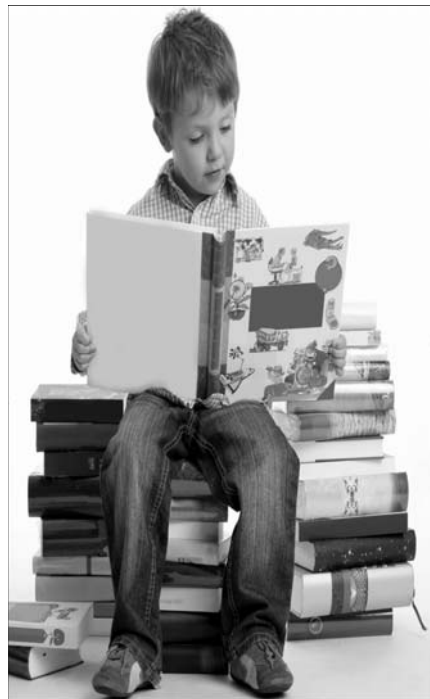


廿一世紀課程的方向和轉向：
從能力到素質、從才到人

張慧真博士
香港浸會大學教育學系



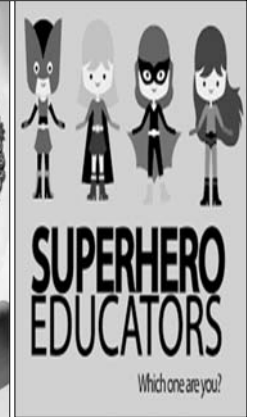
Part 1: Learners

Learners

Skills &
Literacy

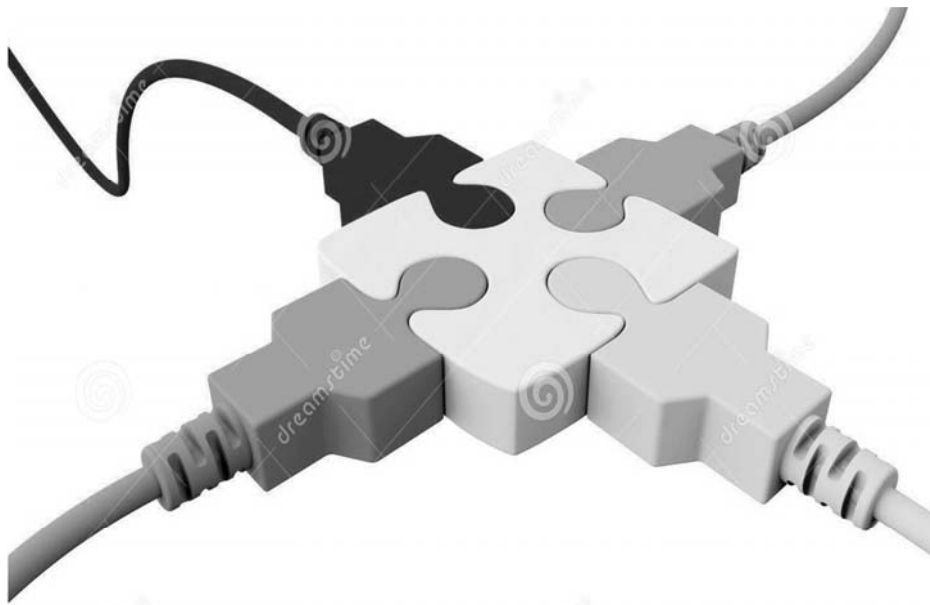
Competencies

Educators



Digital Baby Boom





Constantly Connected



Instant Access

PROSUMERS?

- Prosumers pass it on.
- The urge to pass on information and opinions to others is the absolute **defining core** of Prosumerism. No wonder Prosumers become hubs of information and opinions.
- People consult Prosumers. They are much more likely than average consumers to be consulted for tips and recommendations.
- Prosumers don't forgive and forget. Nobody likes a poor product or service experience, but Prosumers dislike them more than most.
- Prosumers consult widely, then make up their own mind. They typically gather information widely for the material they need to decide on their own; they experiment even if they

