MĀCIES ŠODIEN. MAINĪGAI PASAULEI

LEARN TODAY FOR A CHANGING WORLD

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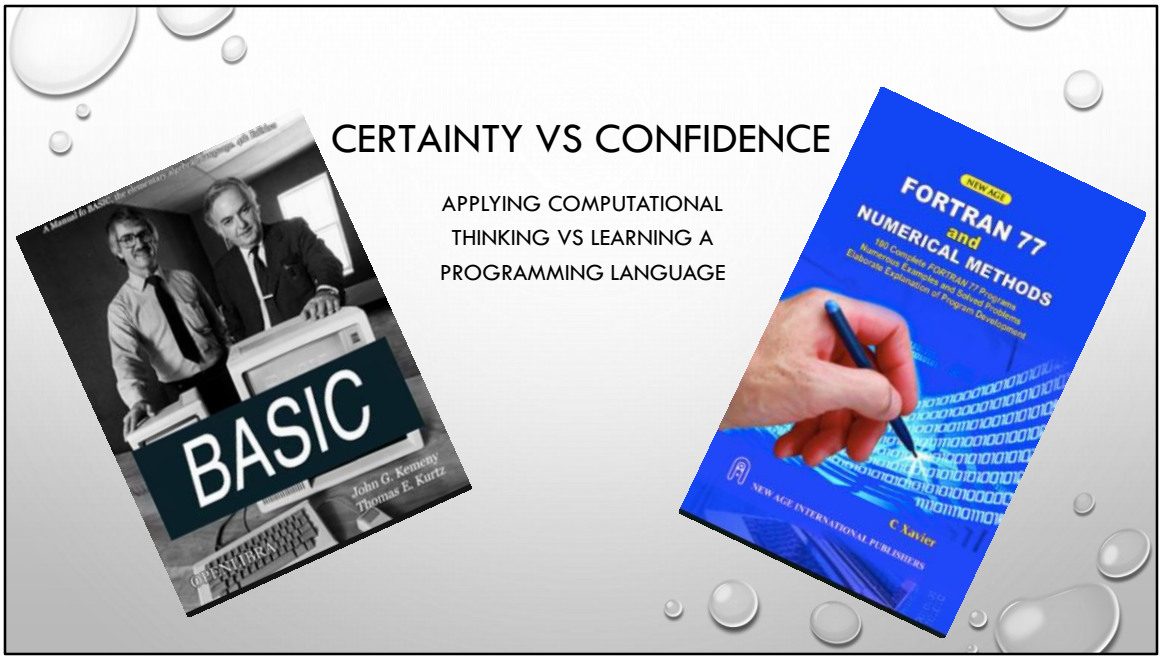


I was born in Scotland and started school there. In 1968 I moved from the borders of Scotland down to London. To England. A different country, a different education system, a different curriculum. In my last months in school in Scotland, we were taught computer programming – in Algol.

When I moved to an English school, there was no computing. In fact, I didn't meet computing again until 5 years later and I went university. Basic and Fortran were the languages I met there, but it didn't seem to matter. I took to them well.

I wonder now if alongside developing knowledge of Algol the language, we were taught the computational thinking skills. If it is the case, I've a lot to be thankful for, because those computational thinking skills have been an important foundations to my career.

THREE AGES OF INFORMATION

- Pre-book: Challenge is finding information
- Book: Challenge is indexing information
- Post book: Challenge is navigating over abundance

http://www.youtube.com/watch?v=sSPA641oc5Q
Dr Bill Rankin

Dr Bill Rankin is a medieval historian. He taught at Abilene Christian University in the United States, and then became Apple's Director of Education.

While at Abilene Christian University he gave one of my favourite presentations, on the three ages of information.

Pre-book – Book – and Post-book

Pre book - you had to travel the world to find an expert in your chosen field then hope to work as an apprentice to that expert.

At the start of the book era, information was still scarce and you would travel the world to find an expert, who might well lecture, reading from his or her book, as you painstakingly copied out what the expert read – you made your own book.

Then Gutenburg came along and printed so many books that we need to develop filing systems and indexes to find our way around all the information available. Editors and publishing houses controlled what was printed and what we read and saw. It didn't mean everything was right, not did it mean everything was balanced.

