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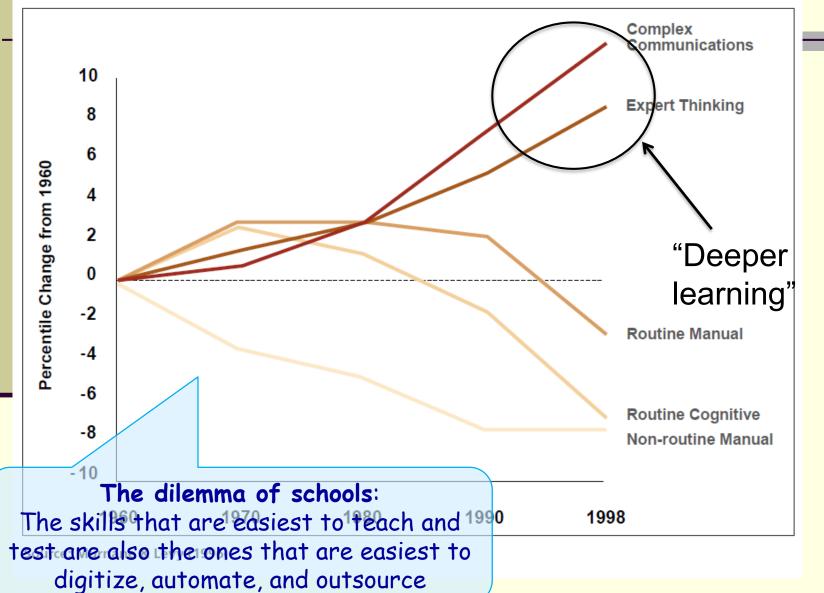
Expectations for Learning are Changing

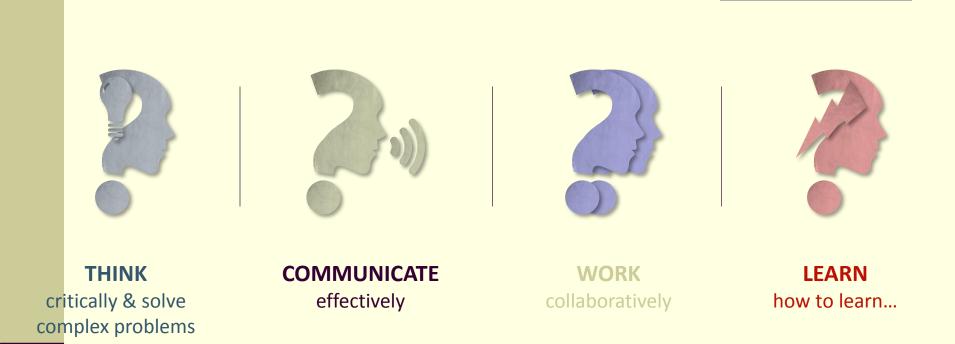The new context means new expectations, including:
- Ability to communicate
- Ability to work in teams
- Adaptability to change
- Preparedness to solve problems
- Ability to analyse and conceptualise
- Ability to reflect on and improve performance
- Ability to manage oneself
- Ability to create, innovate 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

DEEPER LEARNING

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 communicatio technology (ICT) literacy

WAYS OF WORKING

· Communication

· Collaboration (teamwork)

WAYS OF LIVING IN THE WOR

· 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*?

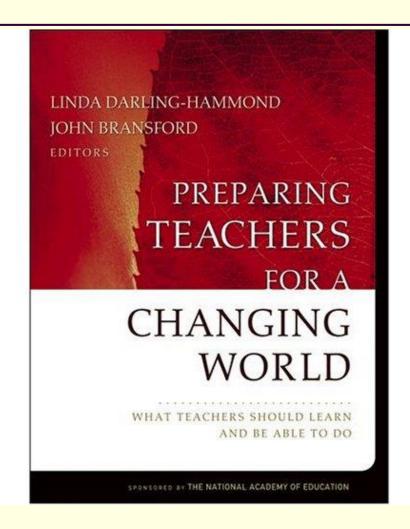# Bureaucratic vs. Professional Approaches to Education

Bureaucratic ➡ Doing School

- Expertise rests at the top of 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 in 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

Conceptualizing the
Knowledge-Base for
Teaching

Learners in

Social Contexts:

•Human development

•Learning

•Language

Subject Matter &

Curriculum

Educational Goals and

Purposes for skills,

content, subject matter

Vision/
Professional
Practice

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

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 <u>content pedagogy</u>
- Carefully developed <u>student teaching integrated with coursework</u>
- Focus on learning specific tools and <u>applying them</u> in clinical experience
- Study of local district curriculum and ability to develop <u>curriculum</u>
- Portfolio / <u>performance assessment</u> 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 <u>while</u> 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."