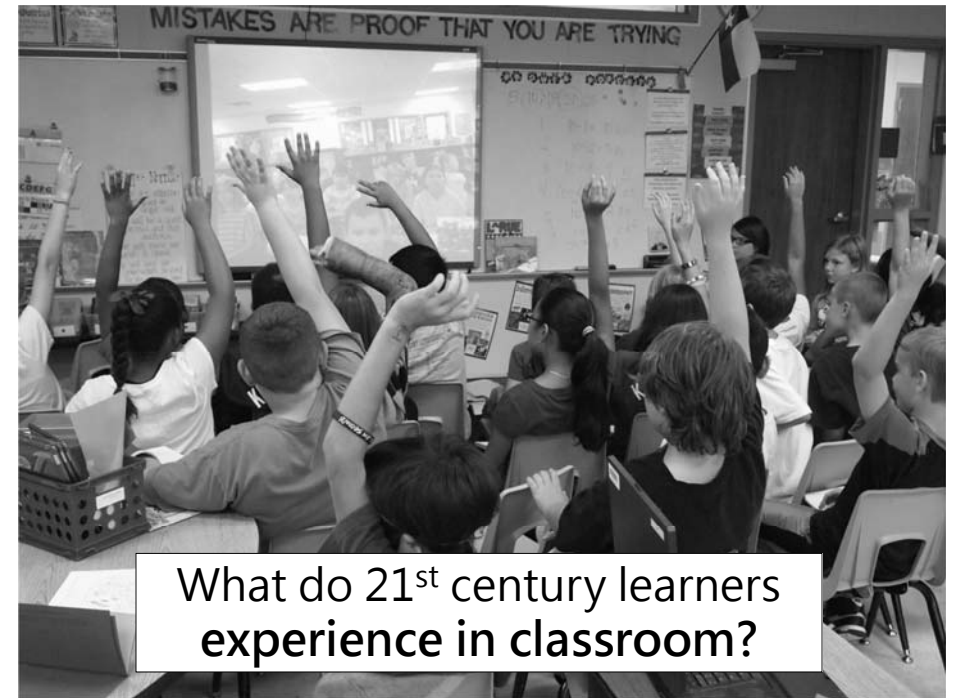


Life outside the Classroom

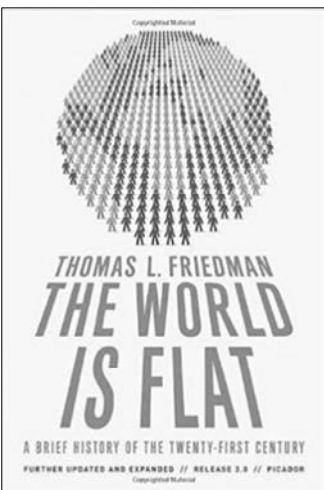




Part 2: Skills & Literacy



21st century is a **GLOBAL ECONOMY**



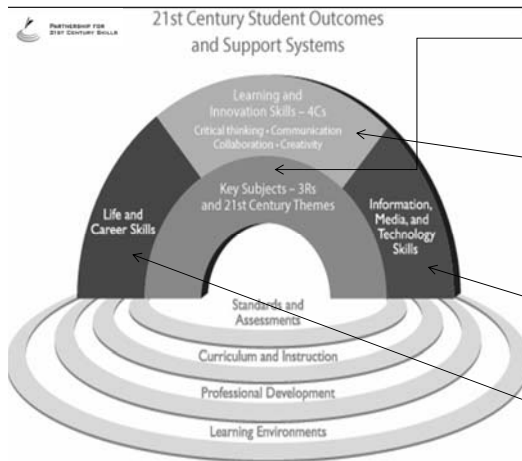
- Flattening of the World
- Globalization
- Competition
- Change of work pattern & career

