Educating for the Future

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- How is the world changing?

- What skills will students need?

- What does this entail for how we educate?

What's changed?

Jack Andraka

15-year-old schoolboy

Found a early diagnostic test for pancreatic cancer

90% accurate
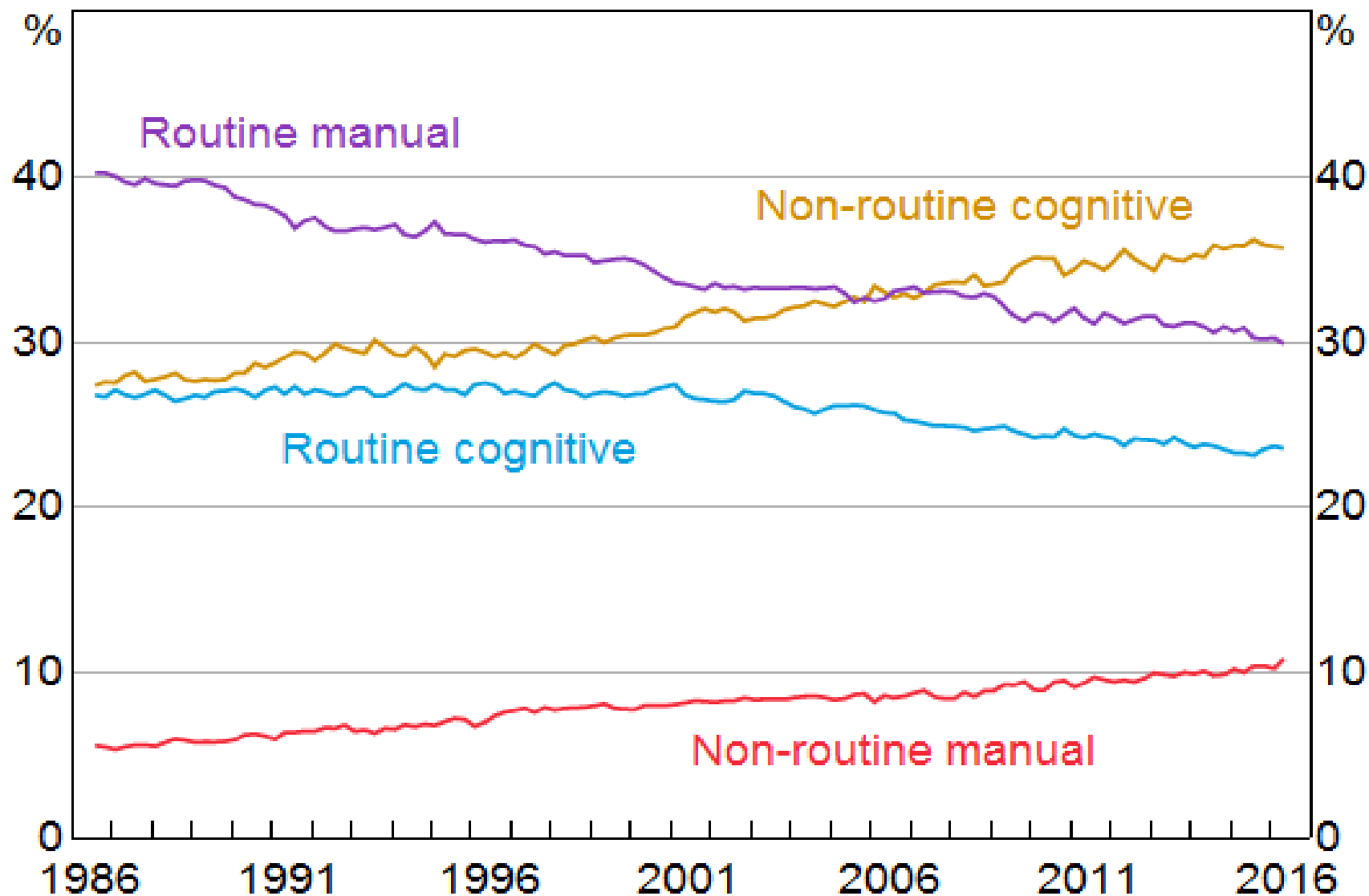
Only three cents per test

Won $75,000 grand prize at the Intel International Science and Engineering Fair

Problem-based learning & autonomous learning
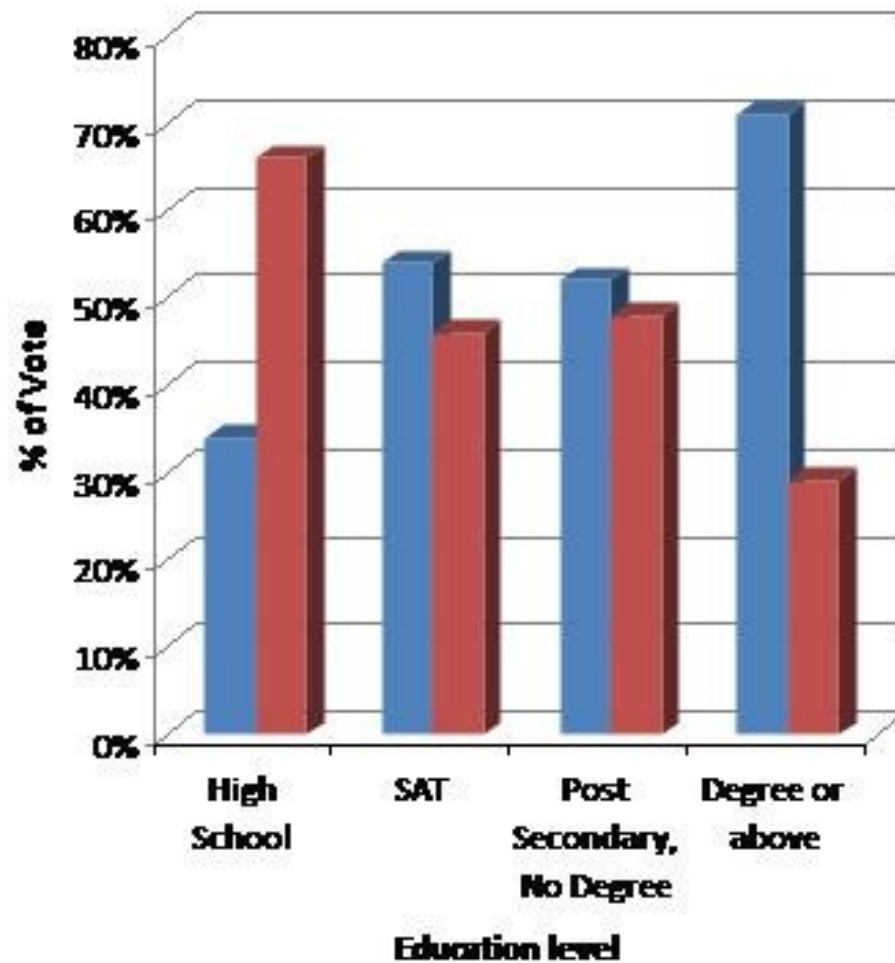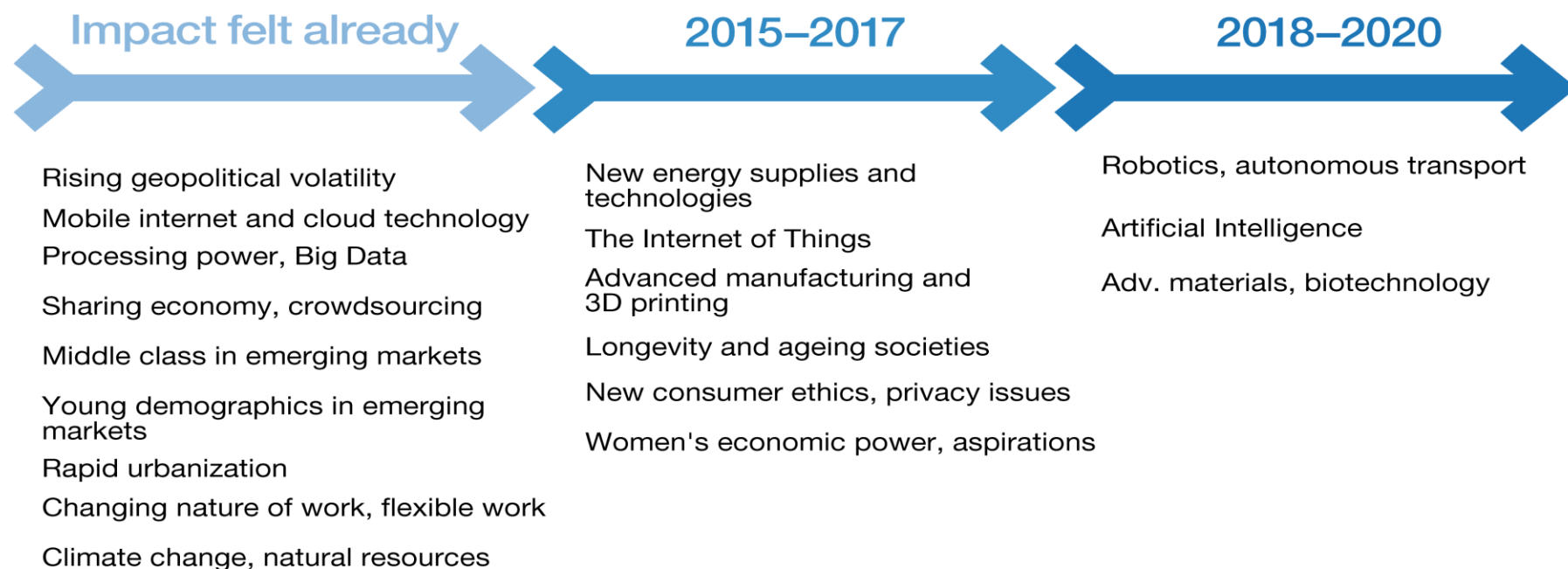
Employment by Skill Type*

