LEARNING VERSUS EDUCATION

Kai-ming Cheng
Emeritus Professor
University of Hong Kong

NSF Science of Learning
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My beliefs ....

Ultimate aim of Education:
To prepare the younger generation for the future!

Core business of education
Learning!

WHY?

How?
However,

Learning is a Human Instinct,
but education is not.

Education is system of learning we design for our younger generation and ourselves.
The question is:

Is our system (and policies) conducive to learning?
Typical career path, industrial era

- John
  - BScEng (1971)
  - Graduated in Electrical Engineering
  - Appointed to the Department of Electrical Engineering
  - Promoted to a very senior position
  - Stayed in the Department until 55
  - Enjoying early retirement

That belongs to the past!!!
To date,

Education is basically about definitive contents, processes, targets, ... hence assessments for definitive expectations.

Assuming, after all, individuals would learn as we design. Those who do not are failures.
This is not a problem in a typical industrial society

Categorical division of labor
Lifelong employment
Predictable career paths
Lifelong occupation

Education for Credentials
That promise smooth sailing
Society (Human Resources) → Education → Human Beings
Society has changed ...
Production for Needs >>

**Creation of Desire**

Mass Production >>

“Less of More”

Large Pyramidal Bureaucracy >>

**Small, flat, loose, fragile One-stop units**

Organizational Commitment >>

**Individual Endeavors**
Now, we are moving away from the typical industrial society ...

Volatile
Uncertain
Complex
Ambiguous

It's VUCA Society
Individual face diverse careers paths:

- Study-work Mismatch
- Frequent change of jobs
- Frequent change of occupations
- Non-employees
- Intermittent Employments
- Start-ups
- Free-lancers
- Multiple Portfolios
- Unintended Unemployment
- Voluntary Unemployment
- Early Retirement
Education
has to be different!

No longer about feeding knowledge
No longer about credentials
No longer to fit particular jobs

It’s about preparation for life!
To face the future, ...

They have
to learn all the time
to learn different things at different times
in different ways!
That is ...

They have to learn how to learn!

Hence

**Learning to Learn**

*(Title for Curriculum Reform Hong Kong 2002)*

Therefore

**Science of Learning**
To start with ...

Learning is meaning-making.
Learning is knowledge construction.

Therefore,
Learning is not pouring “knowledge” from external sources.
Learning happens in individual brains.
Learning depends on individuals’ respective experiences.
Even with the same experience, individuals learn differently.
Society of Diversity

Diverse Human Beings

Learning Experiences

Learning Experiences

Learning Experiences
21 Century Skills (US)

P21 Framework for 21st Century Learning
21st Century Student Outcomes and Support Systems

- Learning and Innovation Skills – 4Cs
  - Critical thinking
  - Communication
  - Collaboration
  - Creativity

- Information, Media, and Technology Skills

- Key Subjects – 3Rs and 21st Century Themes

- Standards and Assessments

- Curriculum and Instruction

- Professional Development

- Learning Environments

© 2007 Partnership for 21st Century Learning (P21)
However, is skills adequate? Is there a place for social and emotional development? for personal development?
The Spectrum

- Spirituality
- Global citizenship
- Cultural identity
- National identity
- Citizenship
- Community harmony
- Human relations beyond job
- Human relations on job
- Work related attributes
# Attempting a Framework

<table>
<thead>
<tr>
<th>Global Perspective</th>
<th>Economic Discourse</th>
<th>Social Discourse</th>
<th>Humanity Discourse</th>
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<tr>
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<td>Competitiveness</td>
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<td>Individual Perspective</td>
<td>Employability</td>
<td>Community Harmony</td>
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Starting from the person, ...

examples from East Asia.
Singapore 21st Century Competency Framework
Korea

An independent person
An ingenious person
A refined person
A democratic citizen
Taiwan
Comprehensive Development of a Person

Self Management:
- Learning to Learn
- Healthy Life
- Growth Planning

Social Participation:
- Social Responsibility
- National Identity
- International Awareness

Knowledge and Culture:
- Core of Humanities
- Spirit of Science
- Aesthetic Capability

Li (2016) Beijing Normal University
People Quality

Capability

language, mathematics, computational thinking, science and technology literacies, global, national and civic literacies

Attributes

creativity, teamwork, leadership, resilience, self-discipline, aspiration and motivation, rights and responsibility, sensitivity to ethnicity, religions and cultures, inclusiveness, ...