21st century Skills & Literacy

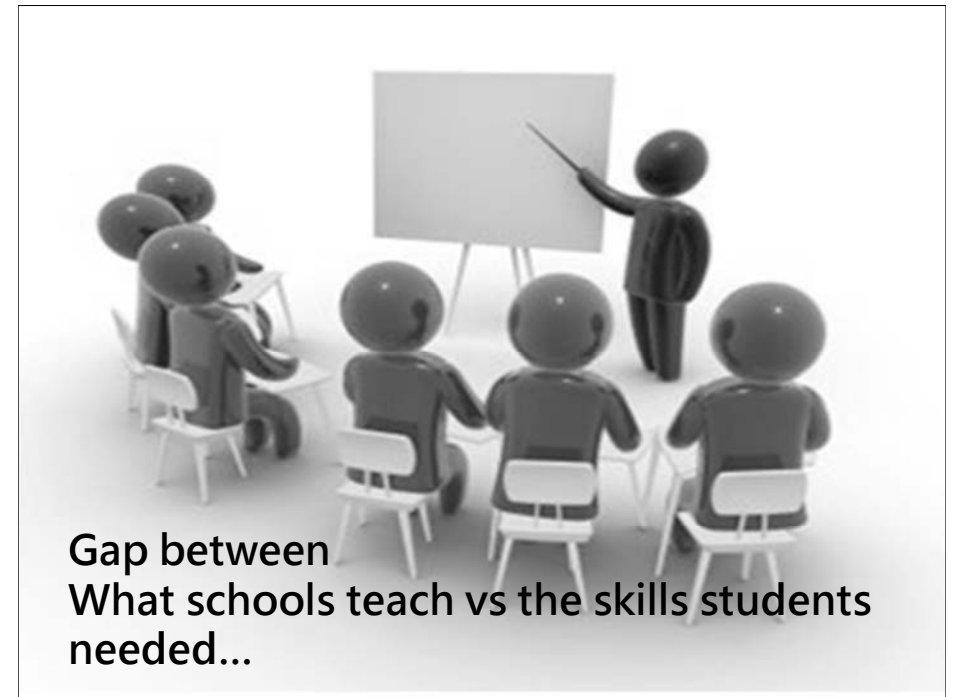
- Emphasis Core Subjects
- Emphasis Skills
- Use 21st century tools to develop learning skills: IT...
- Teaching & learning in a 21st century: authentic learning experience, relevance to daily life...
- Assessment & measurements for 21st century: SBA, formative assessment...



21st Century Skills & Literacy



1. 核心能力：3R
(reading, writing, arithmetic)
2. 學習和創新能力：4C
(communication, collaboration, critical thinking, creativity)
3. 資訊、媒體和科技能力：2T (IT, S&T)
4. 生活和職業能力：
(flexibility & adaptability, leadership & responsibility etc.)



Gap between
What schools teach vs the skills students
needed...



Part 3: Competencies

21st century is a Creative ECONOMY



- Moving from informational to the conceptual age
- Right brain thinking mode (left brain is not enough)
- 3-A trends:
 - *A*bundance
 - *A*sia
 - *A*i: automatism



Skills versus Competencies



“A **COMPETENCE** is more than just knowledge or skills. It involves the ability to meet complex demands, by drawing on and mobilising psychological resources (including skills and attitudes) in a particular context.” (OECD, 2003, p.4)

21st Century Competencies

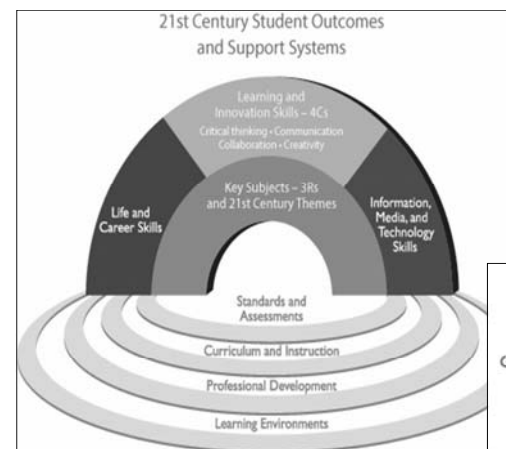


21st century skills grouped into three broad domains (National Research Council, 2012, p.2)

Cognitive Competencies: critical thinking, analysis, problem solving...

Interpersonal Competencies: collaboration, coordination, responsibility, leadership, trust...

Intrapersonal Competencies: adaptability, self monitoring, flexibility, career orientation, appreciation for diversity...

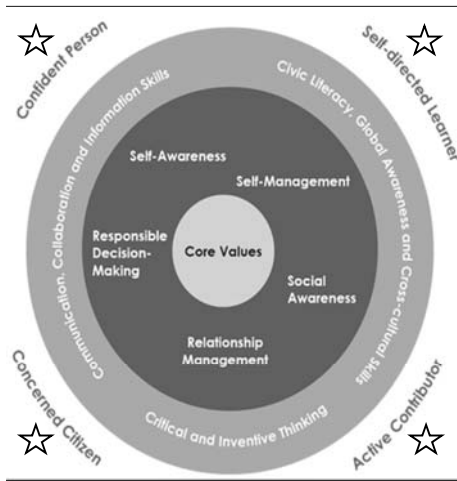


P21 Framework for 21st century Learning (USA, 2007)