Now we're in the post-book age and we are awash with information. It's like we all have and use our own personal printing presses. To cut through this we require a set of skills, to find information we want (and not be distracted), to validate that information, to synthesize it into cogent arguments or stories.

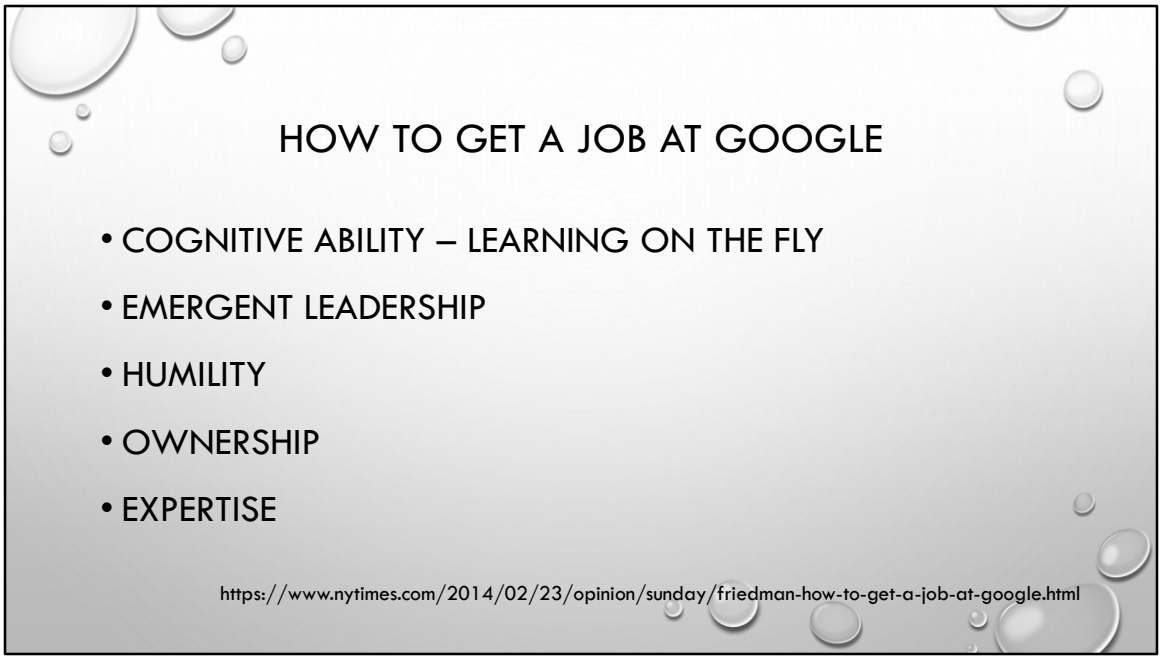
We also have algorithms to sift the information. That may sound negative. But if you are ill, is it better to have a doctor use his or her knowledge (which may not be completedly up to date, which could be limited to one country's research) to diagnose you, or could it be good to have an algorithm that searches through all published research to come up with the diagnosis. That's a question for IBM's Watson.

I know my answer – I'd like IBM Watson to do the research, and a doctor to discuss the outcomes with me.

PRE-BOOK
Teaching the first age
Only place to get information is from the minds and mentorship of people you meet
Teachers live and work in relationship with students
Teachers serve as guides or mentors, emphasising learning by practice and apprenticeship
Emphasis on contextual learning, using knowledge in particular contexts
Repetition and assessment lead to independent praxis (which is the process by which a theory, lesson, or skill is enacted, embodied, or realized)
Learning as embodied, subjective, dialectic and broadly interconnected

BOOK
+ Johannes Gutenburg's printing press (around 1450 in Strasbourg)
+ Note William Caxton brought the printing press to England in 1476 (which is what I learned in English History)
Teaching in the second age
Abundant information that can be put in order
Teachers serve as the primary conduit of information with students as receivers
Emphasis on classifying and cataloguing
Focus on memorisation of facts and data
Repetition is primary, analysis is secondary
Learning as hierarchical, "Objective", standardised, and narrowly defined

POST-BOOK
Teaching in the third age
Over-abundance of information that can be accessed, validated and navigated in part through technology (used to say amount of information doubles – Every day we create 2.5 Quintillion bytes of data) In the last two years we have created 90% of the World data today.
Teachers live and work in relationship with students
Teachers serve as guides or mentors, emphasising learning by practice and apprenticeship
Emphasis on contextual learning, using knowledge in particular contexts
Repetition and assessment lead to independent praxis (which is the process by which a theory, lesson, or skill is enacted, embodied, or realized)
Learning as embodied, subjective, dialectic and broadly interconnected



If we're living in a world where information is overabundant, what kind of skills are employers looking for?

