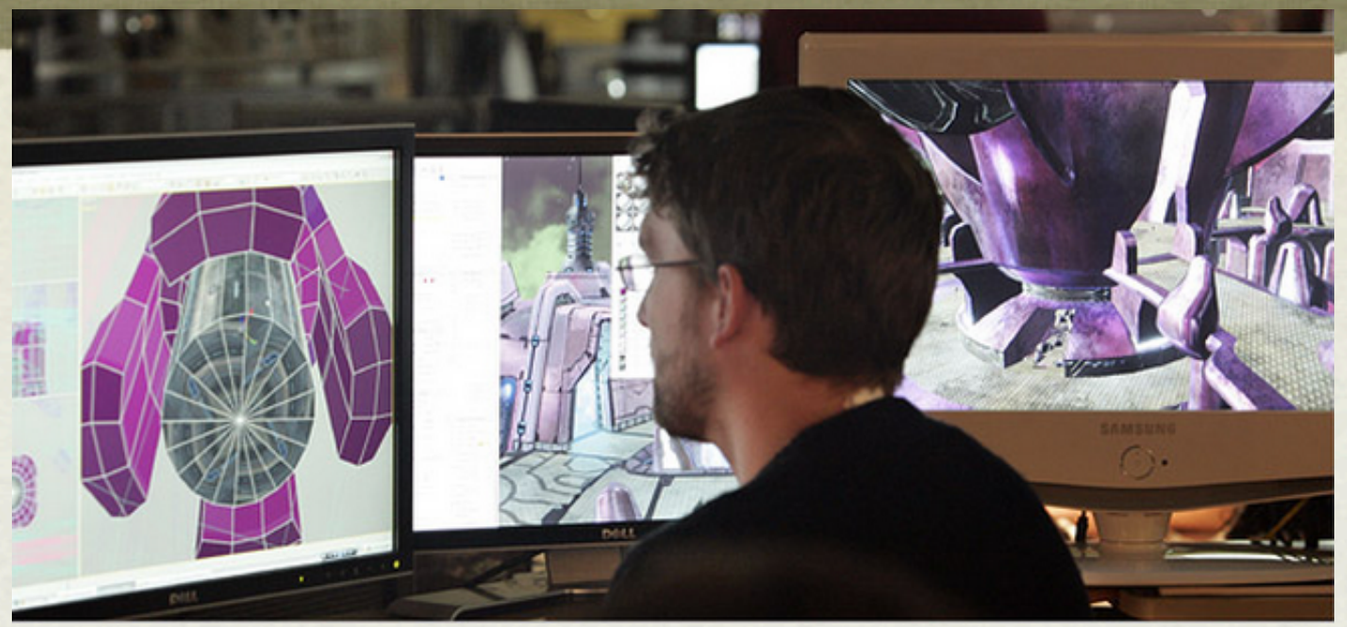
2018 BC Digital Learning Symposium
Richmond, BC
18 April, 2018



Developing 21st Century Skills:
Why blended and digital learning are so important

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Hooker Distinguished Visiting Scholar
DeGroote School of Business,
McMaster University

Overview

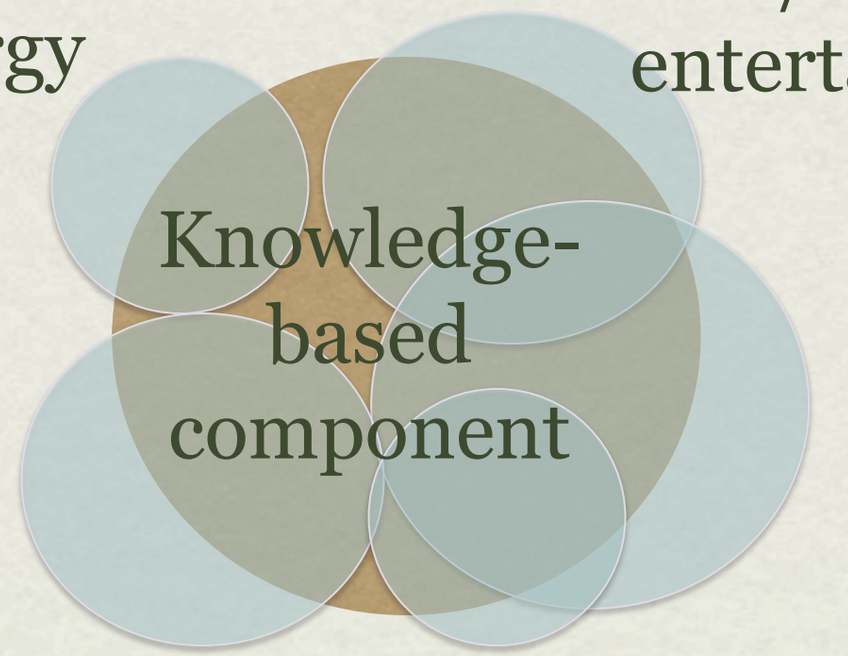
1. Changing economy, changing needs
2. Importance of ‘soft’ skills and what we know about skills development
3. The role of blended learning in skills development
4. Implications for design of teaching

1. Key forces of change:
a. Demands of a digital economy

Where will the jobs be?