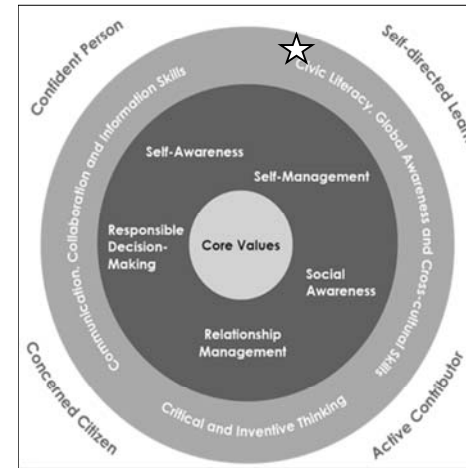
21st century Competencies (Ministry of Education, Singapore, 2015)

21st Century Competencies



21st century competencies raised by Singapore:

- ☆ Self-director learner (自主學習者)
- ☆ Active contributor (主動貢獻者)
- ☆ Confidence Person (自信個體)
- ☆ Concerned citizen (關顧公民)



New content added:

- ☆ Civic literacy (公民素質)
- ☆ Global awareness (全球意識)
- ☆ Cross cultural skills (跨文化能力)



Paradigm shift to Core Values:

- ☆ Self-awareness (自省)
- ☆ Self-management (自理)
- ☆ Social-awareness (社會意識)
- ☆ Relationship management (關係管理)
- ☆ Responsible decision-making (負責任的決定)

Mapping 21st Century competencies

Table 2: (pg. 36) Connections between digital tools and resources, key transformational learning practices/ contexts, and competency development

Technologies	Key Transformational Learning Practices/Contexts	21 st Century Competencies
Social and Collaboration Support knowledge building Examples: <ul style="list-style-type: none"> • blogs • online discussions • file sharing 	<ul style="list-style-type: none"> • authentic audiences • student voice and choice • student creation and transfer of knowledge (deeper learning) • new partnerships in learning • inquiry-based learning (including project- and problem-based learning) • timely, descriptive feedback 	<ul style="list-style-type: none"> ☑ communication ☑ collaboration ☑ regulation ☑ leadership ☑ cross-cultural awareness ☑ critical thinking ☑ digital literacy
Hybrid and Mobile Broaden access to education beyond the school walls Examples: <ul style="list-style-type: none"> • tablets • mobile technology 	<ul style="list-style-type: none"> • student driven inquiry • self-directed learning • new partnerships in learning • equity of access • authentic, real-world learning tasks 	<ul style="list-style-type: none"> ☑ responsibility ☑ productivity ☑ analysis ☑ problem-solving and decision-making ☑ information literacy
Visualization Help students to master abstract concepts Examples: <ul style="list-style-type: none"> • 3D printers • interactive music • learning tools • virtual mapping tools 	<ul style="list-style-type: none"> • differentiated instruction • student discovery/mastery • stimulation of learners to higher-order thinking • learner autonomy • timely, descriptive feedback 	<ul style="list-style-type: none"> ☑ coordination ☑ communication ☑ imagination ☑ analysis ☑ fluency ☑ problem-solving and reasoning
Storytelling and Creation Develop students as knowledge creators and communicators Examples: <ul style="list-style-type: none"> • virtual music production tools • presentation tools 	<ul style="list-style-type: none"> • student choice and voice • student creation and transfer of knowledge (deeper learning) • new partnerships in learning • authentic, real-world learning tasks and audiences 	<ul style="list-style-type: none"> ☑ communication ☑ collaboration ☑ individual interpretation ☑ analysis ☑ fluency ☑ digital literacy ☑ digital citizenship
Immersive Media and Simulation Situate learning in real-world and augmented realities Examples: <ul style="list-style-type: none"> • virtual worlds • interactive games 	<ul style="list-style-type: none"> • authentic, real-world learning tasks • student creation • student discovery/mastery • personalized learning • timely, descriptive feedback 	<ul style="list-style-type: none"> ☑ coordination ☑ socialization ☑ grit and perseverance ☑ self-management ☑ problem-solving and decision-making ☑ creativity and innovation ☑ critical thinking

