Cambridge Assessment International Education

Literacy Across the Curriculum

Cambridge Schools Conference

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When children now entering school are likely to retire

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Literacy

- Global Educational Blue Skies

Literacy

- Navigation and Interpretation

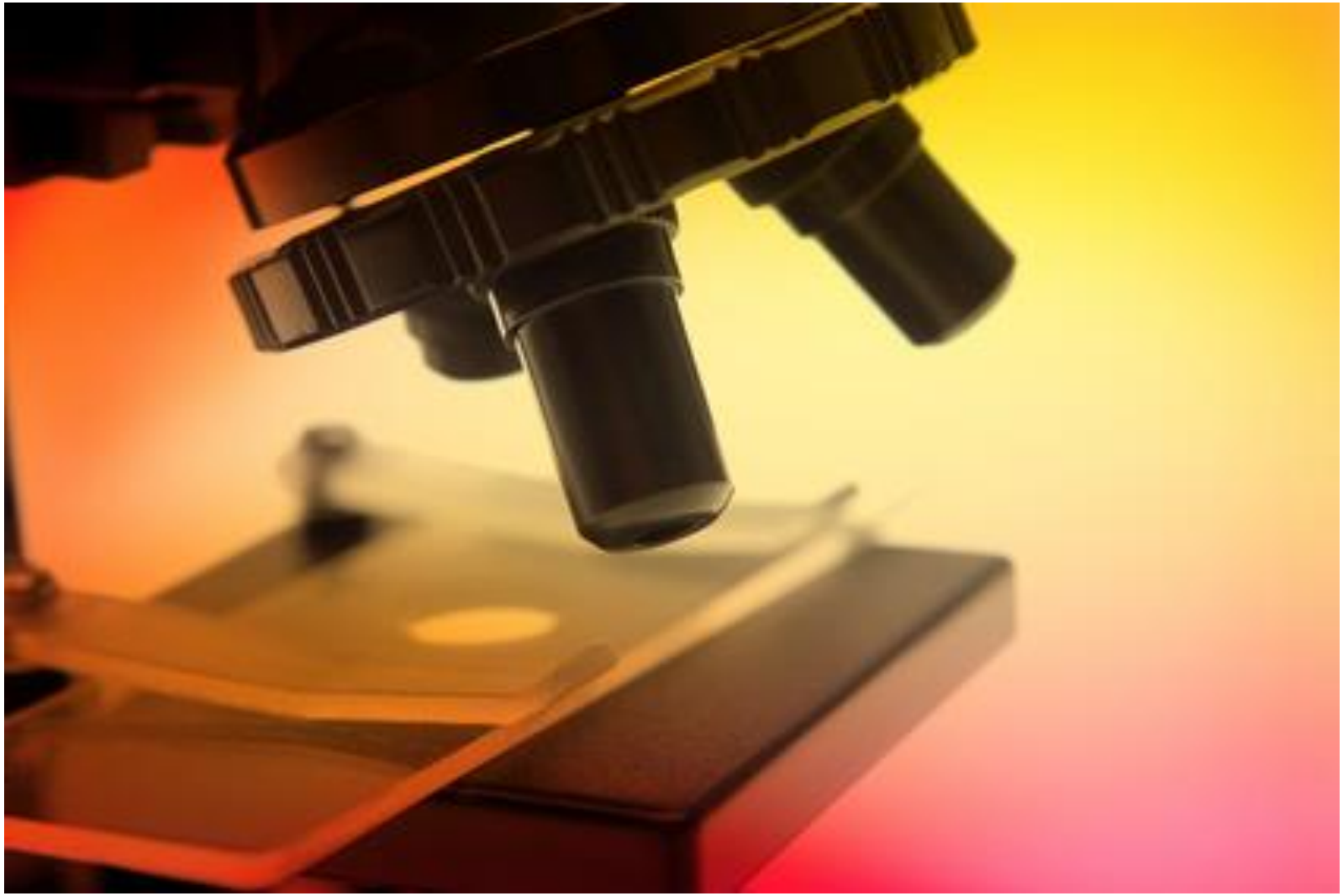
3 Facts – 1 Story

Mind & Brain

Lifestyle & Behaviour

Relevance

Fact 1 Research on Mind & Brain



Fact 2 Research on Digital Lifestyles

Fact 3 Research on CLIL

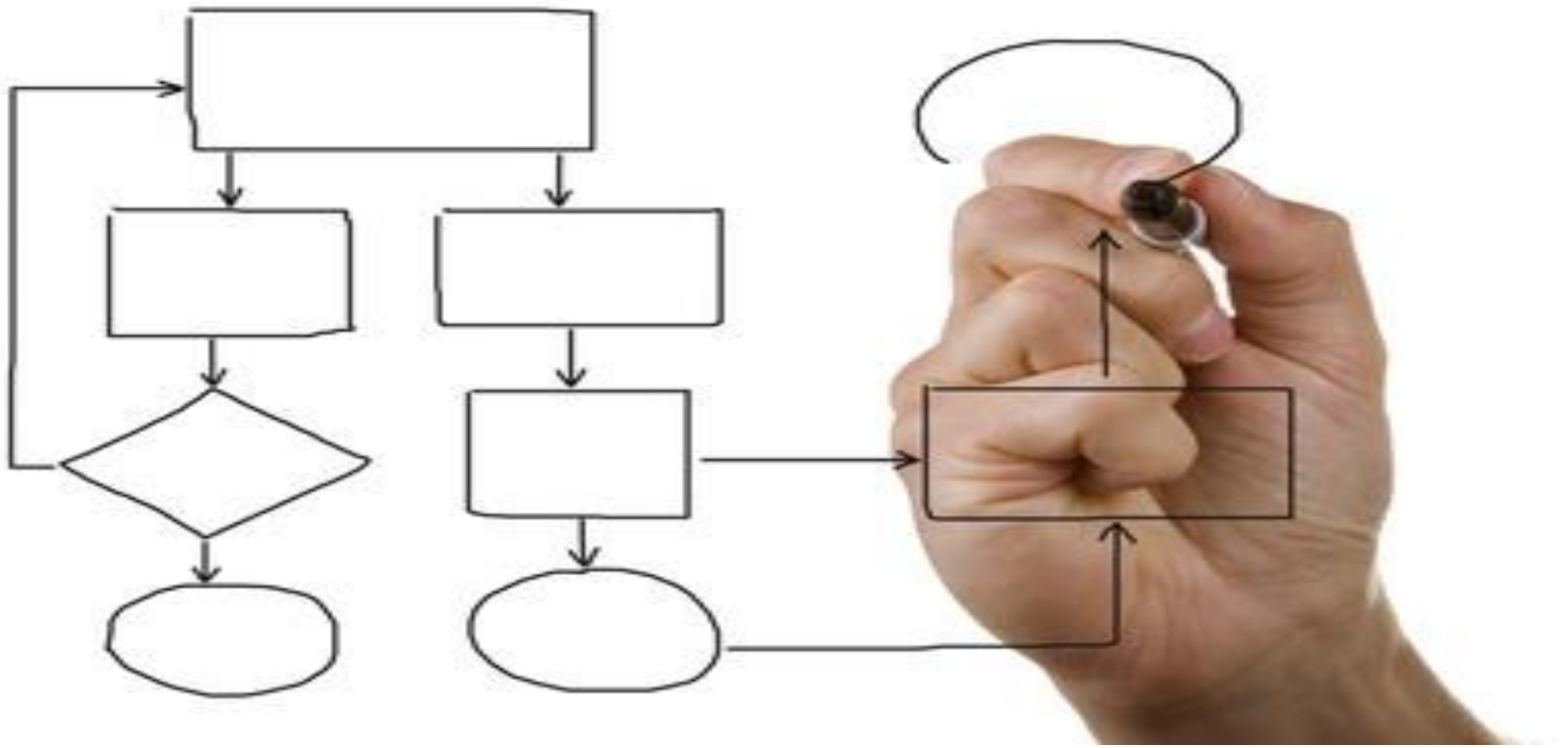
What do we Find? These 3 Facts Inter-link