Per cent of total

Routine manual

Non-routine cognitive

Routine cognitive

Non-routine manual

* Non-seasonally adjusted

Sources: ABS; RBA

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Time to impact industries' business models

Impact felt already

Rising geopolitical volatility

Mobile internet and cloud technology

Processing power, Big Data

Sharing economy, crowdsourcing

Middle class in emerging markets

Young demographics in emerging markets

Rapid urbanization

Changing nature of work, flexible work

Climate change, natural resources

2015–2017

New energy supplies and technologies

The Internet of Things

Advanced manufacturing and 3D printing

Longevity and ageing societies

New consumer ethics, privacy issues

Women's economic power, aspirations

2018–2020

Robotics, autonomous transport

Artificial Intelligence

Adv. materials, biotechnology

Source: Future of Jobs Report, World Economic Forum

What about Technology?

(Englund 2017)

Modelling uses of technology in teaching and learning

Efficiency

*(instructionist/
teacher-centred)*

enhancement

*Transformation
(learner-centred)*

Increasing flexibility and access

Increasing student engagement

Improving assessment and feedback

Developing skills

Reinforcement or revision

Promoting reflection upon learning and personal development

Supporting interaction with peers and collaborative work

Supporting links between theoretical and practical aspects

Preparing students for their careers/personal lives

What Medium?
What Method of Delivery?

Wrong Question!

- We need a mixed economy of educational provision
- Supports the aims of the course
- Meets the needs of the student

Beliefs about technology
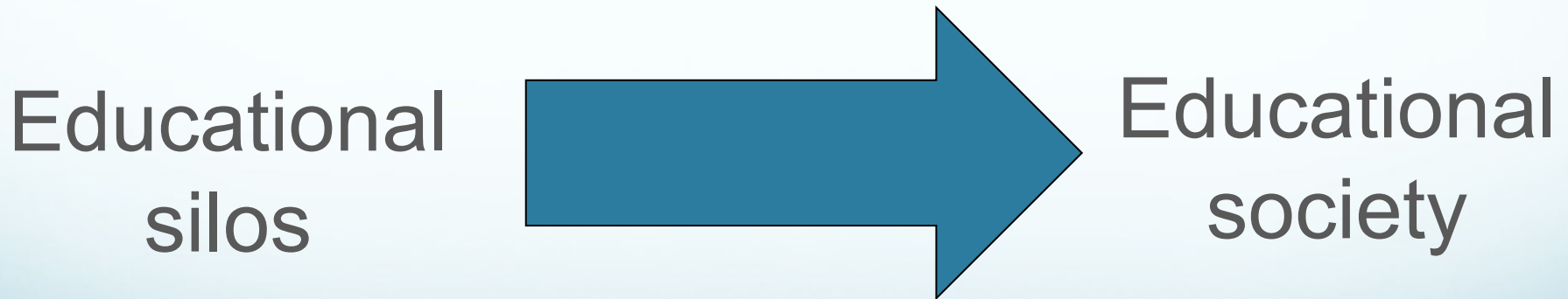
Doing the same old thing – but faster?