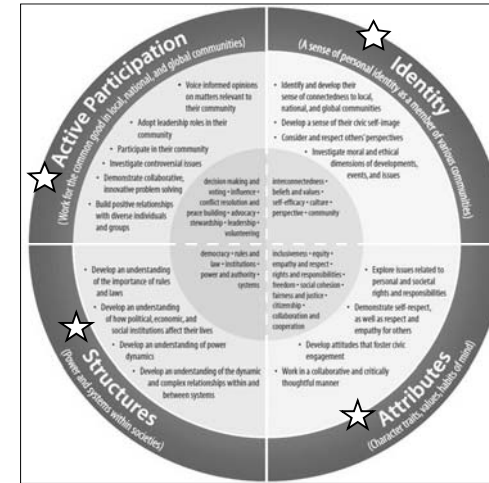
Towards Defining 21st Century Competencies for Ontario, Discussion Paper (Fall 2014). Retrieved from: <http://www.edu.gov.on.ca/eng/21stcentury/21stcenturycompetencies.pdf>

Critical Thinking and Problem Solving <ul style="list-style-type: none"> Solves meaningful, real-life, complex problems (1), (6) Takes concrete steps to address issues Designs and manages projects Acquires, processes, interprets, and analyzes information to make informed decisions (critical and digital literacy) Engages in an inquiry process to solve problems (1) Makes connections and transfers learning from one situation to another (1), (6) 	Innovation, Creativity, and Entrepreneurship <ul style="list-style-type: none"> Contributes solutions to complex problems (3) Enhances a concept, idea, or product Takes risks in thinking and creating Makes discoveries through inquiry research (1) Pursues new ideas to meet a need of a community (3), (6) Leads and motivates with an ethical entrepreneurial spirit (1), (3) 	Learning to Learn / Self-Aware & Self-Directed Learning <ul style="list-style-type: none"> Learns the process of learning (metacognition) (1), (3), (4), (5), (7) Believes in the ability to learn and grow (growth mindset) (1), (4), (5) Perseveres and overcomes challenges to reach a goal (1), (5) Self-regulates in order to become a lifelong learner (1), (4), (5), (7) Reflects on experience to enhance learning (1), (7) Cultivates emotional intelligence to understand self and others (1), (2), (4) Adapts to change and shows resilience to adversity (1), (5) Manages various aspects of life – physical, emotional (relationships, self-awareness), spiritual, and mental well-being (5)
Collaboration <ul style="list-style-type: none"> Participates in teams; establishes positive relationships Learns from, and contributes to, the learning of others (1) Co-constructs knowledge, meaning, and content (1) Assumes various roles on the team Manages conflict Networks with a variety of communities/groups Respects a diversity of perspectives (2), (3) 	Communication <ul style="list-style-type: none"> Communicates effectively in different contexts in oral and written form in French and/or English Asks effective questions to acquire knowledge (6) Communicates using a variety of media (1), (5) Selects appropriate digital tools according to purpose (1) Listens to understand all points of view (2), (3), (6) Gains knowledge about a variety of languages (2), (6) Voices opinions and advocates for ideas 	Global Citizenship <ul style="list-style-type: none"> Contributes to society and the culture of the local, global, and digital community in a responsible, accountable, and ethical manner (2), (6) Engages in local and global initiatives to make a difference (6) Learns from and with diverse people (2), (5), (6) Interacts safely and responsibly within a variety of communities (5), (6) Creates a positive digital footprint Relates to the environment and is mindful of the importance of doing things (2), (3)

21st Century Competencies, Ontario, 2016, p.56

Categories of 21st Century Competencies:

- Critical thinking & problem solving
- Innovation, creativity, and entrepreneurship
- A growth mindset (metacognition/ learning to learn, perseverance, and resilience)
- Collaboration (teamwork)
- Communication
- Local, global, and digital citizenship



The Citizenship Education Framework
21st Century Competencies, Ontario, 2016, p.52

The Citizenship Education Framework

- ☆ **Active Participation:** Work for common good in local, national and global communities
- ☆ **Identity:** A sense of personal identity as a member of various communities
- ☆ **Structures:** power and systems within societies
- ☆ **Attributes:** character traits, values, habits of mind

