Pedagogical Approaches in Singapore Schools

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- Beyond 2015: Transforming Teaching and Learning in the Asia-Pacific Region

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Uncovering Wisdom Through Pedagogy

Human capital

- A human capital ideology views education as a social investment to prepare ‘human resources’ for a global, competitive economy (Koh, 2002).

Entrenched practices

- An exam-oriented curriculum may entrench pedagogical approaches that favour exam performance

Shifts in practices

- Constant emphasis on transversal skills compels shifts in pedagogy and mindsets

Teacher beliefs

- Teacher beliefs and expertise drive the development of cognitive and non-cognitive skills
Research design

Document scan
1. Pedagogical directions: MOE & various schools.
2. Professional Development provisions:
   - Pre-Service Training
   - In-Service training
3. Innovations in schools

School sampling
1. Range of levels (primary to pre-university)
2. Types of schools
21st Century Competencies (MOE framework)

- Civic, Global Awareness and Cross-Cultural Literacies
- Critical (Inventive) Thinking
- Information and Communication Skills

Pedagogical Domains (Joyce et al, 2004)

- Information Processing
- Values-Driven
- Social
- Personal
- Experiential
Pedagogical domain: Information Processing

Focus: Development of critical thinking

- sound reasoning and decision-making
- reflective thinking
- creativity
- managing complexities and ambiguities
1. **Bloom’s taxonomy**: levels of thinking: *factual-comprehension-analysis-synthesis-create*

   a. **Design assessments**; eg, Science assessments typically apply it in Table of Specifications

   - 20 percent on experimental skills and investigations
   - Classroom instruction is aligned to it
b. **Design programmes in the non-academic domains.**

Innovation module:

- Lower Sec: Develop *knowledge, comprehension and application* skills through various talks. *Analyse* the values of entrepreneurship through a board game called "Dividends".

- Sec 3: Hands-on experience of being an innovative and risk-taking entrepreneur

- Sec 4: *Synthesise* their learning points in this Service Learning experience through reflections.
2. Critical Thinking Model: Wheel of Reasoning (Richard Paul – Linda Elder)

-framework for thinking standards
a. Article analysis, esp for Humanities

**READING & ANALYSING ARTICLES USING PAUL’S WHEEL OF ANALYSIS**

- **QUESTION AT ISSUE**
  - What is the main issue of the article?
- **PURPOSE**
  - What is the text type?
  - What do you think is the purpose of the article?
- **EVIDENCE/ DATA**
  - Why did the writer write this?
  - What evidence does the writer use to support his point? Does he quote sources?
- **INFERENCES**
  - What inferences can be made from the article?
  - What can you infer about the tone and attitude of the writer?
- **IMPLICATIONS/ CONSEQUENCES**
  - What are the possible implications/consequences of the issues inherent in the article?
- **ASSUMPTIONS**
  - What are the writer’s assumptions on the issue?
- **CONCEPTS**
  - What are the p.i.c.s of the article?
  - What concepts/abstract ideas are present in the article?
- **PO.V.**
  - Whose point of view is presented?
  - Which interest group does the writer represent?
Lost in this is the reflective, revolutionary wise man who gathered China into a single communist fist. His ability to dissect the parameters of war, society, economics and principally, China had made him the world’s most dangerous man. His policies brought death to millions, stirred war and famine and the erasure of ancient cultures, but after his revolutionary victory, things usually seemed to happen off stage. He was believed by his western adversaries to be quite literally, smart as the devil. Mao believed he held China’s fate in his hands. By the early 1920s, he was a committed revolutionary leader, a presence on the communist side of the divide. Modern China’s history, some observers believe, was from that point not really a war of ideologies but a duel between Mao and his spiritual opposite, Generalissimo Chiang Kai Shek. From the early 1930s to the end of the 1940s, each would be the other’s nemesis. Mao would learn war, and endurance, and the vast ground of China, even as Chiang forgot his revolution. And Chiang would solidify the enmity between them by executing Mao’s second wife.

