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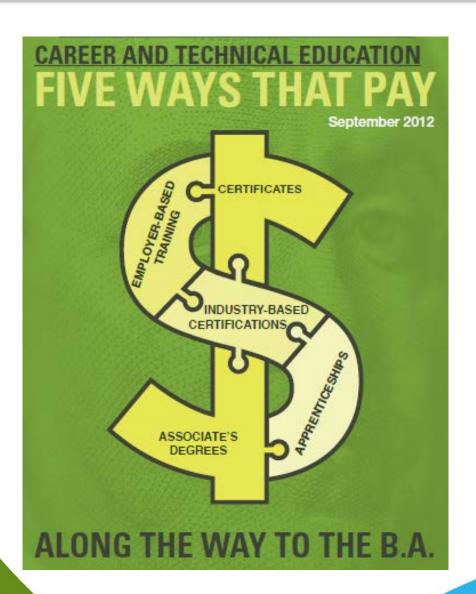
Teaching/learning/assessing readiness skills

Robert Harrison, IB Global Centre, The Hague Head of MYP Development





Life beyond the classroom



CLIAG:

Career
Learning,
Information,
Advice and
Guidance

CCR:

College and Career Readiness





Metaphor

Finding our way through territory that is both new and familiar













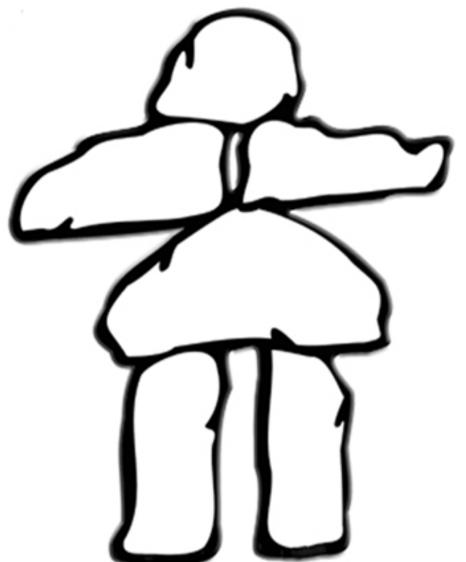
Now the people will know we were here



https://www.historicacanada.ca/content/heritage-minutes/inukshuk







Where would your inuksuk direct others to follow? What would it say about the path you have taken?





Destinations

The goals of career-ready, competency-oriented, skills-based education





Building the right skills can help countries improve economic prosperity and social cohesion



By contributing to social outcomes such as health, civil and social engagement. By supporting improvement in productivity and growth.

By supporting high levels of employment in good quality jobs.

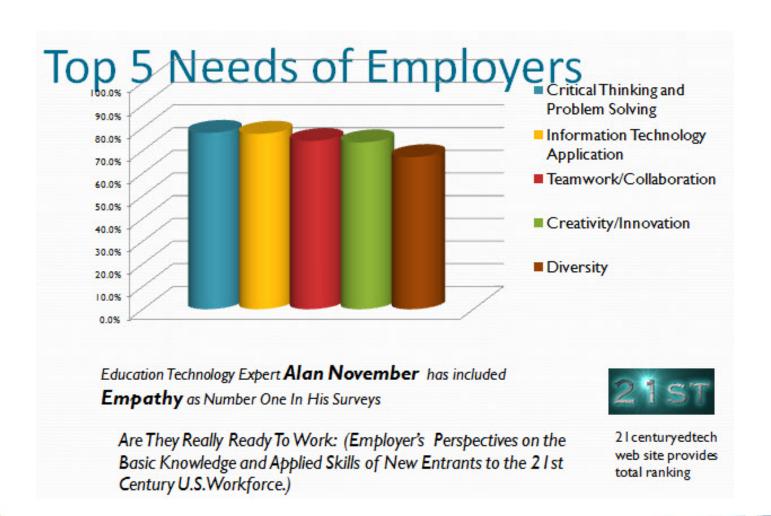








****Employer needs (knowledge & applied skills)







What employers want

Skill/Quality	Weighted average rating*	
Ability to work in a team structure	4.55	
Ability to make decisions and solve problems	4.50	
Ability to plan, organize, and prioritize work	4.48	
Ability to verbally communicate with persons inside and outside the organization	4.48	
Ability to obtain and process information	4.37	
Ability to analyze quantitative data	4.25	
Technical knowledge related to the job	4.01	
Proficiency with computer software programs	3,94	
Ability to create and/or edit written reports	3.62	
Ability to sell or influence others	3.54	
*5-point scale, where 1=Not at all important; 2=Nosewhat important; 4=Very important; and 5		





Ready for what?