Woodlands Ring Secondary School, Singapore

Character & Citizenship Education Curriculum Framework

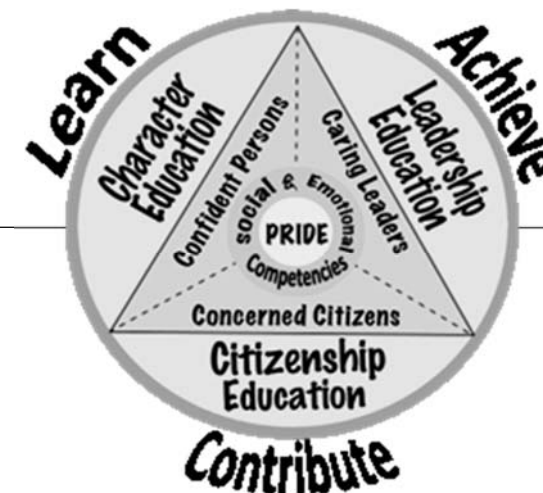


Active Citizens

Vibrant Leaders

'Personality can open doors, but only Character can keep them open.'
– Elmer Letterman

Character Education: Vision of Jurongville Secondary School, Singapore





Part 4: Educators

What are 21st century Educators?



The Adaptor

- able to adapt the curriculum and the requirements to teach the curriculum in imaginative ways.
- able to adapt to a dynamic teaching experience.

The Visionary

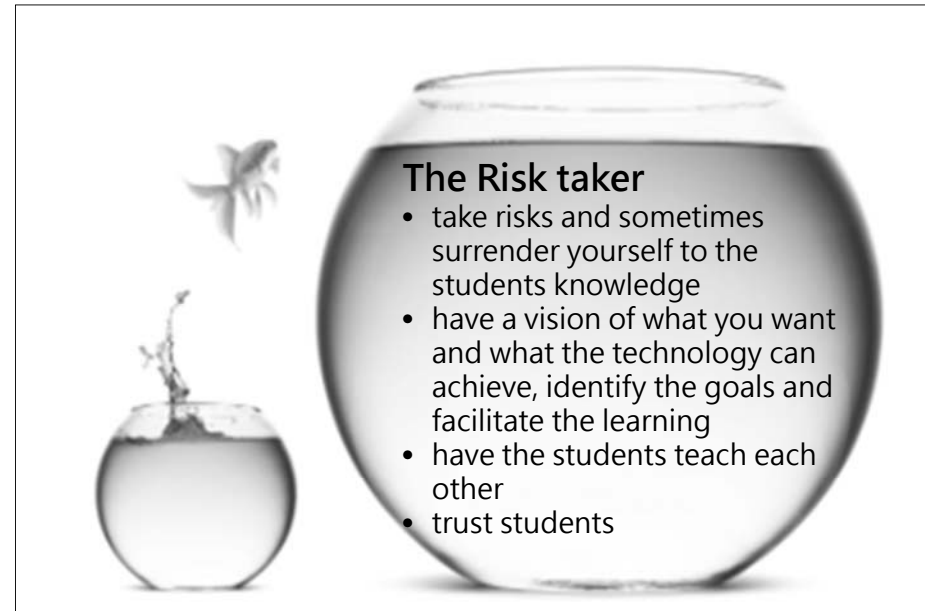
- can look at others ideas and envisage how they would use these in their class
- looks across the disciplines and through the curricula
- leverage other fields to reinforce their own teaching and the learning of their students.





The Collaborator

- able to leverage collaborative tools, such as Ning, Blogger, Wikispaces, MSN, to enhance and captivate our learners.
- must be collaborators of sharing, contributing, adapting and inventing.