Excerpt from *The Demigod of the Communist revolution* by Carl Posey, Time, 1996

(a) Analyse concepts: ‘revolutionary leader’; ‘ideologies’,

(b) compare perspectives twds Mao and Chiang,

(c) evaluate writer’s intention and tone

(d) assess validity

Critical evaluators of information opposed to be mere consumers of the historical content.
### Information Processing: Approaches

#### 3. Inquiry:

##### a. Socratic Questioning

<table>
<thead>
<tr>
<th>Engagement</th>
<th>Object, event or question used to engage students. Connections facilitated between what students know and can do.</th>
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</thead>
<tbody>
<tr>
<td>Exploration</td>
<td>Objects and phenomena are explored. Hands-on activities, with guidance.</td>
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<tr>
<td>Explanation</td>
<td>Students explain their understanding of concepts and processes. New concepts and skills are introduced as conceptual clarity and cohesion are sought.</td>
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<tr>
<td>Elaboration</td>
<td>Activities allow students to apply concepts in contexts, and build on or extend understanding and skill.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Students assess their knowledge, skills and abilities. Activities permit evaluation of student development and lesson-effectiveness.</td>
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</tbody>
</table>
4. Graphic organisers; eg, Concept mapping—potential for Flipped Classroom

III Scope
- limitation of area
- how data is collected
- time duration to do report

I Background
- identify the specific problem, then backtrack to the general idea

Introduction

IV Organisation
- a brief outline of the whole report

* Headings must be parallel in structure
1. Research-backed thinking models and tools enable teachers to cultivate thinking dispositions.

→ Provide scaffolding to guide questioning and structure thinking in a habit-forming manner.

2. Teacher expertise & belief influence the skilful use of CT tools.
Pedagogical domain: **Values-based**

**Focus:**
Civic Literacy, Global Awareness and Cross-cultural awareness

Reiterated by Mr Heng Swee Keat, Minister for Education, 2011-13 MOE Work Plan Seminar
Values-based curriculum: Approaches

1. Character and Citizenship Education (CCE):

School-based frameworks

Fuhua Primary School

Vision: Every child a life-long learner, concerned and gracious citizen.

Character & Citizenship Education Framework

Guiding Principle
- Head
- Heart
- Hand

Enablers
- Character Building
  - GEMsALiVE
  - Pastoral Care
  - Career Guidance
  - CME
  - SFE Programmes
- Citizenship
  - Social Studies
  - Learning Trails
  - Fieldwork
  - PACE
- Student Leadership
  - Programmes for: Star Leaders
  - Junior Leaders
  - Apex Leaders

Social Emotional Learning (SEL)

Anchored on Core Values (PRICE)
- Perseverance
- Respect
- Integrity
- Care
- Enterprise
Values-based curriculum: Approaches


   ◦ Goals: promote nation-building and sense of citizenship.

   ◦ Curriculum: govt policies like Healthcare, principles of governance, Case Studies of ethnic conflicts in other countries.
The Jurong Town Corp story started in the 1960s when we first began to industrialise the economy. The development of Jurong Industrial Estate was the vital programme in this industrialisation drive. At that time, Jurong’s terrain was undulating, marshy and jungle-covered. The development cost was massive, but a greater difficulty was to convince industrialists to invest in an unknown location, and workers to move their homes to a remote wilderness. It was a risky venture – Dr Goh Keng Swee who initiated the project openly admitted that should the endeavour fail, it would go down in Singapore history as “Goh’s folly”. But Jurong succeeded beyond all expectations. It attracted successive waves of foreign investment, and Singapore’s industrialisation took off.

A speech by Prime Minister Lee Hsien Loong at Jurong Town Corporation's 40th anniversary dinner on 6th June 2008.