Thomas Friedman, author of the World is Flat, researched and wrote about this in a 2014 article in the New York Times. He found the five key things that the job interviewers from Google were looking for were:

Cognitive ability
Emergent leadership
Humility
Ownership
Expertise

The Atlas of Economic Complexity: Mapping Paths to Prosperity (Ricardo Hausmann et al) analyses on the economics of the world, and the relative success of different countries, through their products
Least complex products are: Raw cotton; Tin ores and concentrates; Natural rubber; Sesame seeds; Cocoa beans
Most complex products are:
Welding, brazing, cutting machines and appliances; Chemical products and flashlight materials for use in photography; Appliances based on the use of X-rays or radiation; Instrument and appliances for physical or chemical analysis; Other machine tools for working metal or metal carbide.

Hausmann et al argue that products are vehicles for knowledge and the process of embedding knowledge in products requires peope who possess a working knowledge of that knowledge.

Hausmann quotes Adam Smith in describing the division of labour as the secret wealth of nations. **We rely on plumbers, dentists, lawyers, meteorologists and mechanics to sustain our style and standard of living. Markets and organisations allow the knowledge held by a few to reach many.**

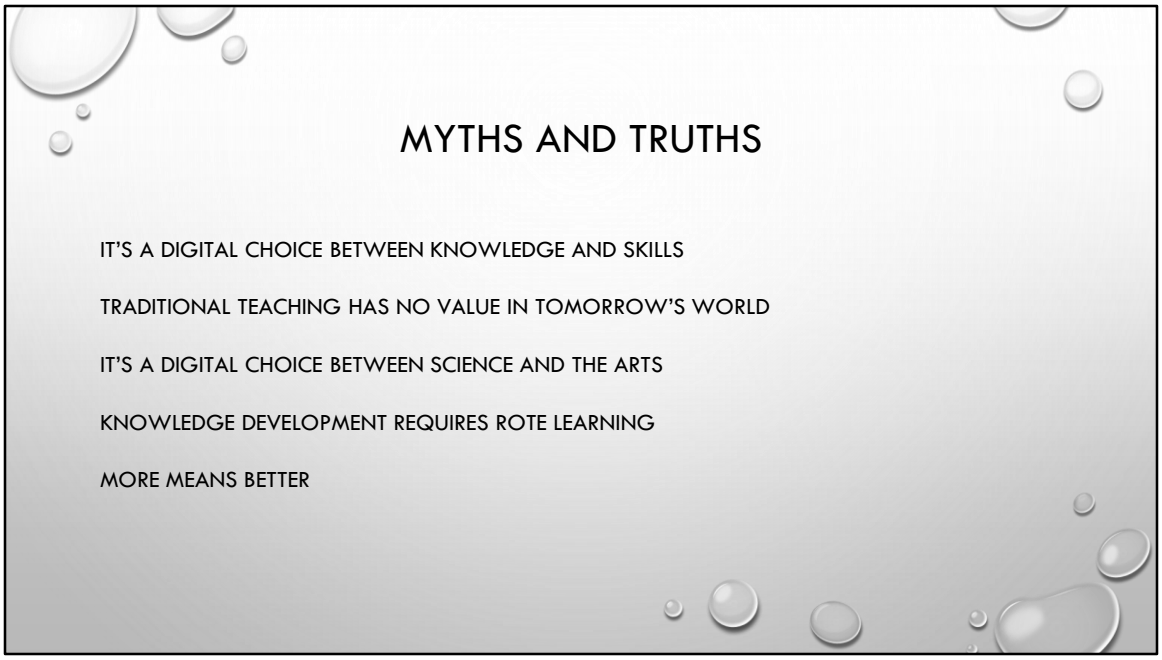
Knowledge in society is does not depend on how much each individual knows, it depends on the diversity of knowledge across individuals, and on their ability to combine this knowledge and make use of it through complex webs of interaction.