Fact 1 Research on Mind & Brain

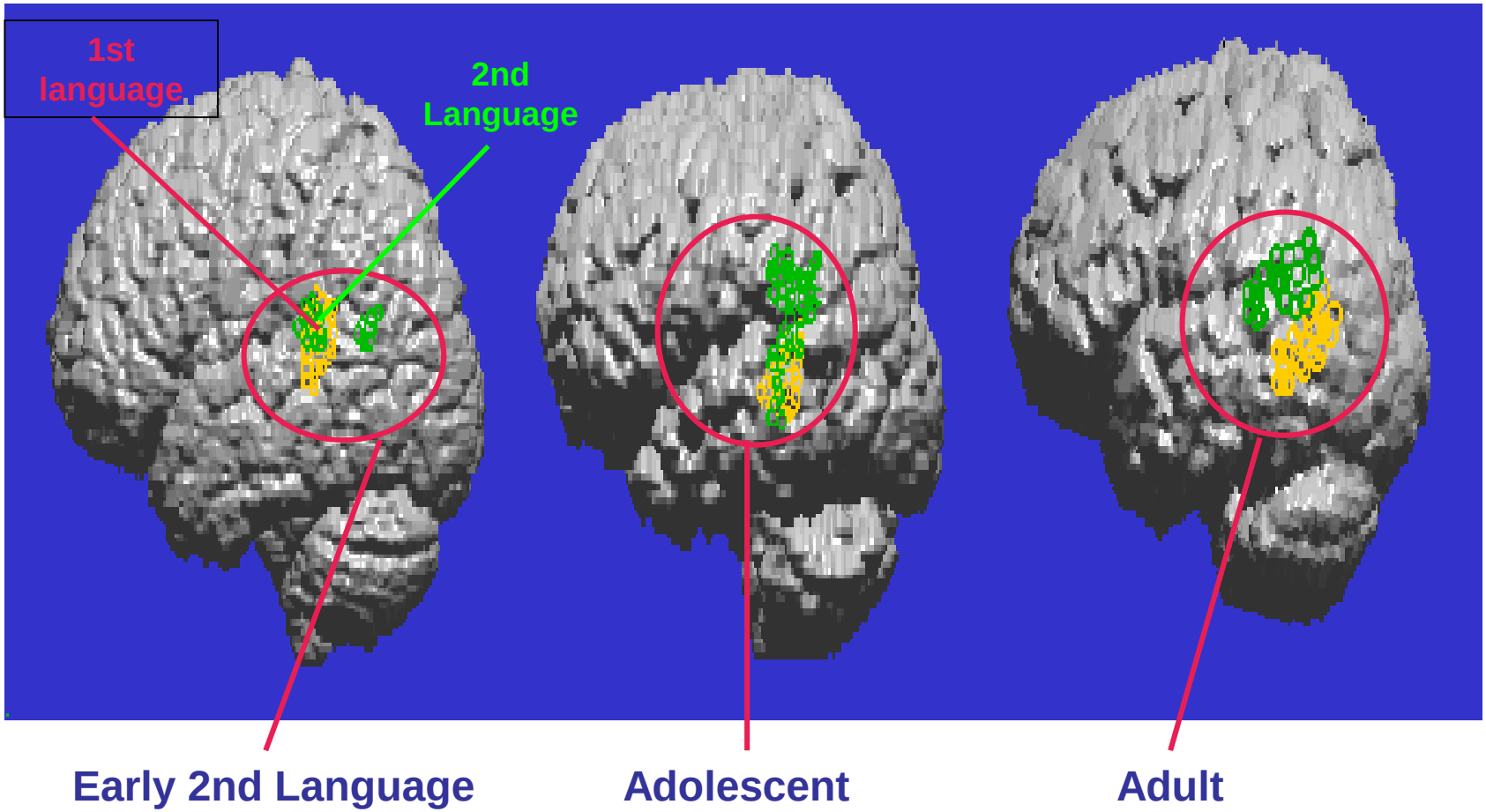
Language Learning affects the **neurocircuitry** of the brain and can have a **profound impact** on brain structures.

Changes in the brain's electrical activity may occur **much earlier** than previously thought.

Different languages extends **conceptual boundaries** and enables **alternative ways** of reading and interpreting information.



Languages & Experience



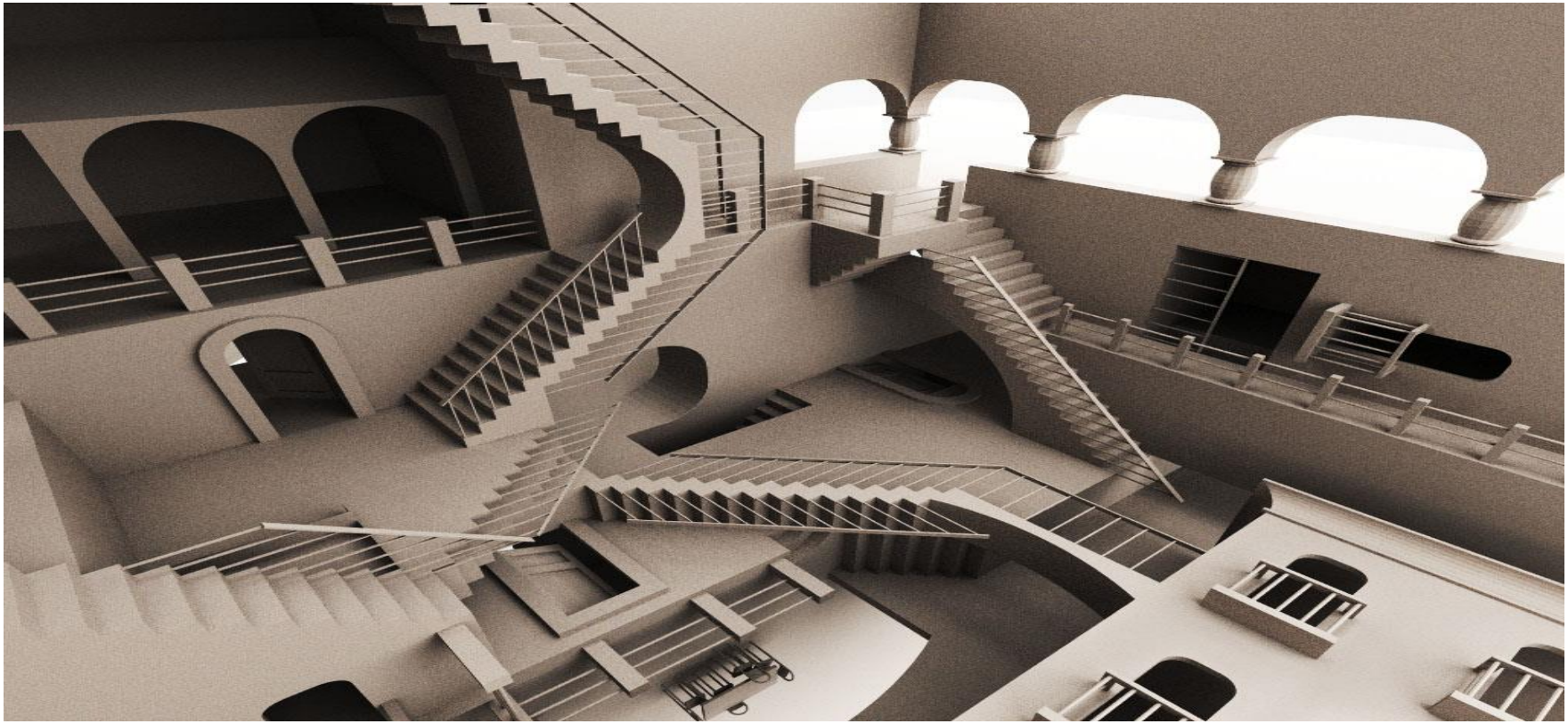
Source: Simos et al. Journal of Neurosurgery 95