Doing things better?

Or doing better things?

What do we need to change?

- The way **we** think about education

- The way **we** provide education

Educational silos → Educational society

Teacher conceptual development and student satisfaction:

Greater development related to higher student satisfaction

Larry (A - A)   Harriet (C - E)   James (B - D)
Rolf (C - C)   Martha (A - C)   Susan (A - C)
Steven (B - C)   Paul (A - B)   Maggie (A - C)

(Englund, Olofsson and Price, 2016)
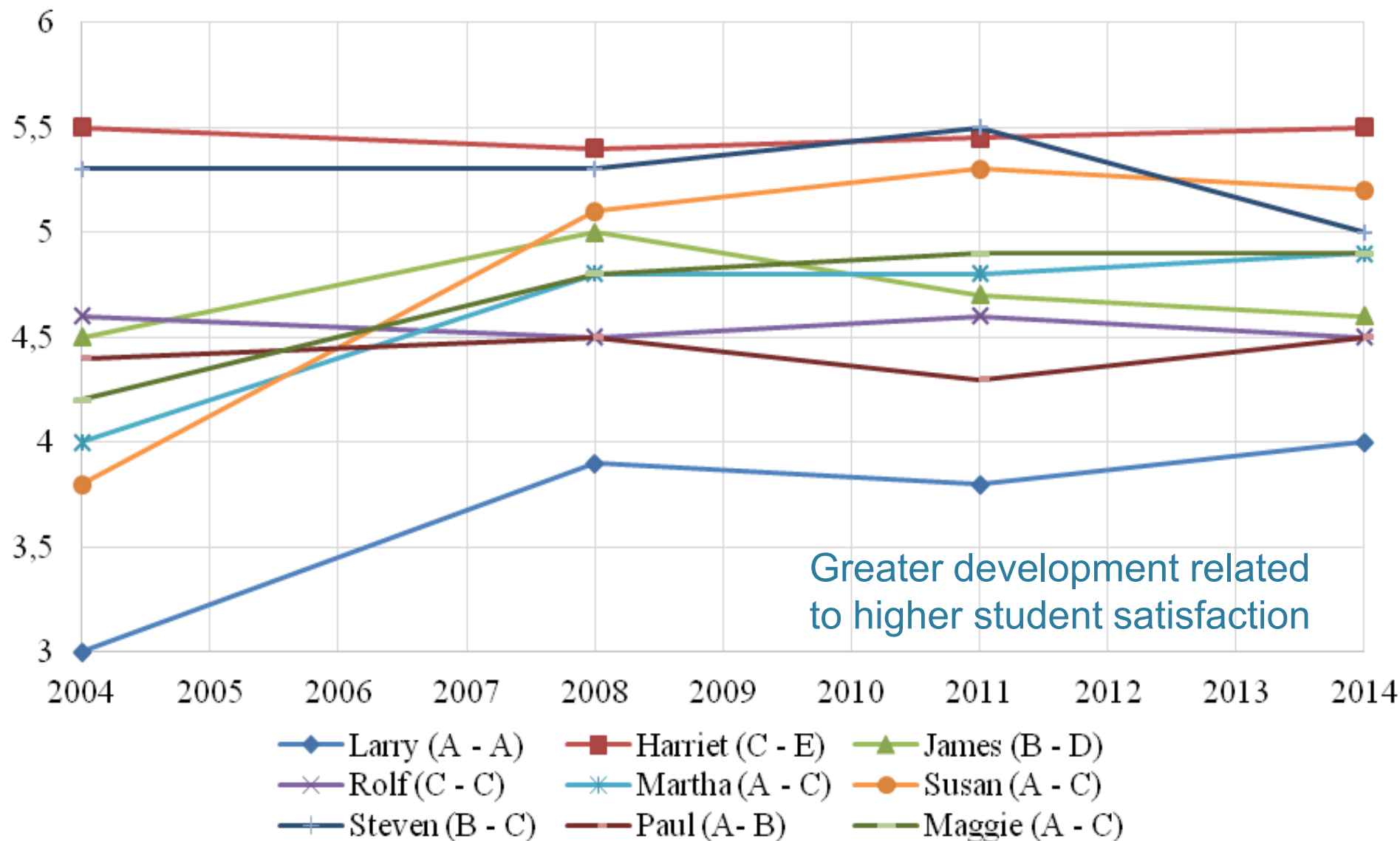
Academics' views