The secret of modernity is that we collect and use large volumes of specialist knowledge, while each one of us holds only a few bits of it.

Next time you bite into an apple think of the thousands of years of plant domestication (from the start of apple growing in Kazakhstan), combined with knowledge of logistics to get the apple into your hands, refrigeration, pest control, food safety and preservation of fresh produce – so apples have relatively high complexity.

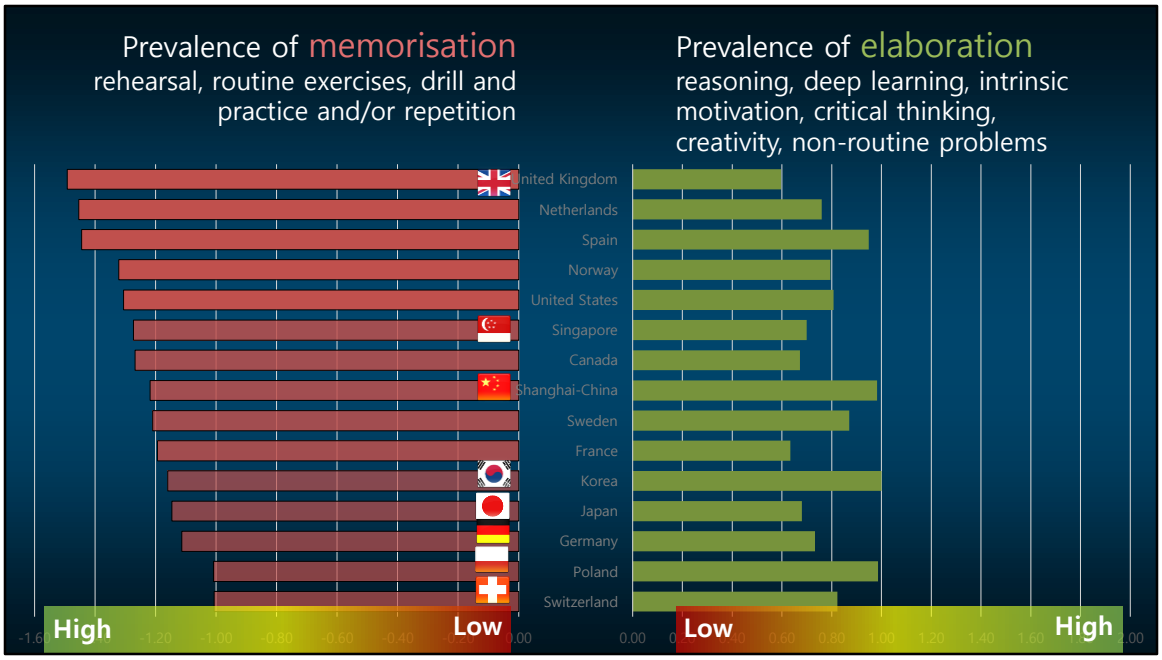
Hausmann et al argue that products are vehicles of knowledge and the process of embedding products requires people who possess a working understanding of that knowledge.

Perhaps we can conclude we need the knowledge and frameworks of understanding and skills of communication, problem solving and learning. We also can conclude something about the sustainability and value of work at the upper end of the value chain.



Knowledge building pedagogies recognise the value of established knowledge, but also insist that students need to be able to *do* knowledge work as well as learning *about* established knowledge.

Above all, this means students should acquire the ability to recognise, generate, represent, communicate, deliberate, interrogate, validate and apply knowledge claims in light of established norms in key subject domains.

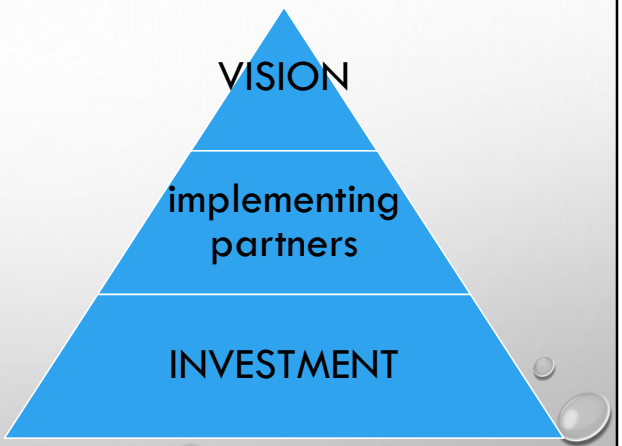


STUDENT ENGAGEMENT….