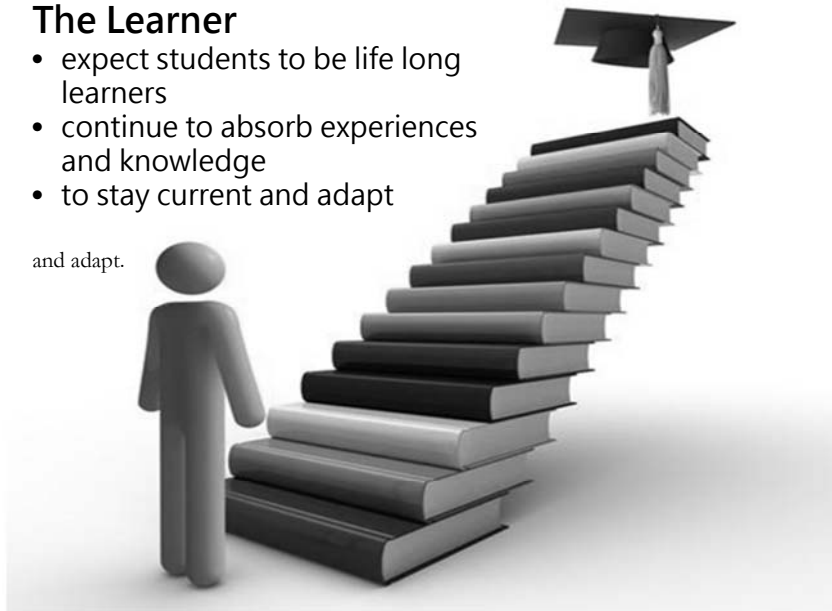
The Risk taker

- take risks and sometimes surrender yourself to the students knowledge
- have a vision of what you want and what the technology can achieve, identify the goals and facilitate the learning
- have the students teach each other
- trust students

The Learner

- expect students to be life long learners
- continue to absorb experiences and knowledge
- to stay current and adapt

and adapt.



The Communicator

- "Anywhere, anytime" learning
- fluent in tools and technologies that enable communication and collaboration
- go beyond learning, know how to facilitate, stimulate and control it, moderate and manage it.



The Model

- model the behaviours that expect from our students
- teach values
- models reflective practice
- model a number of other characteristics: tolerance, acceptance, global awareness, reflection



The Leader

- champion of the process of ICT integration
- the quiet technology coach, the ICT Trainer and a teacher leading by example

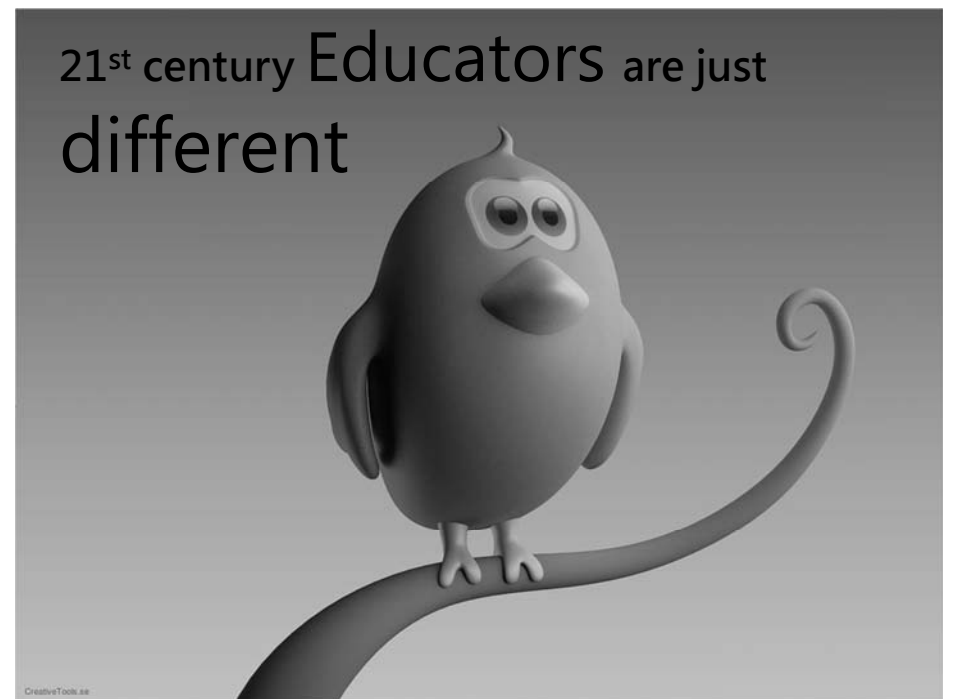


21st century Educators are...



- The Adaptor
- The Visionary
- The Risk taker
- The Learner
- The Communicator
- The Model
- The Leader
- A Person and a global citizen

21st century Educators are just different



Where to invade next?



What did the Finland Teachers Tell?

Principal: They (students) should have more time to be kids, to be young stuffs and to enjoy life.

Teacher: Yes, they (students) can climb trees if they want. While climbing tress, they will find different insects. When they come to school next day, they should tell me what they find while climbing trees.

Teacher: Teach them (students) to be happy, respect others and themselves. Yes, I teach Math.

Children are born with wings,
TEACHERS HELP THEM TO FLY



Thank You