Game-based Learning



RESEARCH CATEGORIES: TRAJECTORY



Distribution of OER Projects

Task Design

- ***Task Design* as an impetus for critical thinking and discourse pedagogy in the classrooms**
- E.g.: Productive Failure projects

Bottom-up Pedagogies

- **Design of *Bottom-up Pedagogies***
- E.g.: Group Scribbles projects

Singaporean Schools and Pedagogies

- **Distinctiveness of *Singaporean Schools and Pedagogies***
- More devolution of autonomy to schools; evolution of specialized schools; and multiple pathways and tracks
- E.g.: Language learning & bilingualism, specialized schools

Teacher Learning

- **Crucial role of *Teacher Learning***
- E.g.: Building evidence based initial teacher preparation

IMPACTS

Impact on knowledge

- Knowledge Creation and Knowledge Management

Impact on students learning

- Lesson study to enhance teacher learning
- Educational research to enhance student outcomes: filling the performance gaps
- 21st century learning and formative/alternative assessment
- Working with SAT to enhance the professional learning community

IMPACTS

Impact on practices

- Translation and Scaling UP
- Dissemination and Communication of NIE Research

Impact globally

- Positioning Singapore's education achievements in comparative and international perspectives: Factors for success and sustainability

RANK	2012 QS Ranking (Education Subject)	CPP	RANK	2013 QS Ranking (Education Subject)	CPP
1	University of Michigan	100	1	Stanford University	96.4
2	King's College London (University of London)	96.7	2	Harvard University	95.5
3	Harvard University	95.6	3	University of California, Los Angeles (UCLA)	94.3
4	University of Wisconsin-Madison	95.4	4	University of Wisconsin-Madison	93.9
5	Stanford University	95	**5**	**Nanyang Technological University (NTU)**	**93.7**
6	University of California, Los Angeles (UCLA)	91.8		Institute of Education, University of London	93.5
7	University of Chicago	91.6	7	Columbia University	92.5
8	Institute of Education, University of London	91.4	8	University of Toronto	92
9	Columbia University	90.9	9	Monash University	90.4
10	**Nanyang Technological University (NTU)**	**90.5**	10	The University of Sydney	90.1
11	The University of Sydney	90.2	10	University of Illinois at Urbana-Champaign	89.6
12	University of Cambridge	89.5	12	The University of Melbourne	89.1
13	University of Toronto	89.5	13	University of Cambridge	88.9
14	University of California, Berkeley (UCB)	89.2	14	King's College London (KCL)	87.2
15	The University of Melbourne	87.9	15	University of Edinburgh	85.9
16	Monash University	87.9	16	The University of Queensland	85.5
17	University of Illinois at Urbana-Champaign	87.1	17	University of Oxford	83.9
18	University of Hong Kong	83.8	18	University of California, Berkeley (UCB)	83.1
19	University of Oxford	83.1	19	University of Hong Kong	83.1
20	The University of Tokyo	65	20	The University of New South Wales	71.7