ASPIRE HIGH…..Russ Quaglia, Mickey Corso, Kris Fox and Gavin Dykes…
What have you learned from students about teaching and learning? What have students taught you, either directly or indirectly, about best educational practices?

Describe a time that a student's or a group of students' different perspective mad you think differently. What was your starting point of view? How did it change as a result of the student point of view?

IMPLEMENTING POLICY AND STRATEGY ENGAGE STAKEHOLDERS



Malta – third advisor to be brought in, could learn from other two. Leaned that vision and investment – the way policy often works, but the implementing partners. Learned two important things – not about my prejudices and what I wanted, but what stakeholders wanted otherwise it wouldn't be implemented. Major work was conducting SWOT analysis with students, teachers, school leaders, polcy makers and the education ministry, the community, special educational needs, commercial companies working with education, university, colleges

IMPLEMENTING POLICY AND STRATEGY BUILD NETWORKS AND COMMUNITIES OF PRACTICE

(1) PROVIDE SIGNIFICANT FUNDING FOR FACE-TO-FACE EVENTS

(2) ENSURE COMMUNITY ACTIVITIES ADDRESS BUSINESS ISSUES

(3) PROVIDE COP LEADER TRAINING

(4) ENSURE COP LEADERS ARE GIVEN SUFFICIENT TIME FOR THEIR ROLE

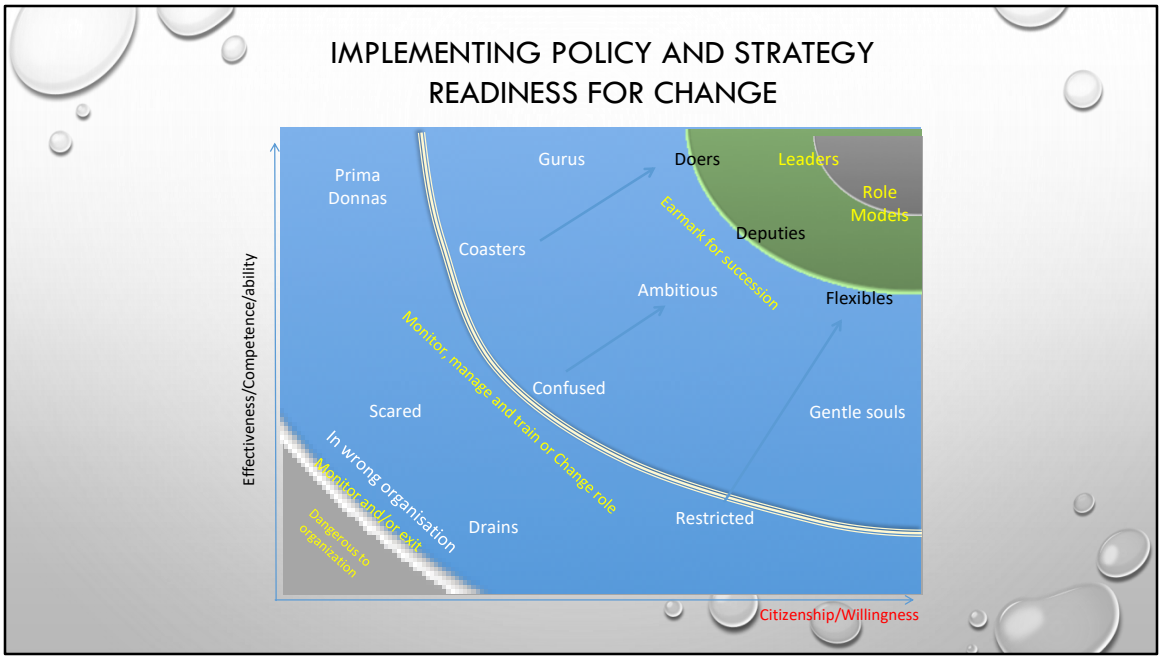
(5) ENSURE HIGH LEVELS OF SPONSOR EXPECTATION

(6) ENGAGE MEMBERS IN DEVELOPING GOOD PRACTICE

(7) IMPROVE THE USEFULNESS OF ICT TOOLS PROVIDED

(8) ENSURE THERE ARE CLEARLY STATED GOALS

(9) PROMOTE COPS ABILITY TO HELP EMPLOYEES SOLVE DAILY WORK CHALLENGES



SWAMP THEORY

Different people have different roles to play. Just as we personalise learning for students, so we need to think about personalised learning for teachers and even personalised engagement for stakeholders….