Source analysis

(a) examine Singapore’s industrialisation effort,

(b) appreciate the vision of the early leaders

(c) examine the points of view of the stakeholders; eg, the foreign investors, industrialists, the citizens and the government leaders.
Values-based curriculum: Approaches

3. Immersion programmes: overseas trips; camps

4. Learning Journeys; eg, battlefield tours; Semakau landfill tour
Values-based curriculum: Analysis

1. NE: Perception by some teachers and students that it is "nothing but propaganda"

2. Avoidance of contentious issues like racial diversity

NB: study by Adler & Sim, 2005
Values-based curriculum: Analysis

3. CME often takes a backseat to examinable subjects.
   - Chew (1998) notes that teachers are "disturbingly non-critical" towards the contentious content of CME, and are looked upon as "implementers, not critics of the mandated programme".

4. Teacher expertise & beliefs
   - Effectiveness lies in the skills and astuteness of teachers to harness multiple platforms for robust discussions on political issues and social values.
Pedagogical domain: **Social**

**Focus: Co-operative and/or Collaborative Learning**

Encourages students to confront different perspectives, interpretations and explanations.
Social: Approaches

1. **Use of online resources.** Commonly ICT tools and platforms:

   - Discuss social issues: Wikispaces Forum or knowledge Forum
   - Languages; Humanities: Google Applications, Blogs, Audacity
   - Collaborative learning in Science department: Data-loggers
   - Learning of graphs: Geogebra
2. **K-W-L strategy** (Ogle, 1986):

- In groups, students share what they **Know**.
- As they discuss the topic, they raise questions about what they **Want** to know and then, seek answers to their questions.
- With this new knowledge, they consider what they have **Learned** together as a group.
1. Collaborative/Co-operative is fairly prevalent ranging from simple group work in class to complex collaborative tasks.

2. ICT tools offer valuable platforms

3. Potential to advance thinking is not optimised.

Students tended to associate CoL with group work or project work ..., rather than a collaborative meaning-making approach. In other words, they seemed to co-operate for task completion rather than to collaboratively advance their understanding of the subject knowledge.

(Tan et al, 2010)
Focus:

A self-directed learner

The teacher facilitates the student’s learning, providing support and guidance when required.
1. Mentorship programmes: platforms to develop student interest and strengths in niche areas; eg, Science Mentorship Programme, Innovation Programme, and the Moot Parliament Programme.

- Involve partnerships with external organizations and so, provide a rich industry experience for the students.
2. **Project Work (PW):** Introduced at pre-university level as an examinable subject important for university-entry criteria (MOE, 2007).

- **Objectives:**
  - Apply creative and critical thinking skills
  - Improve communication skills
  - Foster collaborative learning skills
  - Develop **self-directed inquiry and life-long learning skills**
3. **Use of ICT platforms.** Examples

a. Digital Art: use of a Comic Strips software to create comic strips.

b. Design & Technology: Digital Inking and Imaging software

c. Lego Mindstorm software: basic programming skills and create their own robots.

4. **Use of pedagogical tools and artefacts:** eg, graphic organizers like “Story Mountain” and “Plot Stair” to develop essay writing skills
1. High-stakes exams may hamper the learning processes in self-directed learning.

*Its overemphasis on structure and rules to follow clearly contradict the 'creative thinking' notion the education system is working towards. .., JC students are simply busy enough, even in year 1, to cope with so much stuff. Imagine just staying up to complete minutes or reports which seem remotely useful to you and your future..and the worse thing is, this compulsory evil takes up a hefty 10% of your final A levels, which is not funny at all.*

*taken from a student blog*
2. Ample resources - *policy directives; finances; research; training* - channelled towards collaborative platforms send a **consistent message** that compels shifts in practice.
Focus

- encourage students to learn actively and independently; participate in society
1. **Field trips and learning journeys.** offer deep, powerful experiences that transcend the textbooks; eg, visit to the Orchid farm:

- learn abt orchid hybridization
- pollination
- techniques of aseptic tissue culture.
2. **Authentic learning:**

   a. **Industry experiences:** e.g.,

      - Work with publishers to write books & journalists to produce news reports and documentaries.

   b. **Performance Task**

      Product or performance that applies learning to real world situations.
Building teacher capacity
Quality of an education system cannot exceed the quality of its teachers.’ (Barber and Mourshed, 2007)