Competency is the capacity to generate appropriate performance: to marshal the resources (tools, knowledge, techniques) in a social context (which involves working with others, understanding expectations) to realize a goal that is appropriate to the context. (OECD, 2013)

- Application of knowledge and skills, not mastery of knowledge or technique
- Encompassing knowledge, skills, attitudes (beliefs, dispositions, values)

Having a skill, AND knowing how to use it wisely





KEY competencies

Pre-requisites for achieving desired outcome

- 'successful life and well-functioning society'
- 'preparation for (emerging) labour markets'
- 'personal fulfilment, active citizenship, social cohesion, employability'

Relevant to all individuals

Can be learned

Are generic or highly transferable relevant to multiple social fields and work situations (*transversal*)

Enable people to deal with *complexity, uncertainty & insecurity* (Bourne and Neal, *The Global Engineer*)





DeSeCo Categories

Use tools interactively



Act autonomously



Interact in heterogeneous groups





The 21st Century Workplace:

IB AFRICA, EUROPE & MIDDLE EAST SIX DISTUPTIVE Forces and Ten Essential Skills ROME · 16-19 OCTOBER



Drivers: disruptive shifts that will reshape the workforce landscape



Key skill needed in the Future workforce

Extreme Longevity

Increasing global lifespans change the nature of careers and learning

Rise of smart machines and

systems
Workplace
robotics nudge
human workers
out of rote
repetitive tasks

Social Intelligence

Trans-

disciplinarity

Sense -

Making

Novel and

Adaptive

Thinking

Computational World

Massive increase in sensor and processing power makes the world a programmable system

Design Mindset

> Cognitive Load Management

Superstructed organizations

Social technologies drive new forms of production and value creation

Computational Thinking

New Media Literacy

Cross Cultural Competency Virtual

New media ecology New

communication tools require new media literacies beyond text

Globally connected world

Increased global connectivity puts diversity and adaptability at the center of organizational

Source: Future Work Skills 2020, Institute for the Future



- •An ability to communicate with people across a range of social and cultural backgrounds
- •An ability to work within teams of people from a range of backgrounds and other countries
- Openness to a range of voices and perspectives from around the world
- •Willingness to resolve problems and seek solutions
- •Recognition and understanding of the importance of global forces on people's lives
- •Willingness to play an active role in society at local, national and international levels





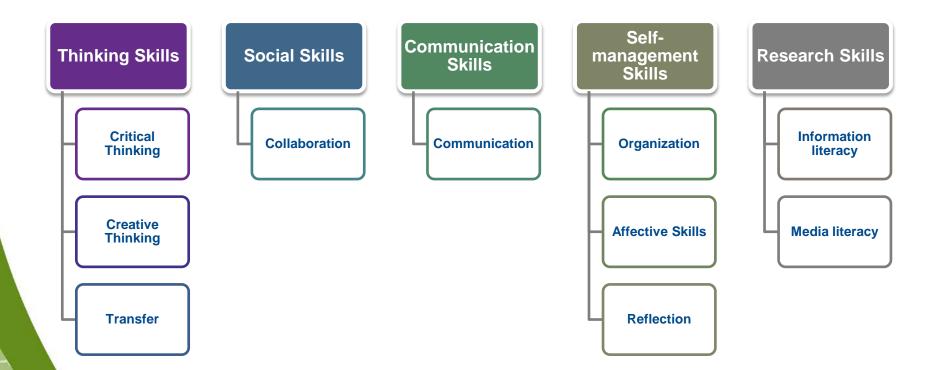


Groups and hierarchies

Competency groups	Examples of specific competencies cited in frameworks
Cognitive competencies	
Communication	Reading, writing, oral communication, proficiency in foreign languages.
Information processing	Thinking skills, managing information.
Problem solving	Recognising problems and devising and implementing a plan of action, discovering a rule or principle underlying the relationship between two or more objects and applying it when solving a problem.
Learning	Learning to learn, reflexivity, effective management of one's own learning.
Mathematics	Using numbers, reasoning mathematically, communicating in mathematical language.
Interpersonal competencies	
Interpersonal	Team work, cultural sensitivity, working with others, relating to customers, negotiating, participate in projects and tasks.
Intrapersonal competencies	
Self-regulation	Self-awareness, reflexivity, meta-cognition, adaptability, coping with stress.
Management	Planning (self and others), organisation, responsibility.
Creativity/entrepreneurship	Initiative, creativity, ability to assess and take risks.
Technological competencies	
ICT	Work with a variety of technologies, use IT to organise data.