"No one can go into my course and tell me what to do."

"If I was to go to another teacher on the programme and suggest that they improve something they would just shake their heads and then ignore me"

"Every course on the programme is controlled by a teacher, who acts as a kind of 'king' over the course. There's no way for anyone else to make changes"

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Technology alone is not the answer

What HE teachers believe about teaching influences how students learn.

Using technology is not a technological shift but a pedagogical one.

The **agent of change** is not the technology – its **the teacher.**

What skills will students need?

Learn, unlearn and relearn

Communicate

Collaborate

21stC Learner Skills

Create

Discern

What pace, what form?
Whatever is required

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Critical areas for development

- **Collaboration & teamwork**
- **Creativity & imagination**
- **Critical thinking**
- **Problem solving**

Other skills for success

- Flexibility & adaptability
- Global & cultural awareness
- Information literacy
- Leadership

- Civic literacy & citizenship
- Oral & written communication skills
- Social responsibility & ethics
- Technology literacy
- Initiative

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'**The quickest way to change student learning is to change the assessment system**' (Elton & Laurillard, 1979)

"**Despite the good intentions of staff, assessment tasks are set which encourage a narrow, instrumental approach to learning that emphasizes the reproduction of what is presented at the expense of critical thinking, deep understanding and independent activity**" (Boud, 1995, p. 104).

A paradigm shift is required (Nightingale, 2000, p. 118)

Authentic assessment…

Mirrors priorities and challenges found in real life

Assesses whether students can craft polished, thorough and justifiable answers, performances or products

Tasks involve activities that help students rehearse for the complexity and ambiguity of adult and professional life