Values

love and care, integrity, justice, peace, righteousness, charity, environmental stewardship, national and cultural identity, spirituality, ...
Diverse modes of Learning Experiences
(Hong Kong Education 2.1)

**People Quality**

**Capability**
- language, mathematics, computational thinking, science and technology literacies, global, national and civic literacies

**Attributes**
- creativity, teamwork, leadership, resilience, self-discipline, aspiration and motivation, rights and responsibilities, sensitivity to ethnicity, religions and cultures, ... 

**Values**
- love and care, integrity, justice, peace, righteousness, environmental stewardship, national and cultural identity, spirituality, ...
Learning-based reform in Hong Kong (2002-16)

**Learning to Learn**

Chart the learning experiences students deserve.
Compress the traditional “subjects”.
Create new learning experiences.
Free up space for diverse/autonomous learning.
Immediate measures:

Reduce public assessment
From THREE (Grades 6, 11, 13)
To ONE (Grade 12)
Visible impacts:

More lively school lives
More active learning
Diverse learning experiences
Engaging community resources
(9.8 partnership programs/school)
Learning Chinese
Learning Chinese
Grade 3 students are given a large piece of blank paper and a theme.

E.g. Spring

春天
Grade 3 students are expected to find relevant vocabulary on their own.

要求
- 最小6分
- 无上限
- 每正确一项得3分
- 错误不扣分
菊花、玫瑰、蒲公英、洋紫蘇、種子
秋天
冬天、雨天、陰天、蝴蝶、草花、樹
蜜蜂、熱冷、郊野、遊木棉樹、牡丹
嬌媚、柔弱、淡淡的
春天、花香味、花瓣、葉子
夏季、天空、太陽、陽光、森林、世界各地的天氣
天文、閃電、打雷、春風、登山、遠足、旅行
撲鼻荷花、奪目、繽紛、開花、花地、耀眼、色彩
種花、郊外、暖和、種植、來臨
Minimum six

No limit

3 /word

No deduction for mistakes
三、心理詞彙

看到「春天」這個詞語，你會想到甚麼？請把你想到的詞語寫下來，寫得越多越好，但最少要寫下6個。(每個正確詞語得3分)

Mental Lexicon

Vocabulary Building

Active Learning

Diversity
Teachers innovations

Group work
Whole class engagement
“Recommendation”
“Classification”
PIRLS Progress in International Reading Literacy Study

Hong Kong results:

- PIRLS 2001: 14th
- PIRLS 2006: 2nd
- PIRLS 2011: 1st
Efforts to scale

Numerous workshops for teachers
Experiment in Pilot Schools
Forums for Parents
Challenges
Challenge 1

Assessment reforms

From
What do they know?
To
What can they do?

Creation, Application, Integration, Collaboration
Challenge 2

Active Learners

Motivation

Choice

Autonomy
Challenge 3

University admissions
Liberal Studies
Other Learning Experiences
Students’ Learning Portfolios
Largely ignored.
However, the largest challenge ...

It’s a turbulent world!
It is a world of turbulence …

Ever worsening climates and natural disasters
Frequent man-made accidents
Unpredictable economic crises
Spontaneous political unrest
Recurrence & emergence of epidemics
Irresponsible politicking
Increasing potentials of war
Organized and unorganized terrorist activities
Widespread serious corruption
Unstoppable waves of refugees
Shameless cheating and faking
Emotions of independence
Unwanted results of democratic processes

… …
But all these will not go away in 20 or 30 years time!

We have to live with them!
Our next generation has to be stronger, in order to survive, to thrive, to lead & to change the world.
Education as it is now ……

Higher Education
Career Readiness
Secondary School
College Readiness
Kindergarten
School Readiness

These are apparently taken for granted!

But are they indeed justifiably the aims of education?
Thank you!

kmcheng@hku.hk