5 ATL skills categories / 10 clusters (MYP)







ATL skills: Self management - affective

Perseverance	Demonstrate persistence and perseverance Practice delaying gratification	
Resilience	Practice 'bouncing back' after adversity, mistakes and failures	
	Practice 'failing well'	
	Practice dealing with disappointment and unmet expectations	
	Practice dealing with change	

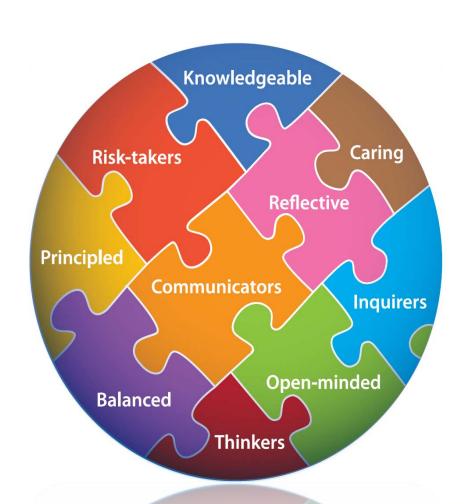




10 attributes of life-long learners

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:







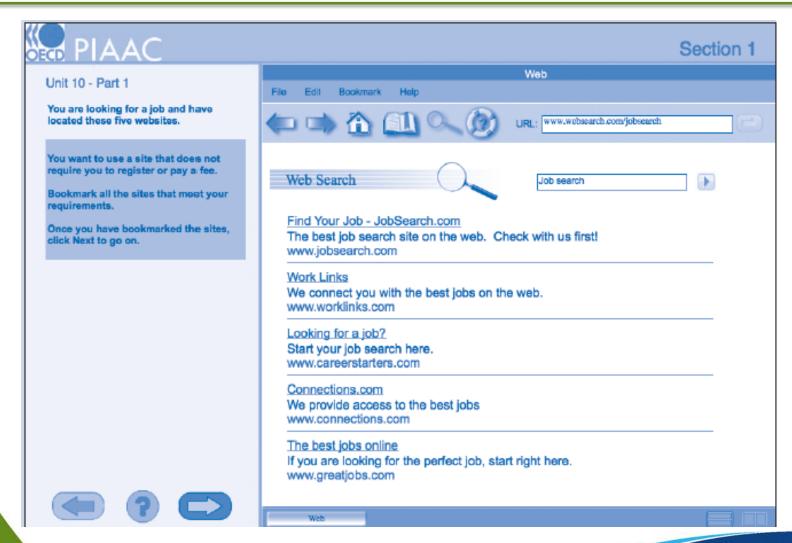
Check-points

The promise and peril of assessment





PIACC Programme for the Assessment of Adult Competencies







Problem-solving tasks

Tasks are the circumstances that trigger a person's awareness and understanding of the problem and determine the actions needed to be taken in order to solve the problem. Ordinarily, a wide range of conditions can initiate problem solving. Tasks are defined in terms of intrinsic complexity and the explicitness of the problem statement. The *intrinsic* complexity of a problem is determined by:

- the minimum number of steps required to solve the problem;
- the number of options or alternatives at various stages in the solution path;
- the diversity of operators required to be used, and the complexity of computation/transformation;
- the likelihood of impasses or unexpected outcomes;
- the number of requirements that have to be satisfied to arrive at a solution; and
- the amount of transformation required to communicate a solution.

The *explicitness of the problem statement* relates to the extent to which the problem is ill-defined (the task is implicit and its components are largely unspecified) or well-defined (the task is explicit and its components are described in detail).

http://skills.oecd.org/skillsoutlook.html http://www.oecd.org/site/piacc





Mathematics

When in doubt, don't!

