Preparing Teachers for the Changing Future

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OVERVIEW

1. Education for the 21st Century
   • Changing Profile of Learners
   • The Real World
   • Role of Educators

2. Transforming Teacher Education
   • Teacher Professionalism
   • Rigorous Programme
   • Professional Practice
   • Innovative Pedagogies
   • Multiple Perspectives
“Muchness” of nothing

“More” of the same

“Jack-of-no-trade”

“Master-of-avoiding”

“Follow-law”
EDUCATORS NEED TO BE

SHAPERS OF CHARACTERS
CREATORS OF KNOWLEDGE
FACILITATORS OF LEARNING
ARCHITECTS OF LEARNING ENVIRONMENTS
LEADERS OF EDUCATIONAL CHANGE

BACKGROUND

21st Century Education

The Singapore Teaching Practice
https://www.moe.gov.sg/about/singapore-teaching-practice
Transforming Teacher Education

Programme Foci

- Teacher **PROFESSIONALISM**
- Rigorous **PROGRAMMES**
- Professional **PRACTICE**
- Innovative **PEDAGOGIES**
- Multiple **PERSPECTIVES**
The teacher is not just a teacher of a subject but more importantly, a teacher of the learner and a preserver and custodian of societal values.

- Tan, 2012

### V³SK Framework – a compass for 21st century TE

#### Attributes of the 21st Century Teaching Professional

<table>
<thead>
<tr>
<th>V1 – Learner-Centered Values</th>
<th>V2 – Teacher Identity</th>
<th>V3 – Service to the Profession and Community</th>
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</thead>
<tbody>
<tr>
<td><em>Empathy</em></td>
<td><em>Aims for high standards</em></td>
<td><em>Collaborative learning and practice</em></td>
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<tr>
<td><em>Belief that all children can learn</em></td>
<td><em>Enquiring nature</em></td>
<td><em>Building apprenticeship and mentorship</em></td>
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<tr>
<td><em>Commitment to nurturing the potential in each child</em></td>
<td><em>Quest for learning</em></td>
<td><em>Social responsibility &amp; engagement</em></td>
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<td><em>Valuing of diversity</em></td>
<td><em>Strive to improve</em></td>
<td><em>Stewardship</em></td>
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#### SKILLS

- Reflective skills & thinking dispositions
- Pedagogical skills
- People management skills
- Self-management skills
- Administrative & management skills
- Communication skills
- Facilitative skills
- Technological skills
- Innovation & entrepreneurship skills
- Social & emotional intelligence

#### KNOWLEDGE

- Self
- Pupil
- Community
- Subject content
- Pedagogy
- Educational foundation & policies
- Curriculum
- Multicultural literacy
- Global awareness
- Environmental awareness
Professional Practice and Inquiry Portfolio
Crystallizing Teaching Philosophy
Constructing Conceptual Map of Learning and Teaching

Meranti Project
Confronting Biases and Challenging Assumptions
Clarifying Values and Understanding Ethics

Character and Citizenship Education
Understanding Citizenship and Nurturing Professional Commitment

Group Endeavour in Service Learning
Learning to Serve, Serving to Learn

Group Endeavour in Service Learning
Understanding of self
Understanding of others
Understanding of community needs
Exploring social entrepreneurship
Develop effective life skills
Develop and exercise situational leadership skills
Encourage innovation and creativity under conditions of resource and time constraints
Deep understanding of learners
Strong content and pedagogical mastery
Strong theory-practice nexus
Inquiry and research skills
Multidisciplinary focus
Extended clinical practice

Education Research
Scientific study that examines education and learning processes and the human attributes, interactions, organisations, and institutions that shape educational outcomes.

Examples of Projects
- An Investigation of Primary 5 Students' Engagement in Mathematical Modelling
- Problem-based Learning: A Study on its Impact on Learners' Motivation, Strategy Use, Learning Process
- Examining the teaching of writing: Teachers’ implementation of the STELLAR programme
G-Quadruplex-targeting Anticancer Metal Complexes
A/P Yan Yaw Kai

- G-quadruplex structures are four-stranded, guanine-rich DNA structures containing coplanar square quartets of guanine residues held together by hydrogen bonding. They exist in telomeres and in promoter regions of some proto-oncogenes. The activity of the enzyme telomerase (crucial for the immortalization of cancer cells) can be inhibited if telomeric DNA is folded into a quadruplex structure.

- The aim of this project is to synthesise potential G-quadruplex binding metal complexes and investigate their binding affinity and specificity to G-quadruplex DNA. The cytotoxicity of these complexes against cancerous and non-cancerous cells will be determined too.
• **Professional Practice & Inquiry Folio**

  Crystallizing Teaching Philosophy  
  Constructing Conceptual Map of Learning and Teaching

  The PPI provides the platform for student teachers to
  
  ✓ integrate and aggregate their learning across the different courses and practicum;
  ✓ articulate the connection between theory and practice; and
  ✓ reflect and inquiry into their practice.

  "There’s a lot of unstructured thinking going on, all these ideas come to you and you absorb them, but you may not have the time to fully form a particular framework to approach issues about education ... it became the foundation of MY philosophy of education. That aspect of ourselves as educators became more anchored, in terms of the beliefs that we held dear and certain things that we wanted to do in the course of our teaching experiences..."

  Kelvin, PGDE JC
Experiential (E)

• Placed-Based Learning
  Connecting between texts and place

• Field Experience
  Learn for Practice, Learn from Practice

• Group Endeavour in Service Learning
  Learning to Serve, Serving to Learn

• International Practicum
  Strengths and Weaknesses
  Facts and Fallacies
Multimodal (M)

Video Games
Leveraging on video games for the discovery of self-directed and collaborative learning principles

Augmented Learning
Use of AR to elevate student teachers’ experience of interacting with real physical objects and space

3-D Application
3D apps help in student teachers’ visualization by providing a detailed and accurate graphic rendering of the content

Innovative Pedagogies
Transforming Teacher Education

Inquiry-Based (I)

• Problem-Based Learning
  • Ill-defined real world problem
  • Interdisciplinary focus
  • Authentic investigation

• Appreciative Inquiry
  Singapore Kaleidoscope
  - Singapore’s natural heritage
  - Society and culture
  - Singapore’s geo-political landscape

Pre-service teachers will engage with different perspectives, experience Singapore through a range of lenses, and explore the critical challenges and issues necessary to understand Singapore in the 21st century.
Co-created Learning Journeys using Google My Maps

INNOVATIVE PEDAGOGIES

Transforming Teacher Education

INNOVATIVE PEDAGOGIES

Connected (C)

• Connecting to the World
  Use of NIE mGEO App to share information on the go during field trip

• IoT and Big Data
  Real-World Data and Interdisciplinary Learning
  Nurture a culture of experimentation and innovation
MULTIPLE PERSPECTIVES

• **Community as our Teacher**
  - Group Endeavor in Service Learning (GESL)
  - Service and Leadership Training (SALT) Programme (Vietnam)
  - Youth Expedition Programme (YEP)

• **Industry as our Partner**
  - Building University Interns for Leadership Development (BUILD) Programme

• **World as our Classroom**
  - Semester Exchange
  - International Teaching Assistantship

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**International Teaching Practice**

“I've been told how different the education system would be in America (or any other country for that matter), but when you've spent your whole life studying in Singapore, you tend to forget, or find it hard to imagine, that another country would approach education in a wholly different way.”

- Zhiwen, BA Year 2 University of California, Santa Barbara
Education is not just about preparing people for the future; it is also about inventing our future.

References