Have wider support for your broad policy objectives

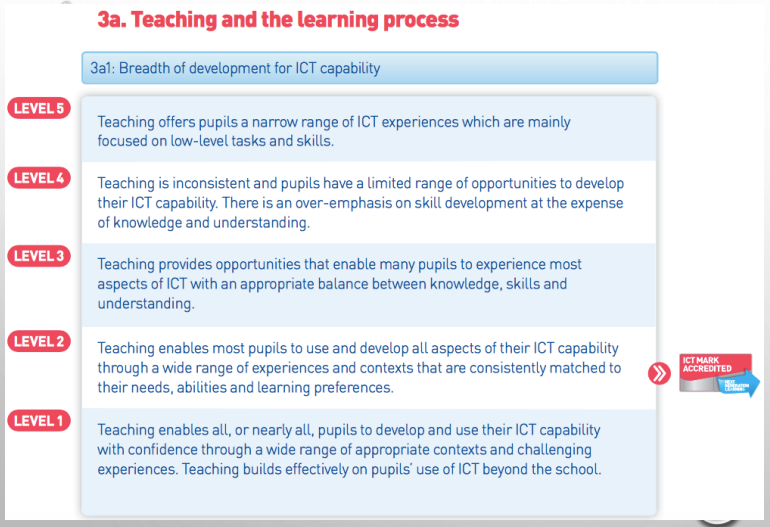
There exists a narrow and traditional view of curriculum that conceives of it as a collection of study plans, syllabi, and textbooks. This view is incomplete and fails to see the holistic value of curriculum in supporting the acquisition of the broader essential competencies that citizens must posses to ensure national, regional, and global development.

More recently, UNESCO articulated competencies for sustainable development (see Table 1).
Several other related competencies of sustainable development goal 4.7 included the following:

Citizenship:
Anticipatory: the ability to understand and evaluate multiple futures
Normative: the ability to understand and reflect on the norms and values that underlie one's actions

Strategic: the ability to collectively develop and implement actions and further sustainability;
Collaboration: the ability to learn from others
Critical thinking the ability to question norms, practices and opinions,
Self-awareness: the ability to reflect on one's own role in the local community and (global) society
Integrative problem-solving: the overarching ability to apply different problem-solving frameworks to complex sustainability problems

IMPLEMENTING POLICY: AND STRATEGY
ENGAGing SCHOOL COMMUNITIES



Becta's self-review framework for ICT

Leadership and Management
Planning
Learning
Assessment of ICT capability
Professional Development
Resources

Critical element is convening the conversations and exchanges that help build community, to learn from different stakeholders within the community and to value and use their contributions….