Table 8.2
Coverage of the dimensions of human capital directly assessed in the Survey of Adult Skills (PIAAC)

	Broadly transferable	Less transferable
Knowledge	Assessed to a limited extent (literacy and numeracy)	Not assessed
Skills (cognitive)	Assessed (literacy, numeracy and problem solving)	Not assessed
Skills (technical)	Assessed to a limited extent (computer use)	Not assessed
Skills (inter and intra-personal)	Not assessed	Not assessed
Competency/Application	Not assessed	Not assessed
Personal attributes	Not assessed	Not assessed

hey competencies and skins covered for noty			
Communication	V -	Interpersonal	
Information processing		Self-regulation	
Problem solving	V -	Management	
Learning		Creativity/ Entrepreneurship	

ICT

Key competencies and skills covered (or not)





OECD Collaborative problem solving 2015

Student Background

Core Skills

Prior Knowledge

- Math
- · Reading and writing
- · Science and environment
- Everyday learning

Collaborative Skills

- Grounding Perspective taking
- Explanation
 Audience design
- Coordination Argumentation
- Filling roles
 Mutual regulation

Characteristics

- · Dispositions and attitudes
- Experience and knowledge
- Motivation
- · Cognitive ability

Problem Solving Skills

- Explore and understand
- Represent and formulate
- Plan and execute
- · Monitor and reflect

Collaborative Problem Solving Competencies

- Establishing and maintaining shared understanding
- Taking appropriate action to solve the problem
- Establishing and maintaining team organisation

Task Characteristics

- Openness
- Information availability
- Interdependancy
- Symmetry of goals

Problem Scenario

- Task Type
- Settings
- Domain content

Medium

- Semantic richness
- Referentiality
- Problem space

Team Composition

- Symmetry of roles
- Symmetry of status
- Size of group







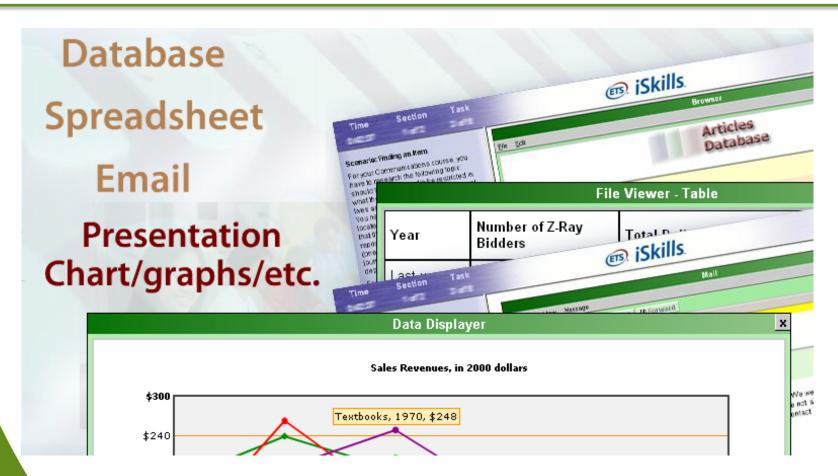
OECD Collaborative problem solving 2015

	(1) Establishing and maintaining shared understanding	(2) Taking appropriate action to solve the problem	(3) Establishing and maintaining team organisation
(A) Exploring and Understanding	(A1) Discovering perspectives and abilities of team members	(A2) Discovering the type of collaborative interaction to solve the problem, along with goals	(A3) Understanding roles to solve problem
(B) Representing and Formulating	(B1) Building a shared representation and negotiating the meaning of the problem (common ground)	(B2) Identifying and describing tasks to be completed	(B3) Describe roles and team organisation (communication protocol/rules of engagement)
(C) Planning and Executing	(C1) Communicating with team members about the actions to be/ being performed	(C2) Enacting plans	(C3) Following rules of engagement, (e.g., prompting other team members to perform their tasks.)
(D) Monitoring and Reflecting	(D1) Monitoring and repairing the shared understanding	(D2) Monitoring results of actions and evaluating success in solving the problem	(D3) Monitoring, providing feedback and adapting the team organisation and roles