Resource-based/
energy

IT/media/
entertainment



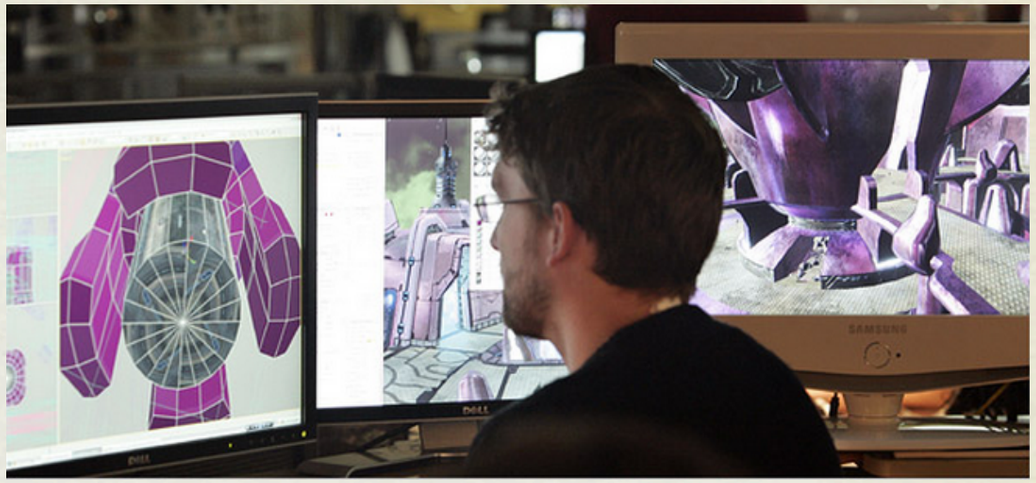
Manufacturing

Retail/
Financial/
Services

Health/
education

1. Key forces of change
Demands of a digital economy

- Changing workforce; new work and new knowledge/skills
- Report from RBC based on analysis of new job postings
- Impact of automation and AI on jobs and work
- There is a future for jobs; but we're not preparing learners properly



1. Key forces of change
Demands of a digital economy

- Within 10 years, 50% of jobs will require new skills
- Digital competency essential for all jobs: NOT coders but digital thinkers
- Human skills to bridge technology and humanity
- Constant change in work

1. Key forces of change
b. What are 21st century skills?

Conference Board of Canada:

communication skills

independent learning

ethics/responsibility

teamwork and flexibility

thinking skills (critical thinking, problem-solving, creativity)