FACTORS FOR EFFECTIVE IMPLEMENTATION TAKEN OECD POLICY OUTLOOK

READINESS FOR CHANGE OF TEACHERS AND SCHOOL LEADERS/BUILDING CAPACITY AND LEADERSHIP

GOVERNANCE STRUCTURES

EFFECTIVE ENGAGEMENT OF STAKEHOLDERS

ALIGNMENT

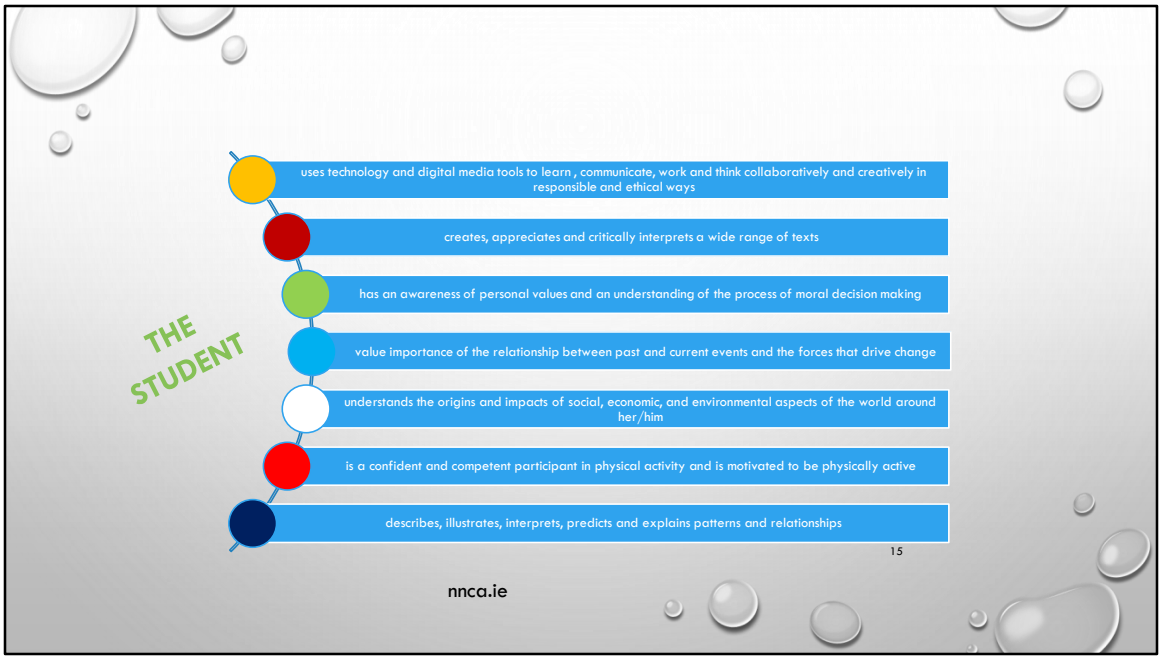
EVALUATING IMPACT

PLACING STUDENTS AT CENTRE

A1

Japan – children playing on monocycles. Over 10 years ago, one half day per week has no curriculum.

During 2016, the Norwegian parliament considered the renewal of subjects in the primary and lower secondary education curricula, and general subjects of the upper secondary curriculum with an aim to define fewer and clearer competence goals. Several consultations were held on skills that will power the country's future prosperity as well as what ought to be schools of the future.