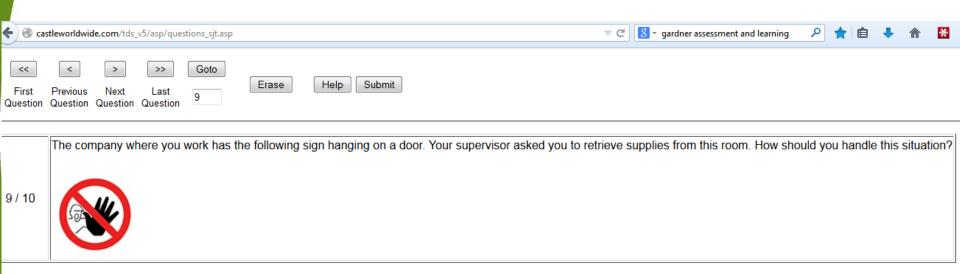
Define, Access, Evaluate, Manage, Integrate, Create and Communicate

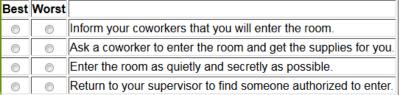






Workplace skills?









Others have passed this way

Comparing systems, models and pathways







The WRC is based on the national Equipped for the Future (EFF) applied learning standards and the U.S. Department of Labor's work on SCANS and O*NET. Managers, workers, and supervisors from across industries chose the skills listed below from the EFF Standards as critical for entry-level workers to succeed in today's workplace and global economy:

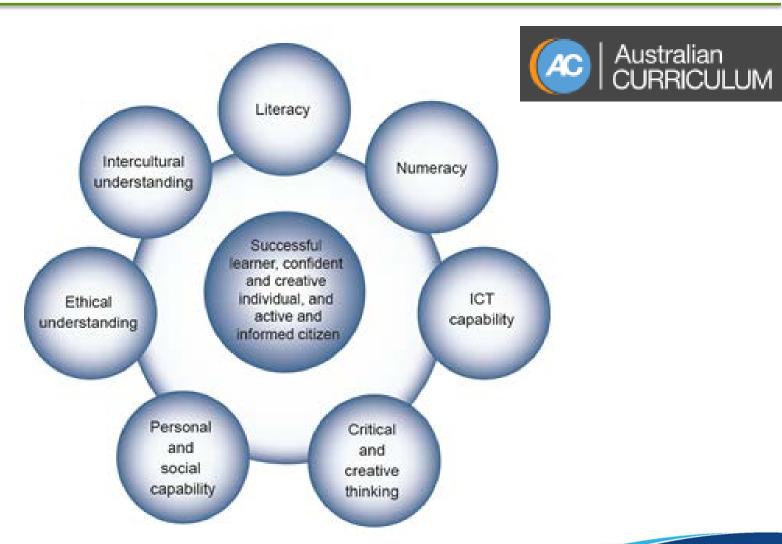
- Listen actively
- Read with understanding
- · Use math to solve problems
- · Solve problems and make decisions
- Cooperate with others
- Resolve conflict and negotiate
- Observe critically
- Take responsibility for learning







Australian national curriculum







Metastudy: shared 21st century skills

- 1. Thinking: analytical, critical, problem-solving, creativity
- 2. Information literacy: retrieval, analysis and presentation of information
- 3. Interpersonal: team work/collaboration
- 4. Citizenship: global awareness, environmental awareness, ethics
- 5. Career and life: self-motivation, self-presentation







8 essential skills (New Zealand)

- 1. Communication
- 2. Numeracy
- 3. Information
- 4. Problem-solving
- 5. Self-management and competitive
- 6. Social and cooperative
- 7. Work
- 8. Study







Level 2-3 European Qualification Framework

- 1. Cooperation
- 2. Problem solving
- 3. Creativity
- 4. Design
- 5. Health and safety
- 6. Systems thinking
- 7. Client awareness
- 8. Entrepreneurship
- 9. Added Value
- 10. Usefulness







7 domains of lifelong learning

- 1. Changing and learning (agency)
- 2. Critical curiosity (intrinsic desire to find out more)
- 3. Making meaning (connections and relationships)
- 4. Creativity (think 'outside the box')
- 5. Resilience (emotional response to difficulty)
- 6. Strategic awareness (reflective approaches to learning)
- 7. Learning relationships (in isolation, and in community)





6 personal learning and thinking skills (UK)

- 1. Team workers
- 2. Self-managers
- 3. Independent inquirers
- 4. Reflective learners
- Creative thinkers
- 6. Effective participants

'successful learners, confident individuals, responsible citizens'