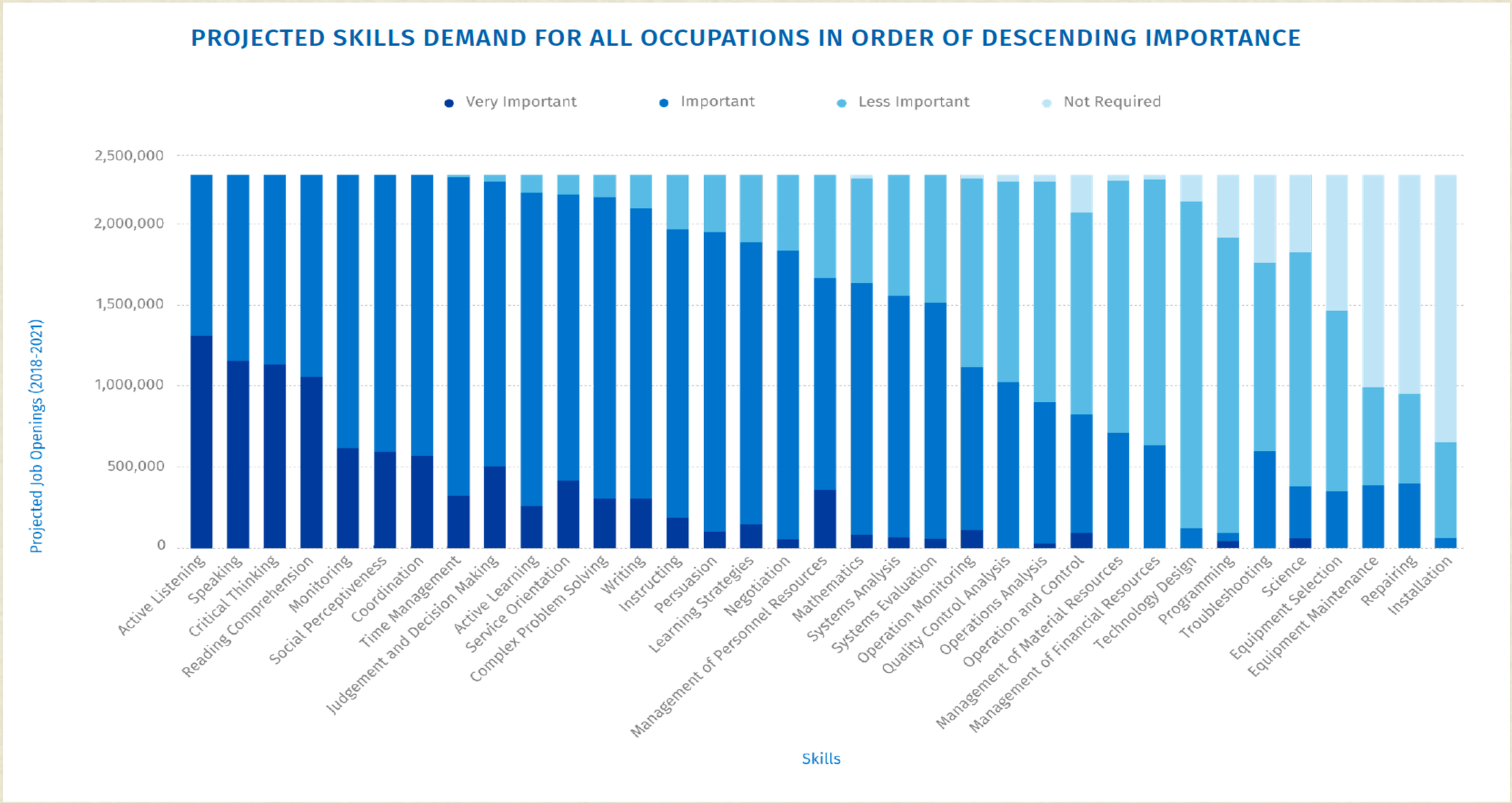
IT skills embedded in subject area

knowledge management

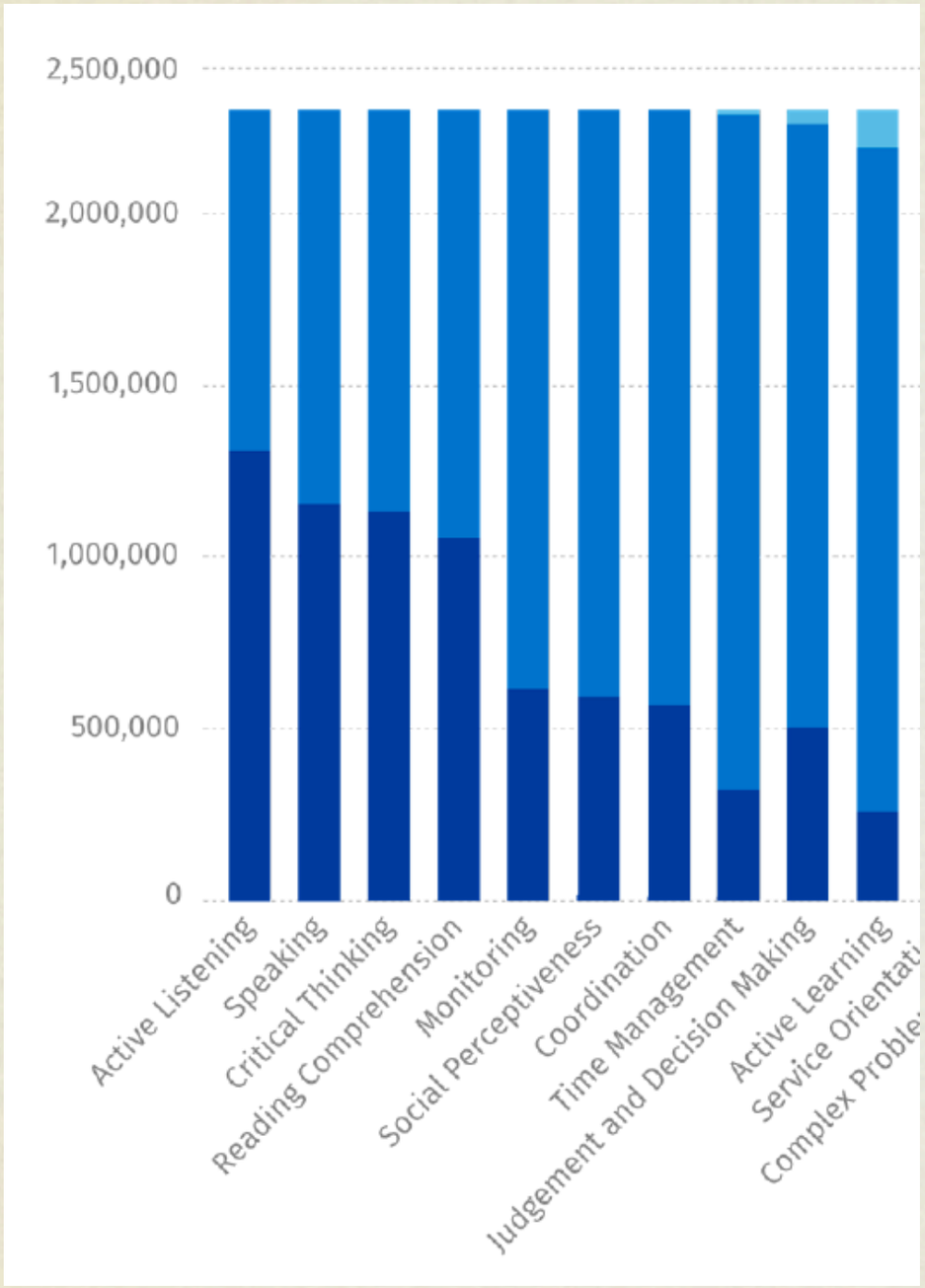
A small start-up in automative design

1. Key forces of change
b. Skills in demand

Royal Bank of Canada study:

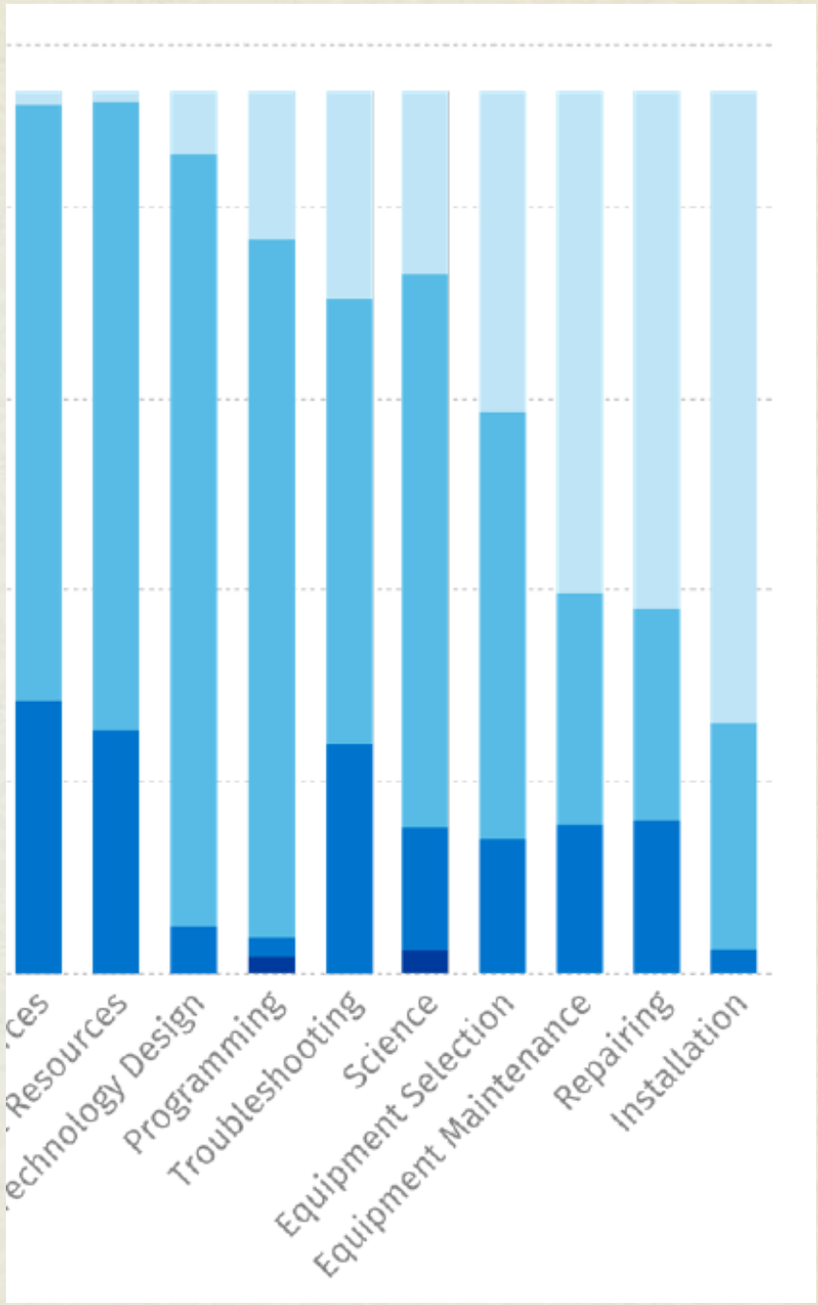


1. Key forces of change
b. Skills in demand



High-end

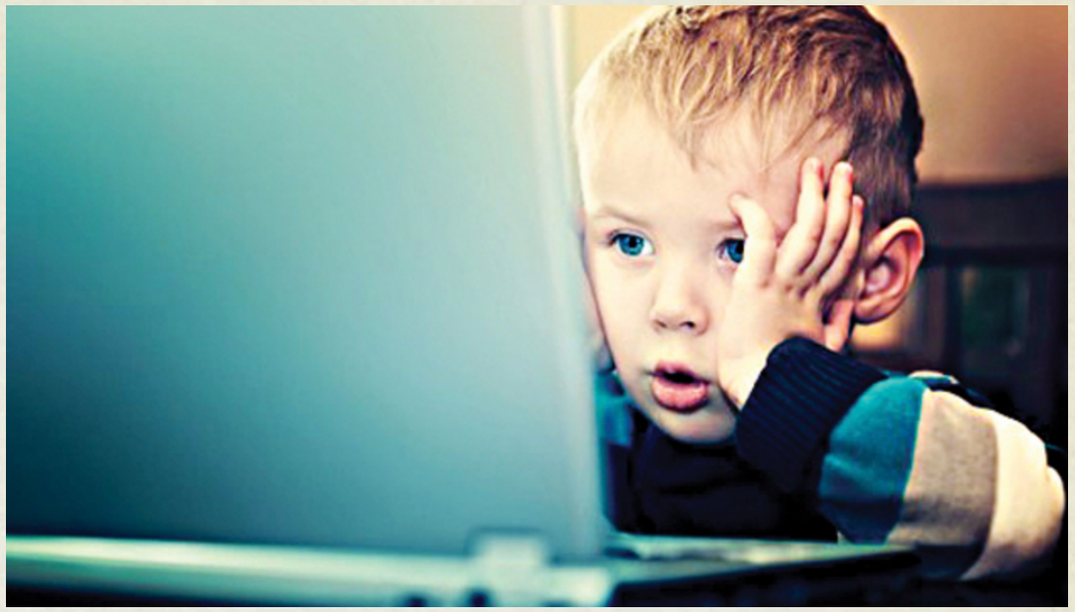
- very important
- important
- less important
- not required