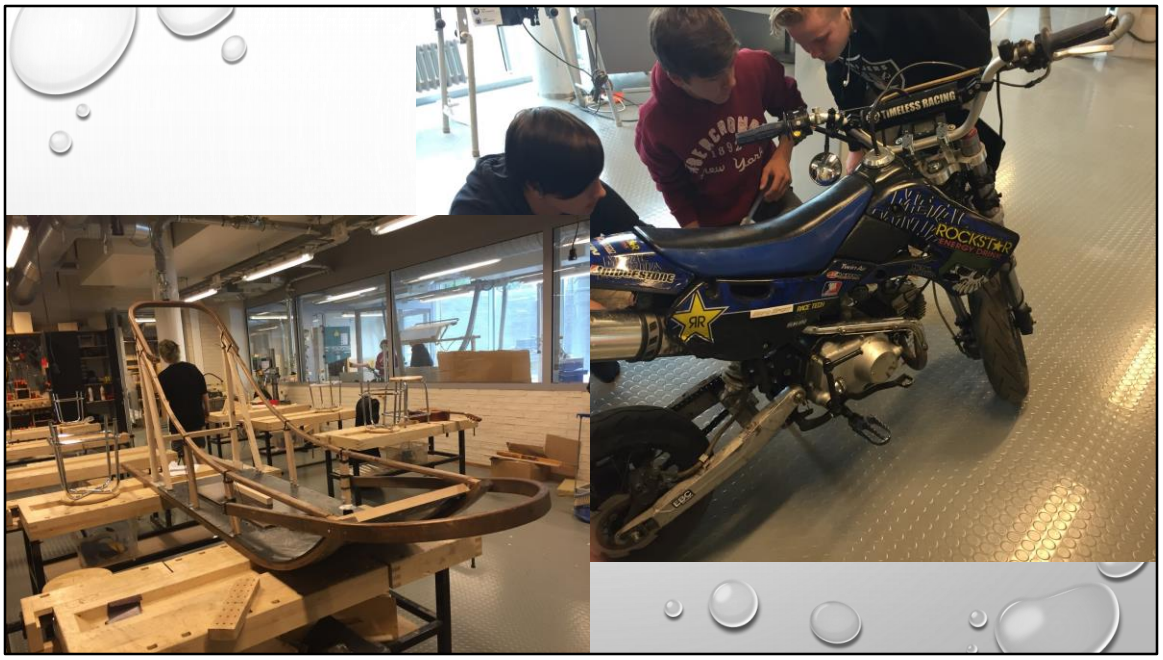
Irelands
Statements of Learning

Fred

genuine learning is based on activity

we need to set more consistent examples for the teachers of tomorrow

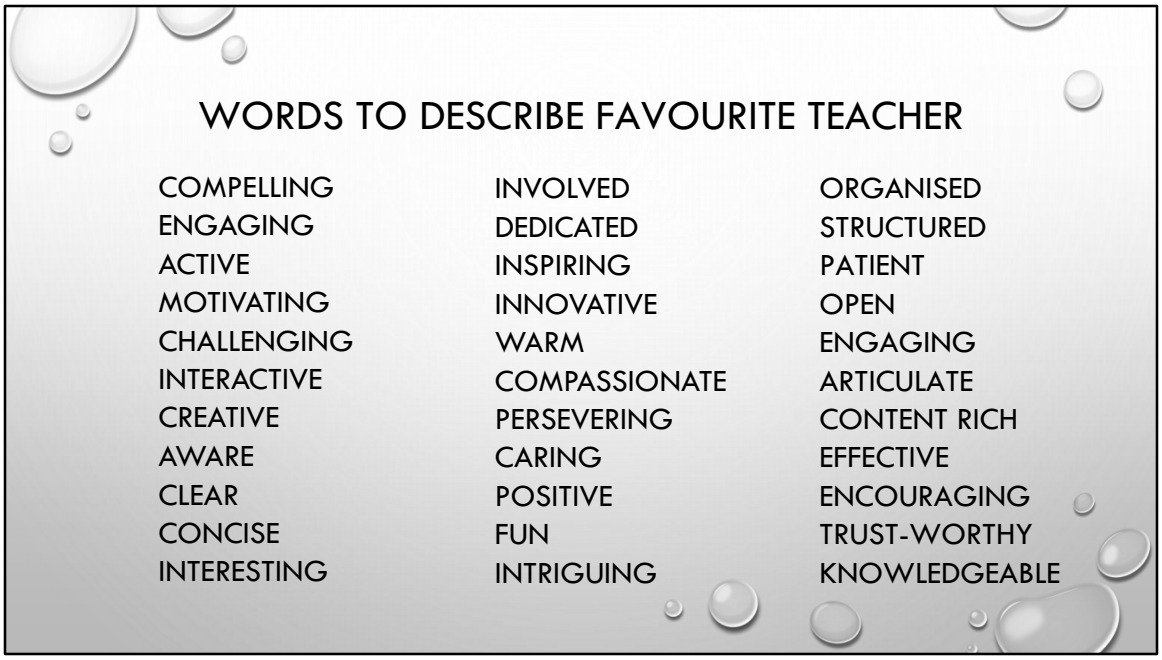
this means that we have to radically rethink teacher education



Since 2012, Finland launched its national curriculum reform. The reform addressed questions pertaining to:

(i) the meaning of education in the future,
(ii) types of competencies that will be needed,
(iii) practices that would best produce desired education and learning,
(iv) competencies required in society and the changed working life, and
(v) skills required to build a sustainable future.

(vi) Examples of basic education competencies include:
- (i) thinking and learning,
- (ii) cultural competence, interaction and expression,
- (iii) looking after oneself, managing daily activities, safety,
- (iv) multi-literacies,
- (v) ICT competence,
- (vi) competence required for working life and entrepreneurship, and
- (vii) participation, empowerment and responsibility (Halinen, 2016).



From asking this question of other groups, and from a search on the Internet, so not entirely research

However

- How many are skills, attitudes and values?
- How many represent behaviours listed in how to get a job at Google?
- It seems like a certain amount of knowledge is assumed then it's about skill, attitude and behaviour

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PALDIES

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WITH THANKS TO:

- OECD POLICY REFORM DOCUMENTS
- ANDREAS SCHLEICHER'S SLIDES
- DR BILL RANKIN'S THREE AGES OF INFORMATION PRESENTATIION
- THOMAS FIREDMAN'S NEW YORK TIMES ARTICLE – HOW TO GET A JOB AT GOOGLE
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