Career & technical education competencies

- 1. Act as a responsible citizen and contributing employee
- 2. Apply appropriate academic and technical skills
- 3. Attend to personal health and financial well-being
- 4. Communicate clearly and effectively with reason
- 5. Consider environmental, social and economic impact of decisions
- 6. Demonstrate creativity and innovation
- 7. Employ valid and reliable research strategies
- 8. Utilize critical thinking to make sense of problems and persevere in solving them
- 9. Model integrity, ethical leadership and effective management
- 10. Plan education and career paths aligned with personal goals
- 11. Use technology to enhance productivity
- 12. Work productively in teams while using intercultural competence









EdSteps 5 skill areas

Organization/Skill	Creativity	Problem Solving	Analyzing Information	Global Competence	Writing
Achieve		V	V		√
Assessment & Teaching of 21 st Century Skills (ACT21S)	√	√	√	√	√
College Board			√		√
College Readiness Standards (ACT)		√	√		V
Collegiate Learning Assessment		√	√		√
Educational Testing Service (ETS)	√	√	√		$\sqrt{}$
Hewlett Foundation Deeper Learning	√	√			$\sqrt{}$
Metiri Group	$\sqrt{}$	√	√	√	√
Partnership for 21st Century Skills (P21)	√	√	√	√	√
Tony Wagner's The Global Achievement Gap	√	√	√	√	V







Ways of thinking

- · Creativity and innovation
- · Critical thinking, problemsolving, decision-making
- · Learning to learn, metacognition (knowledge about cognitive processes)

Ways of working

- Communication
- · Collaboration (teamwork)

Tools for working

- Information literacy
- Information and Communication Technology (ICT) Literacy

Living in the world

- · Citizenship local & global
- · Life and career
- · Personal and social responsibility -including cultural awareness and competence









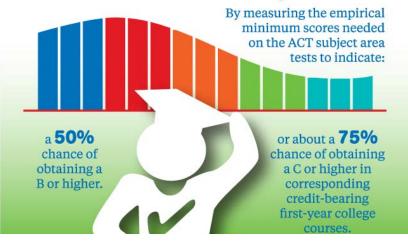




What is readiness?

ACT defines it as the acquisition of the knowledge and skills a student needs to enroll and succeed in credit-bearing first-year courses at a postsecondary institution (such as a 2- or 4-year college, trade school, or technical school) without the need for remediation.

How does ACT measure college readiness?

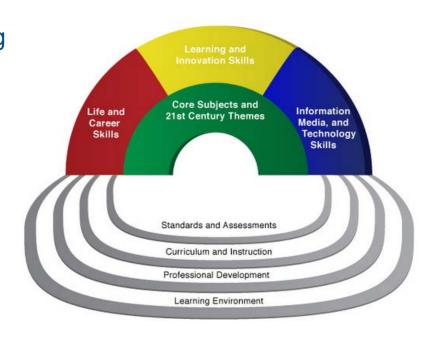






21st century skill areas

Learning and Innovation Skills **Creativity and Innovation** Critical Thinking and Problem Solving Communication and Collaboration Information, Media and Technology Skills Information Literacy Media Literacy ICT Literacy Life and Career Skills Flexibility and adaptation Initiative and self-direction Social and cross-cultural skills Productivity and accountability Leadership and responsibility









Competence for the demands of modern life

- 1. Using tools interactively
 - a) Use language, symbols and texts interactively
 - b) Use knowledge and information interactively
 - c) Use technology interactively
- 2. Interacting in heterogeneous groups
 - a) Relate well to others
 - b) Co-operate, work in teams
 - c) Manage and resolve conflicts
- 3. Acting autonomously
 - a) Act within the big picture
 - b) Form and conduct life plans and personal projects
 - c) Defend and assert rights, interests, limits and needs







CASEL essential skills

- 1. Know yourself and others
 - Identify feelings, understand obligations, recognize strengths
- 2. Make responsible decisions
 - manage emotions
 - understand situations, set goals, solve problems creatively
- 3. Care for others
 - Show empathy, respect others, appreciate diversity
- 4. Know how to act
 - communicate effectively
 - build relationships
 - negotiate fairly, refuse provocations
 - seek help
 - act ethically



UNESCO, International Bureau of Education, 'Academic and social-emotional learning',





21st century skills- 'things like':

- Understanding global contexts and trends
- Creative and collaborative problem-solving
- Effective communication
- Negotiation and consensus building
- Strong entrepreneurship and leadership qualities
- Resilience and adaptability
- An innovative and critical mindset
- Cultural sensitivity
- Ethical decision-making







A short inquiry into skills models

FIRST, have a chat

- a. How many are there?
- b. Who put the list together \rightarrow how does perspective and purpose shape what's on the list?
- c. What do they share with other lists with which you're familiar?
- d. What might they add to the conversation?