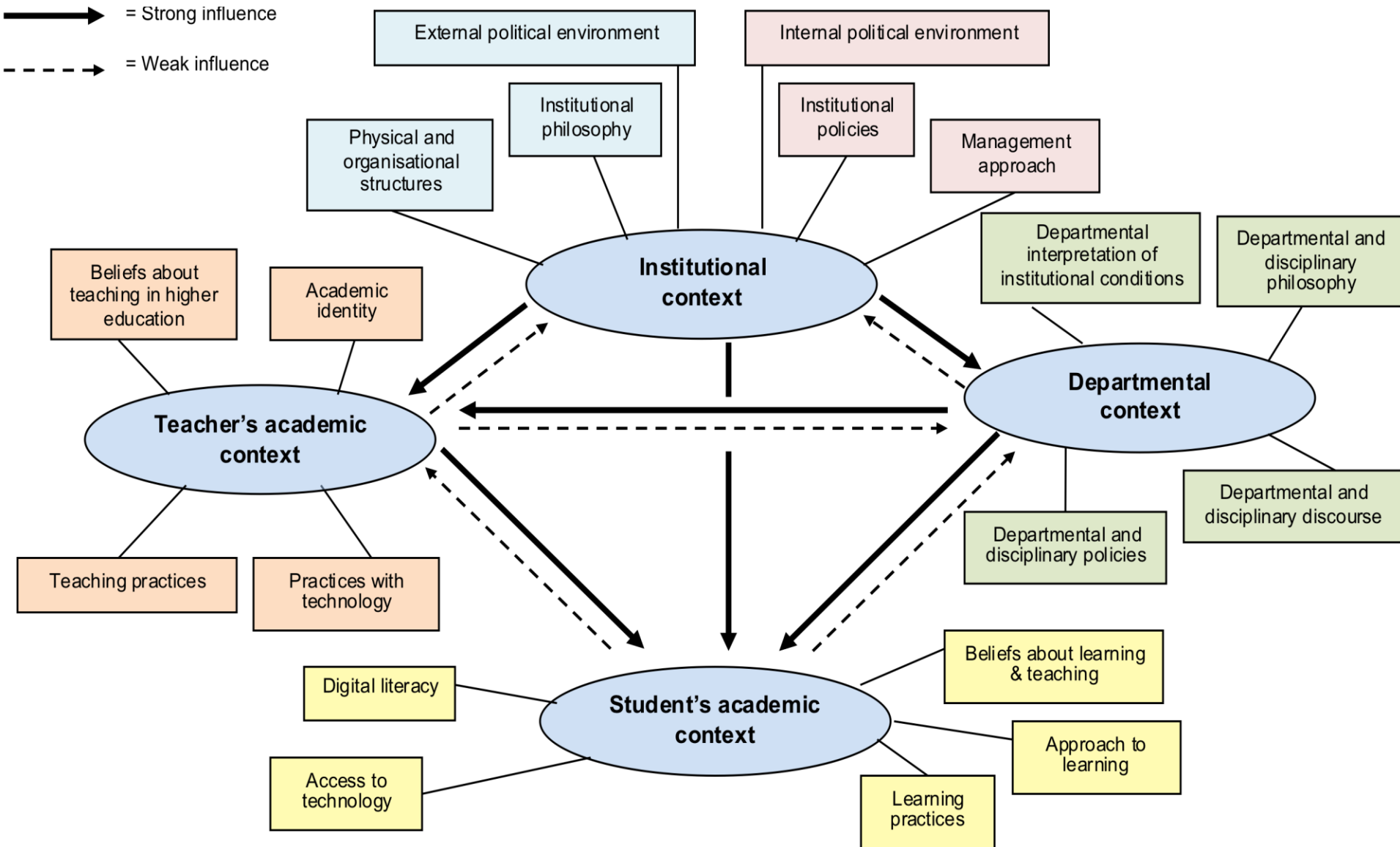What kind of a world are we preparing students for?

Life in academia?

What kind of a world **should** we be preparing students for?

Life in geo-political, interconnected, uncertain and fast changing digital world?

Are we yoked by academia and its traditions?

Factors influencing teaching and learning in higher education: a framework

= Strong influence

= Weak influence

External political environment

Internal political environment

Institutional philosophy

Institutional policies

Physical and organisational structures

Management approach

Institutional context

Departmental interpretation of institutional conditions

Departmental and disciplinary philosophy

Beliefs about teaching in higher education

Academic identity

Departmental context

Teacher's academic context

Departmental and disciplinary discourse

Teaching practices

Practices with technology

Departmental and disciplinary policies

Digital literacy

Beliefs about learning & teaching

Student's academic context

Approach to learning

Access to technology

Learning practices

(Price and Kirkwood, 2016)

Cultural Change

What?	How?	When?	
Beliefs and practices of the **students**	Prepare them for the education they will experience explicitly	In the first 8 weeks of joining the institution	
Beliefs and practices of the **teaching staff**	Professional Development in how to teach in higher education for 21st century learning	Early in career, during PhD training	
Beliefs and practices of the **institution**	Reviewing and developing policies that recognize and reward teaching in a 21st century world	As soon as possible	

Pitfalls

- **Focusing on technology** – it does not change the educational experience per se – teachers do!

- **Overlooking the importance of assessment** – assessment is the de facto curriculum. Students need '**authentic tasks**' to help prepare them for their future roles in the real world.

- **Teaching in silos** – individualistic approaches to teaching tends to result in students having a **poorer** learning experience.

Take-home message…

Its not about what our students **'know'** when they leave our institutions…

Its about what they can **'do' 'tomorrow'** the **'next day'** and the **'day after'** that counts!