Teacher Education for 21st Century Skills: Accomplishing Deeper Learning
Expectations for Learning are Changing

The new context means new expectations, including:

• Ability to communicate
• Ability to work in teams
• Adaptability to change
• Preparedness to solve problems
• Ability to analyse and conceptualise
• Ability to reflect on and improve performance
• Ability to manage oneself
• Ability to create, innovate and criticise
• Ability to engage in learning new things at all times
• Ability to cross specialist borders

--From Chris Wardlaw “Mathematics in Hong Kong, China: Improving on being First in PISA”
The Changing Demand for Job Skills

“Deeper learning”

The dilemma of schools:
The skills that are easiest to teach and test are also the ones that are easiest to digitize, automate, and outsource.
THINK critically & solve complex problems

COMMUNICATE effectively

WORK collaboratively

LEARN how to learn...

...through deep understanding of academic content
21ST-CENTURY SKILLS DEFINED

ATC21S started by internationally defining 21st-century skills as four broad categories.

WAYS OF THINKING
- Creativity and innovation
- Critical thinking, problem-solving, decision-making
- Learning to learn/metacognition (knowledge about cognitive processes)

TOOLS FOR WORKING
- Information literacy
- Information and communication technology (ICT) literacy

WAYS OF WORKING
- Communication
- Collaboration (teamwork)

WAYS OF LIVING IN THE WORLD
- Citizenship – local and global
- Life and career
- Personal and social responsibility – including cultural awareness and competence
Toward What Ends?

- Sustaining people
  -- Employment
  -- Food and shelter
  -- Clean water
- Sustaining the earth
- Resolving conflict
- Nurturing peaceful collaboration
- Developing new solutions and strategies for living and learning
From 20th century to 21st century learning
Teaching for Student Agency

The abilities to

- Take initiative
- Plan and implement
- Find and use resources
- Evaluate and synthesize
- Self-assess and improve
- Learn to learn
Teaching for Student Agency

1. Create complex, authentic projects / tasks worth doing
2. Plan for choice and inquiry
3. Connect tasks to authentic assessments
4. Build effective scaffolding that supports competence, confidence, and motivation
5. Support self- and peer-assessment and revision
6. Build reflection & extension into learning
7. Enable collaboration & peer learning
8. Develop social-emotional skills
9. Identify strengths, learning styles, and goals with students
10. Support student decision making, social responsibility, and leadership
Reform of Standards, Curriculum, and Assessment is Underway World Wide

...The goal is less dependence on rote learning, repetitive tests and a ‘one size fits all’ type of instruction, and more on engaged learning, discovery through experiences, differentiated teaching, the learning of life-long skills, and the building of character through innovative and effective teaching approaches and strategies...

-- Singapore Education Minister Tharman Shanmugaratnam, 2005
Should Teaching Be an Expert Profession?

- Do we *expect* teachers to be effective in promoting sophisticated learning?
- Is there a *Knowledge Base* that influences effectiveness?
- Can that knowledge base be *acquired, disseminated, and expanded*?
Bureaucratic vs. Professional Approaches to Education

**Bureaucratic → Doing School**
- Expertise rests at the top of the system
- Teachers have minimal skills
- Research, tests, and texts are aimed at controlling practice
- Decisions are made hierarchically
- Emphasis is on procedures: “Doing things right”
- Practice is standardized
- Schools function as assembly lines

**Professional → Enabling Learning**
- Expertise rests in the classroom
- Teachers have extensive knowledge and skill
- Research is aimed at informing practice
- Decisions are made with colleagues based on standards of practice
- Emphasis is on what works: “Doing the right things”
- Schools function as communities of learning
What Do We Know about How to Design Teacher Education to Enable Learning for Diverse Students?

Conducted by the National Academy of Education
Teaching as a Profession

Conceptualizing the Knowledge-Base for Teaching

Learners in Social Contexts:
- Human development
- Learning
- Language

Vision/Professional Practice

Teaching:
- Teaching Subject Matter
- Teaching Diverse Learners
- Assessment
- Classroom Management

Subject Matter & Curriculum
Educational Goals and Purposes for skills, content, subject matter

Education in a Democracy
The How of Teacher Education

Teacher Learning and Development

Perennial dilemmas:
The Apprenticeship of Observation,
The Problem of Enactment
The Problem of Complexity

An additional problem:
Do we prepare teachers for schools as they are or schools as they must become?

How do we prepare teachers to teach diverse students for deeper understanding?
Additional Considerations

Stages:
From Concern for Self to Concern for Learners

Contexts for Learning:
Subject Matter
Communities of Practice
What Kind of Teacher Preparation matters?
Program Features that Influence Teacher Effectiveness

- Adequate coursework in content and **content pedagogy**
- Carefully developed **student teaching integrated with coursework**
- Focus on learning specific tools and **applying them** in clinical experience
- Study of local district curriculum and **ability to develop curriculum**
- Portfolio / **performance assessment tying theory to practice**
Teacher Education that Instantiates and Supports Deeper Learning

- Candidates **experience** deeper learning pedagogies:
  - hands-on projects and performance assessments
  - revision to standards
  - communication, groupwork
- Focus is on how people learn for mastery and transfer
- Development is at the core
- Content is linked directly to opportunities for practice
- Candidates learn to take the students’ perspective
The Clinical Curriculum
What is Clinical Practice?

IT IS NOT...
- Just being in a classroom
- Trial and error learning

IT IS ...
- Explicit modeling of good practice
- Opportunities to learn under expert supervision
- Assumption of gradual responsibility
- Specific clinical experiences linked to aspects of teaching practice and powerful theory
The Evolution of Professional Teaching Schools

- As in medicine and other professions, teachers need to see and enact good practice while learning research and theory.
- Professional teaching schools support learning from expert veterans while candidates are taking tightly linked coursework. They can model state-of-the-art education for students and teachers as well as opportunities for developing curriculum, new practices, and research.
In Many Countries, Teacher Education is Today Where Medical Education was in 1910
What Happened:

- Common preparation design built on most successful models
- Updated regularly based on research and professional judgment
- Integration of coursework with clinical work
- Required internships and residencies conducted in affiliated teaching hospitals
- Performance-based licensure and accreditation
What Should We Focus On?
Eyes on the Prize …

- Teaching for deeper understanding
  {pedagogical content knowledge}
- Supporting diverse students
  {pedagogical learner knowledge}
- A whole child perspective (social, emotional, and academic skills)
- Creating a strong clinical experience tightly linked to coursework
- Transforming schools to enable powerful learning and teaching
A goal for high-achieving 21st century nations:

“Those who can, do. Those who understand, teach.”

“Those who can, teach. Those who can’t go into a less significant line of work.”