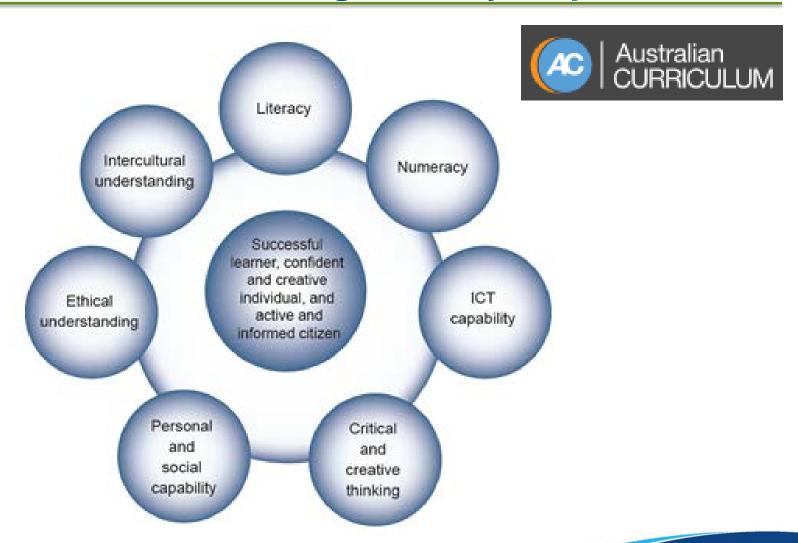
SECOND, take a hike

- a. Share what you have, and what you think about it.
- b. Compare with the other pair
- c. (Exchange models if you each like the other's more!)
- d. Circle, star, annotate important points
- e. Repeat





Learning is always a political act







Which direction should we take?

Plotting a course for ourselves (alone and together)



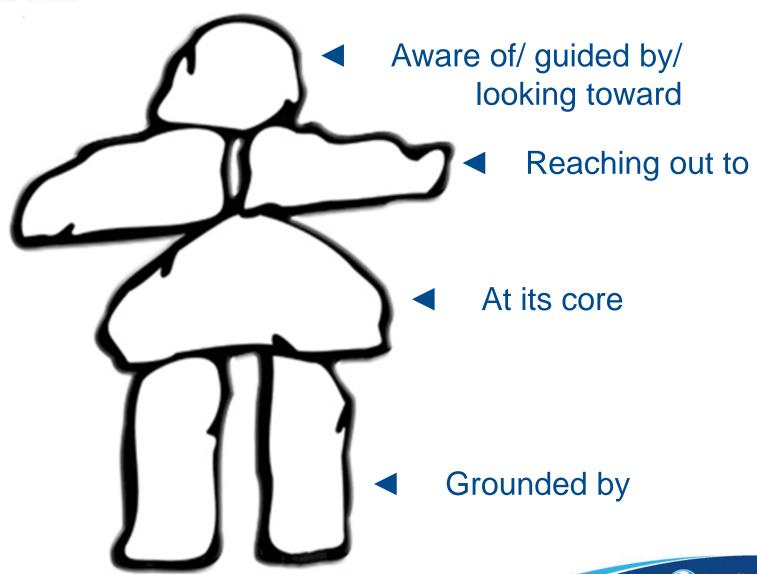


What are we still asking ourselves?