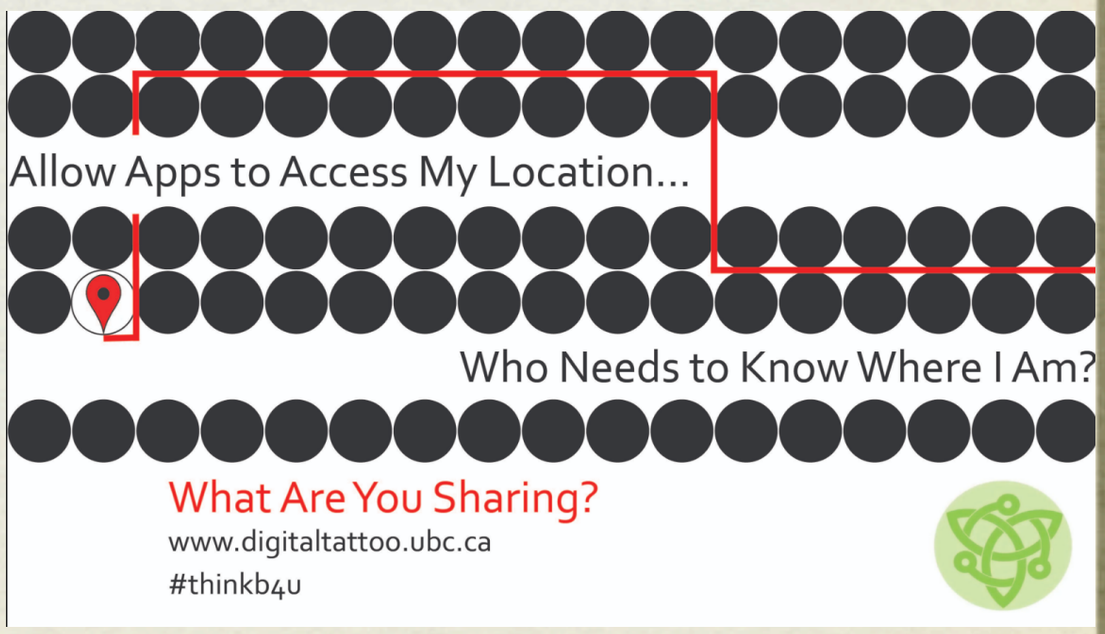


Low-end

1. Key forces of change
b. Skills needed

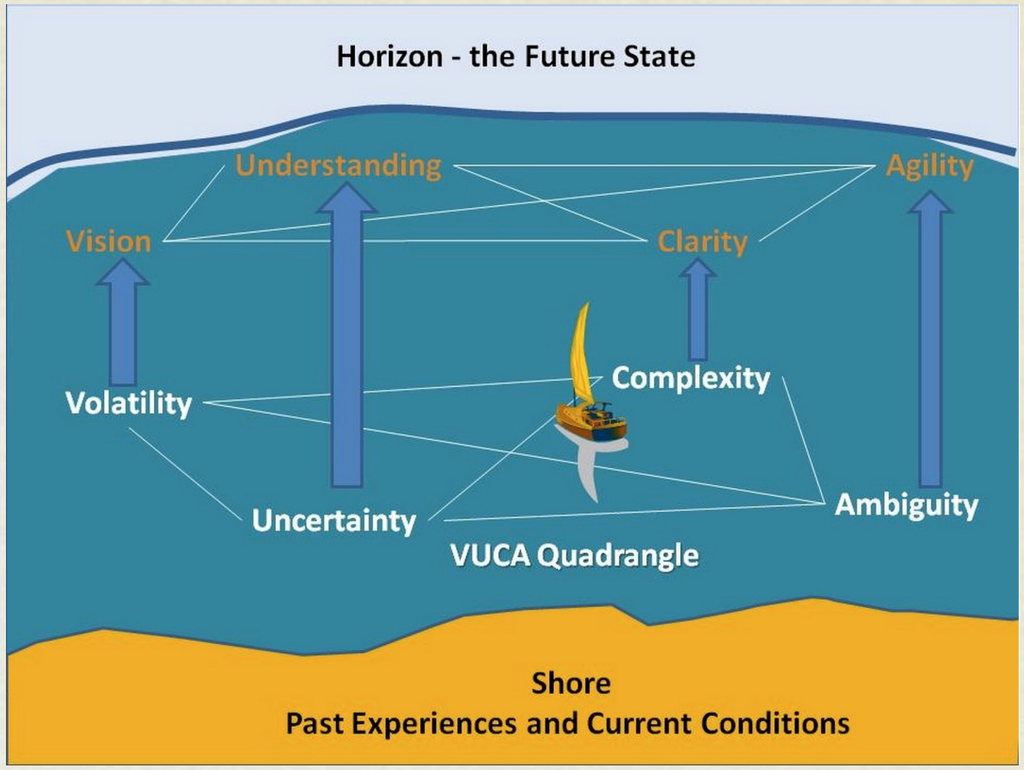
- These are skills needed by employers
- Need to identify skills that individuals need
- Your job: to identify these - but some suggestions:
  - Digital literacy (Digital Tattoo)
  - Mindfulness (off the screen)





Questions

- Do you feel that world is changing around you? If so, how is it affecting your teaching?
- Does a greater focus on developing ‘soft’ skills undermine or reinforce your role as a school teacher? Is this your job?