Role of National Institute of Education

Teacher-training
- Blended learning
- Flipped classroom
- Knowledge forum
- Experiential learning
- Reflective Practice
Professional Development:
The Teacher Growth Model

By Academy of Singapore Teachers
## An example

<table>
<thead>
<tr>
<th>Stretch Goal</th>
<th>World-class educational institution.</th>
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<tbody>
<tr>
<td>Strategic Thrust</td>
<td>Staff who are leaders in their field in the educational fraternity</td>
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### Desired outcomes
(Source: Teacher Growth Model)

<table>
<thead>
<tr>
<th>Competent Professional:</th>
<th>Collaborative Learner:</th>
<th>Ethical Educator:</th>
<th>Transformational Leader:</th>
<th>Community Builder:</th>
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<tbody>
<tr>
<td>Caters to the learning needs of highly able girls.</td>
<td>Engages in professional discourse.</td>
<td>Guided by teaching ethos and cultivates ethical thinking.</td>
<td>Mentors staff &amp; transforms practice through visionary initiatives.</td>
<td>Cultivates consciousness of local and global realities and engages stakeholders.</td>
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### RGS Provisions

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<tr>
<th>Training in:</th>
<th>Conference presentations and participation</th>
<th>Ethics in disciplines</th>
<th>Mentoring and coaching of teachers who are:</th>
<th>Engagement with community:</th>
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</thead>
<tbody>
<tr>
<td>Gifted and Talented pedagogies:</td>
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<td><em>Inquiry-based</em></td>
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<td><strong>New to school and/or profession</strong></td>
<td><strong>eg, WELLCoT, PeRL Consultancy &amp; ICYL</strong></td>
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<td><em>Concept development</em></td>
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<td><strong>Conducting Practitioner Inquiry</strong></td>
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<td><em>Critical &amp; Creative Thinking</em></td>
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<td><em>Differentiation</em></td>
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<td>Assessment</td>
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<td>Curriculum Design: UbD framework</td>
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<td>Practitioner Inquiry</td>
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<td>Research mentoring</td>
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<td>Learning technology</td>
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<td>Pupil Development:</td>
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<td><em>Service Learning</em></td>
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<td><em>NE &amp; Citizenship Ed</em></td>
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<td><em>Leadership development</em></td>
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<td>School-based Professional Discourse</td>
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<td><em>Prep Time</em></td>
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<td><em>Good Practice Day</em></td>
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<td><em>Staff Development Day</em></td>
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<tr>
<td>Consultancy &amp; Outreach (PeRL; WELLCoT)</td>
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<td>Ethics in Research (PeRL Research protocols)</td>
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<td>KP Competency Development</td>
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<td>Understanding local and global issues</td>
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<td>Research to transform practice</td>
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<td>a. Experiential</td>
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<td><em>Forums; eg, In-Conversation</em></td>
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<td><em>Trips; eg, Learning Journeys</em></td>
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<td>b. Problem-solving</td>
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<td>Eg, CMPS</td>
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<td>c. Real world applications in disciplines</td>
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<td><em>Assessment modes; eg; Performance Tasks</em></td>
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<td>Service Learning</td>
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1. Harness our exam traditions to cultivate the 21st CC rather than subvert them
   ◦ Refine assessment system to permit pedagogical innovation
   ◦ Indigenise pedagogical innovations to suit context

2. Capacity building & professionalism
   ◦ Teacher training: Centralise teacher training frameworks to enable system-wide development of teacher professionalism
   ◦ Discourse: Engender discourse on classroom practices through professional learning communities
• Cultivate reflective practice to strengthen theory-practice nexus

3. Impetus for educational reform may require mandated policies at national level.
   o Schools are compelled to respond to policy directives
4. Educational reform may require huge shifts in entrenched mindsets about civic participation and empowered, engaged citizenry.

A desire for true innovation, creativity, experimentation, and multiple opportunities in education cannot be realized until the state allows civil society to flourish and avoids politicizing dissent. (Gopinathan & Tan, 2000)
Thank You

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