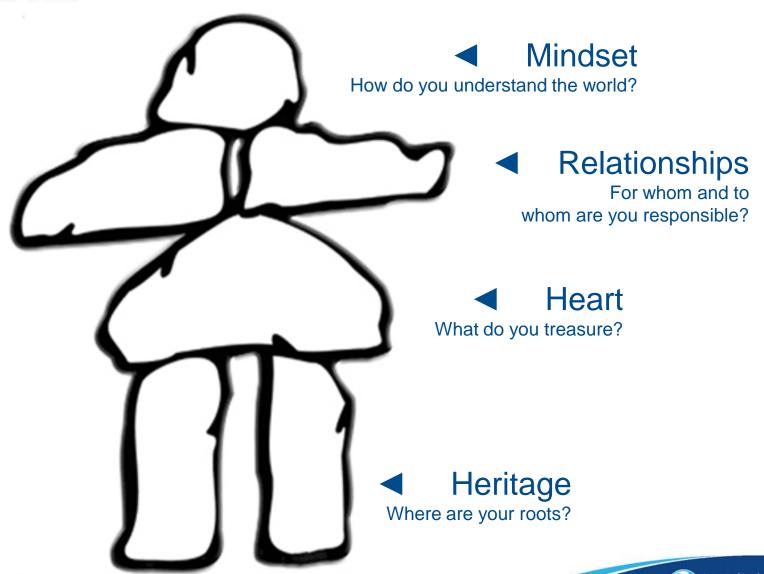
- 1. How can we overcome the technical and administrative limitation of group assessment?
- 2. How far can we go in evaluating competencies as a meaningful educational outcome?
- 3. What can we do to validate the development of non-cognitive skills?
- 4. Should we distinguish between college and career readiness?
- 5. Where is the proper balance of career / technical vs. 'academic' preparation?
- 6. What does effective career education look life for 11-16 year olds?
- 7. Are we teaching the right mathematics and literacy content?
- 8. Could it be that college and career readiness are already embedded in and assessed by the formal, informal and hidden curriculum with which students engage, and that outcomes/ achievement already tell the tale?
- 9. Does focusing on career readiness unbalance the broader purpose of education (enlightenment, fulfilment, civilization, wisdom) for a technocratic, utilitarian vision?
- 10. Is this instrumentalist, colonial neo-liberal education at it worst?11. Can education focused on the new economy serve all students?





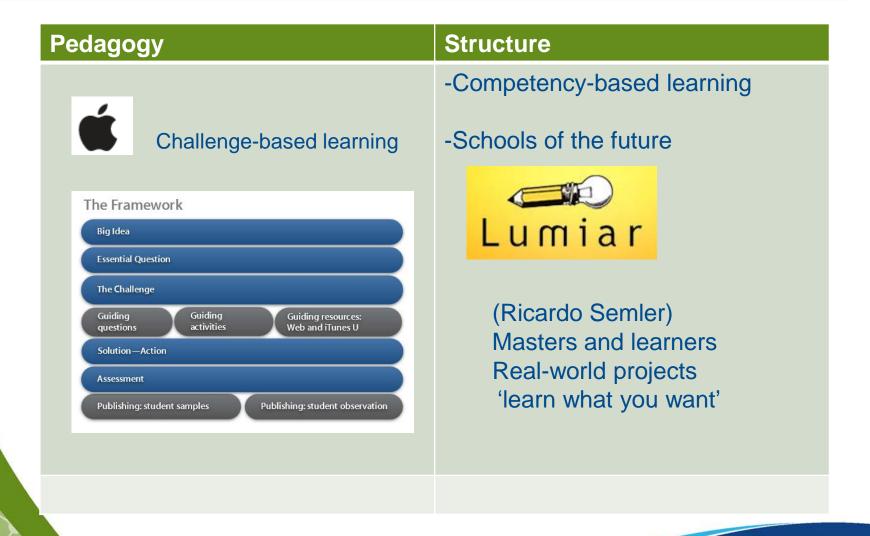






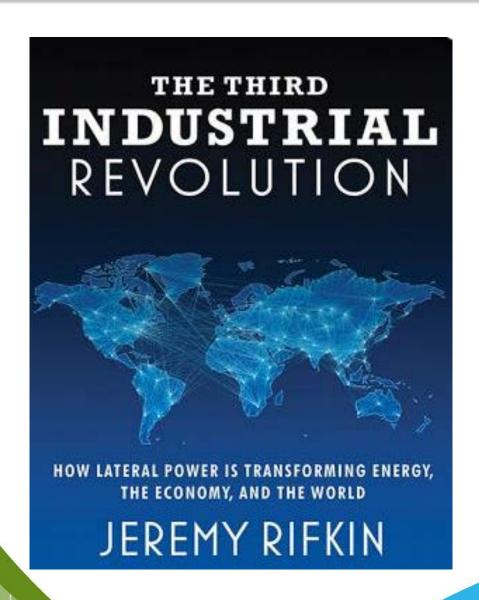


Radical or incremental innovation?





A classroom makeover for digital knowmads



Wit

Curation

Teachability

Sales[man]ship

Using big data

Risk management

Imagination

Improvisation

Wisdom / Savvy

Uniqueness of vision