The future:

- Volatile
- Uncertain
- Complex
- Ambiguous

What we know about skills development

- Content = facts, ideas, principles: ‘knowing’
- Skills = understanding, analysing, evaluating, applying: ‘doing’
- Both necessary in today’s society
- BUT: content has been the traditional priority

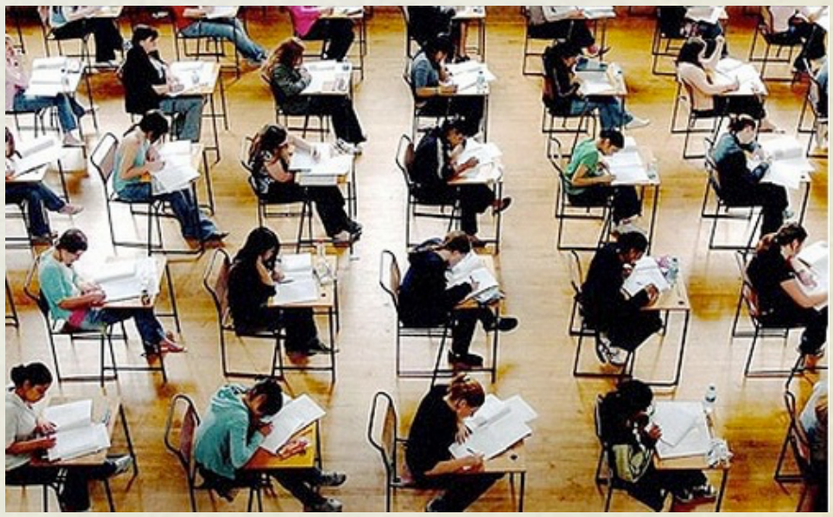
What we know about skills development

We know a lot about how to teach skills:

- Context-specific
- Learners need lots of practice
- Small steps initially
- Regular feedback from expert
- Develop over a lifetime rather than one course

What we know about skills development

- How do you develop skills? What teaching methods?
- Relationship between content and skills?
- What role can technology play in developing and assessing skills?
- What do we assess – and how?
- Skills require specific methods of teaching



What teaching methods for skills development?

- Discussion, social learning for testing and developing ideas
- Problem-based learning
- Experiential learning
- Communities of practice
- Competency-based learning
- Knowledge management
- Not dependent on mode of delivery

What skills for a digital society

Questions for every teacher:

- what skills should I be developing with the students I am teaching – and how?
- Does the BC curriculum adequately address this question?
- How can technology help in developing such skills?

Role of blended learning in skills development

blended

fully online

face-to-face

classroom aids

flipped

hybrid

(distance)

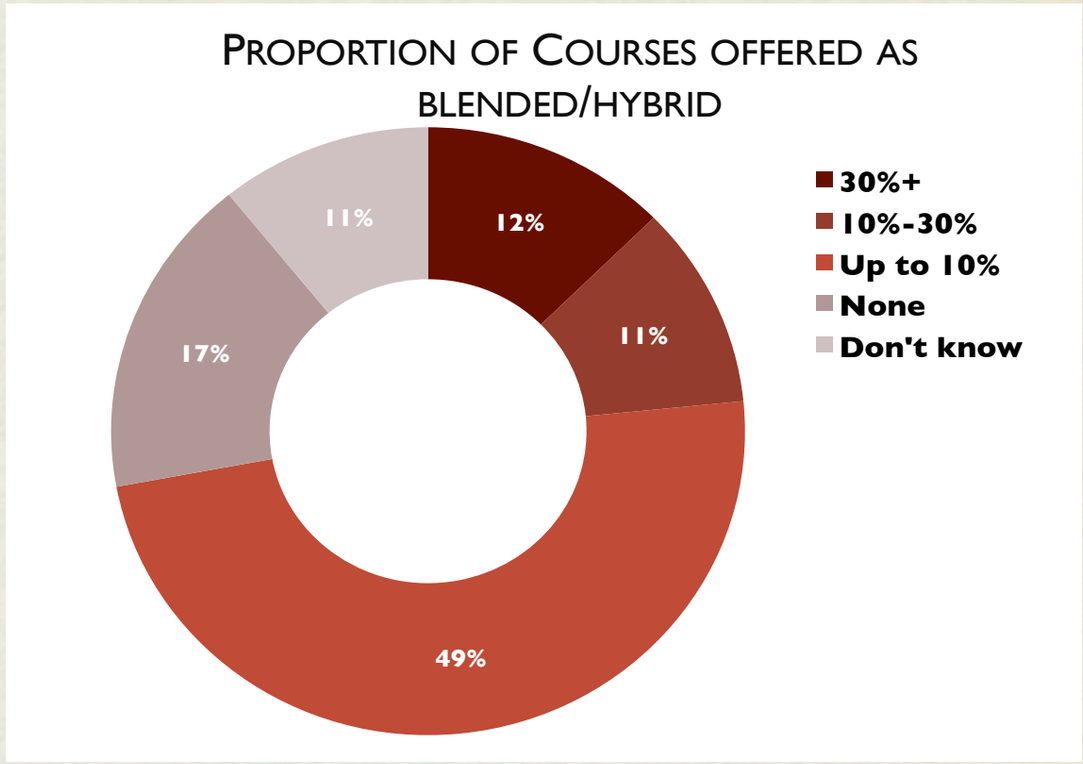
no technology

(mode of delivery)

all technology

Developments in blended learning
1. Hybrid learning

- Definition: some reduction in face-to-face teaching
- Many (75%) PSE institutions in Canada offer some hybrid
- BUT few courses (60% with less than 10% hybrid)
- Rapidly growing: 50% in 5 years?



Canadian post-secondary institutions, 2017

Hybrid learning

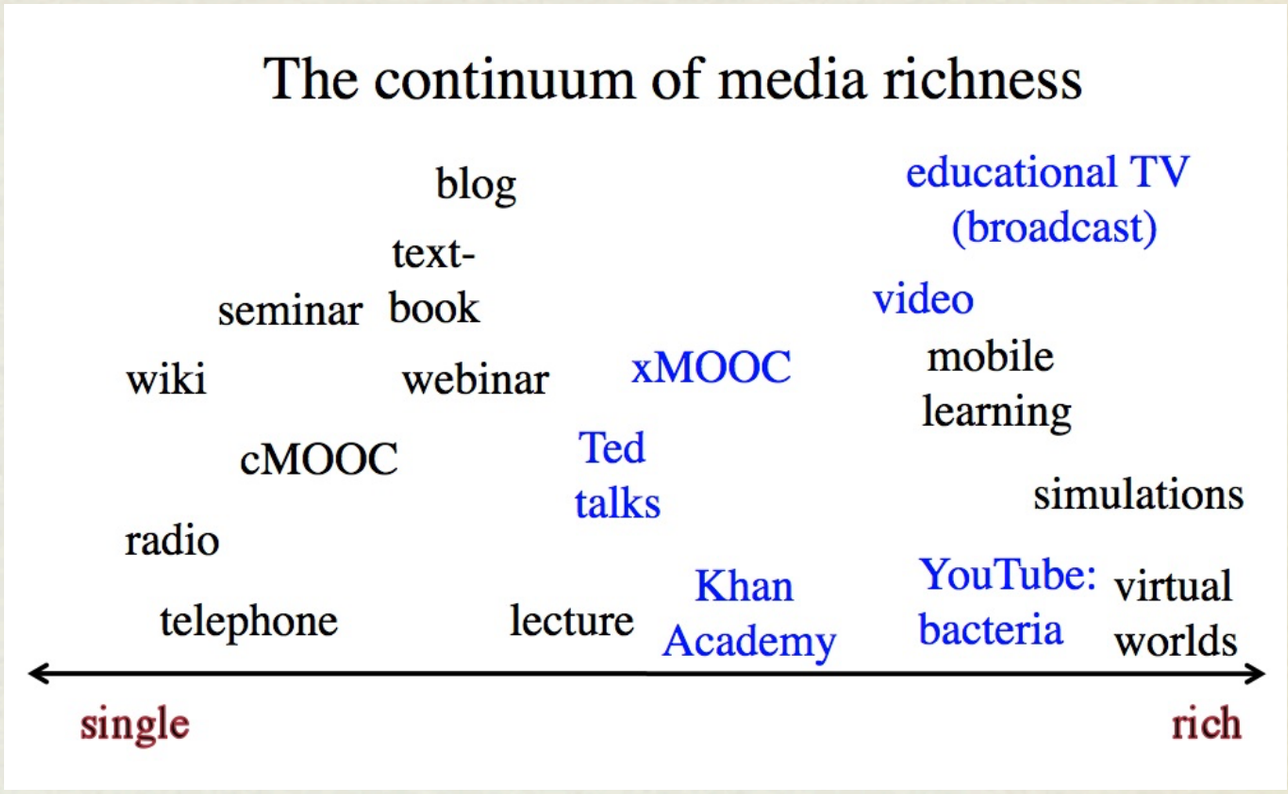
- ‘Flipped’ teaching: BUT: it can be so much more - move towards re-design
- What is the best use of face-to-face time? What is the right mix?
- Don’t have good theory/research to answer this question
- Need to link it to skills development

Developments in blended learning
2. Open education

- open textbooks
- open research
- open educational resources (OER)
- content will be free, abundant and all online
- learners become the content finders and organisers: knowledge management
- **the real game-changer**

Developments in blended learning
3. multi-media

- Print and talk historically dominant; abstract, linear
- Knowledge represented now through many different media: text, audio, video, computing, virtual reality
- Research shows learning enhanced by multiple representations of knowledge



Developments in blended learning
3. shifting time and space

- Recorded media allow for repetition and practice: time on task away from class
- Interactive media can provide feedback (e.g. serious games)
- Some media (e.g. VR) allow for shift in space
- Need to link to specific skills development: work to be done

Implications for teaching and learning

- Need to *learn* digitally to *earn* digitally
- Lay foundation for lifelong digital skills
- Digital technology embedded in teaching of core subjects
- Identify in every course what skills are being developed and how

Implications for teaching and learning
Role of technology

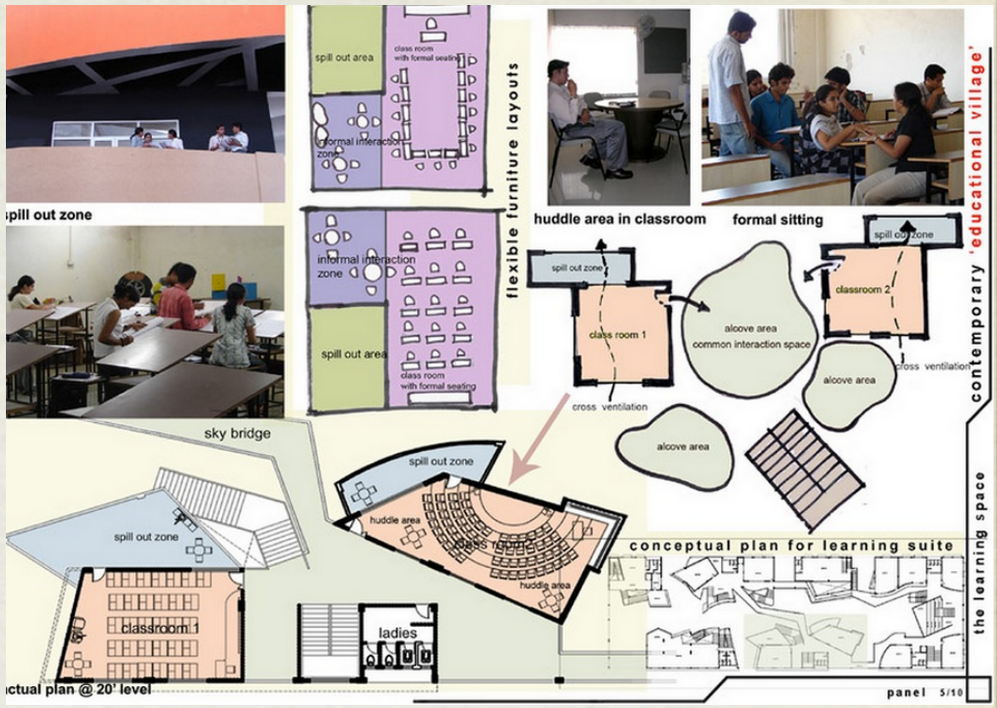
- Use of video for demonstrating/ modelling of skills
- Facilitates move from concrete to abstract and reverse
- VR for practicing skills in safe environment
- Need to know much more about ‘affordances’ of different media, especially classroom teaching

Tina the Avatar, Drexel University

Implications for teaching and learning
Use of space

Hybrid learning needs teaching environments where:

- Knowledge and skills can be demonstrated
- Student's digital work can be shared
- Students can work individually or in groups
- Evidence of digital learning can be stored and securely accessed by students and teachers



3. Implications for teaching and learning
d. New teaching approaches

- from information transmission to knowledge management
- skills development + content
- lecture-based courses replaced by student projects, problem-based learning, collaborative learning
- goodbye written exams: replaced by e-portfolios demonstrating student's knowledge/skills

3. Implications for teaching and learning e. ‘advanced’ online course design

- core skill: knowledge management
  - how to find, analyze, evaluate and apply information
- open content within a learning design
- student-generated multimedia content: online project work
- assessment by e-portfolios
- just one example: new designs needed

3. Implications for teaching and learning
e. Building on past experience

- Over 20 years of fully online: we know what works online – and what doesn't
- Can't just move lecture content online: need to redesign
- What's best done on campus and what online? Needs thought/ discussion
- Depends more on needs of students

Conclusions

- Digital economy requires high-level intellectual skills
- Teaching methods must include opportunities for skills development
- Technology enables more flexible delivery and ways to practice skills
- But all within a specifically designed learning environment that supports learners

Conclusions

- Better definition and assessment of 21st© skills needed in every course
- Choice of technology should facilitate skills development
- Assessment: use of e-portfolios; badges for identified skills performance; lifelong learning portfolio with blockchain

Analytical skills	Commitment	Communication skills
Creativity	Critical-Thinking	Decision-Making
Determination	Embrace Pressure	Emotional Control
Flexibility	Focus	Leadership skills
Motivational skills	Negotiation skills	Organisational skills
Patience	Perseverance	Persuasion
Presentation skills	Prioritize workload	Problem solving
Process information	Responsibility	Self-confidence
Social intelligence	Teamwork	Time Management

Conclusions

- We don't know how best to do this
- What are the core skills? When should some skills be taught and others not?
- How to we ensure progression in a core skill as students age?
- Other knowledge and skills that children need from school? Where does it fit?

Conclusions

- Must get it right; will affect not just the economy, but the role of humans in a technological age
- Good teachers care about their students: machines don't; your 'soft' skills more important than machine learning
- RBC report offers hope: humans needed in a digital world – especially teachers

- Do you see the focus on skills as significant or just a passing trend?
- How are you responding to the need for 21st century skills? Is it enough?
- How does this fit with the new BC curriculum?

Further resources

- RBC report: Humans Wanted
- Teaching in a Digital Age: https://opentextbc.ca/teachinginadigitalage/
- Blog: http://www.tonybates.ca/
- E-mail: tony.bates@ubc.ca