Across the Curriculum

Enhanced **memory function** which supports the learning of other subjects in the education curriculum, and on learning in general

Problem-solving

Better in problem-solving that is **cognitively demanding**



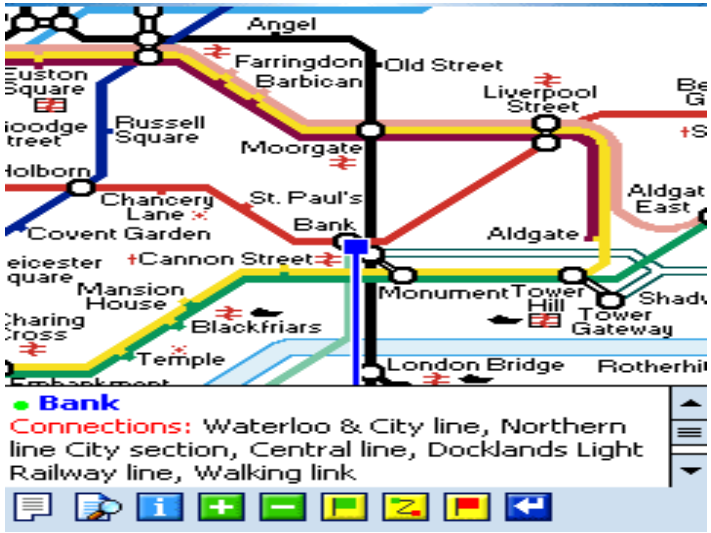
Perception & Thinking Skills

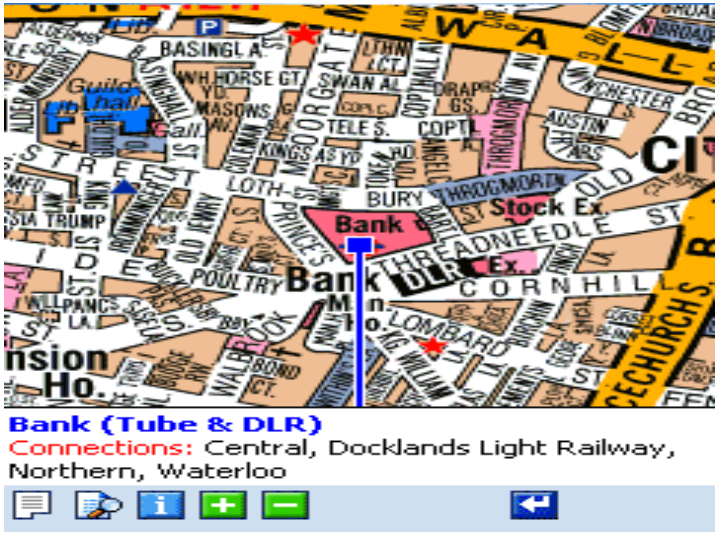
Multi-focusing (Seeing the world through different lenses)

Filtering information

- Being able to interpret information and solve problems involves not only deciding **what to give attention** to, but also what **not to give attention to.**

- Inhibitory control acts like a filter which enables a person to **ignore distracting** and **irrelevant** stimuli.





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Question

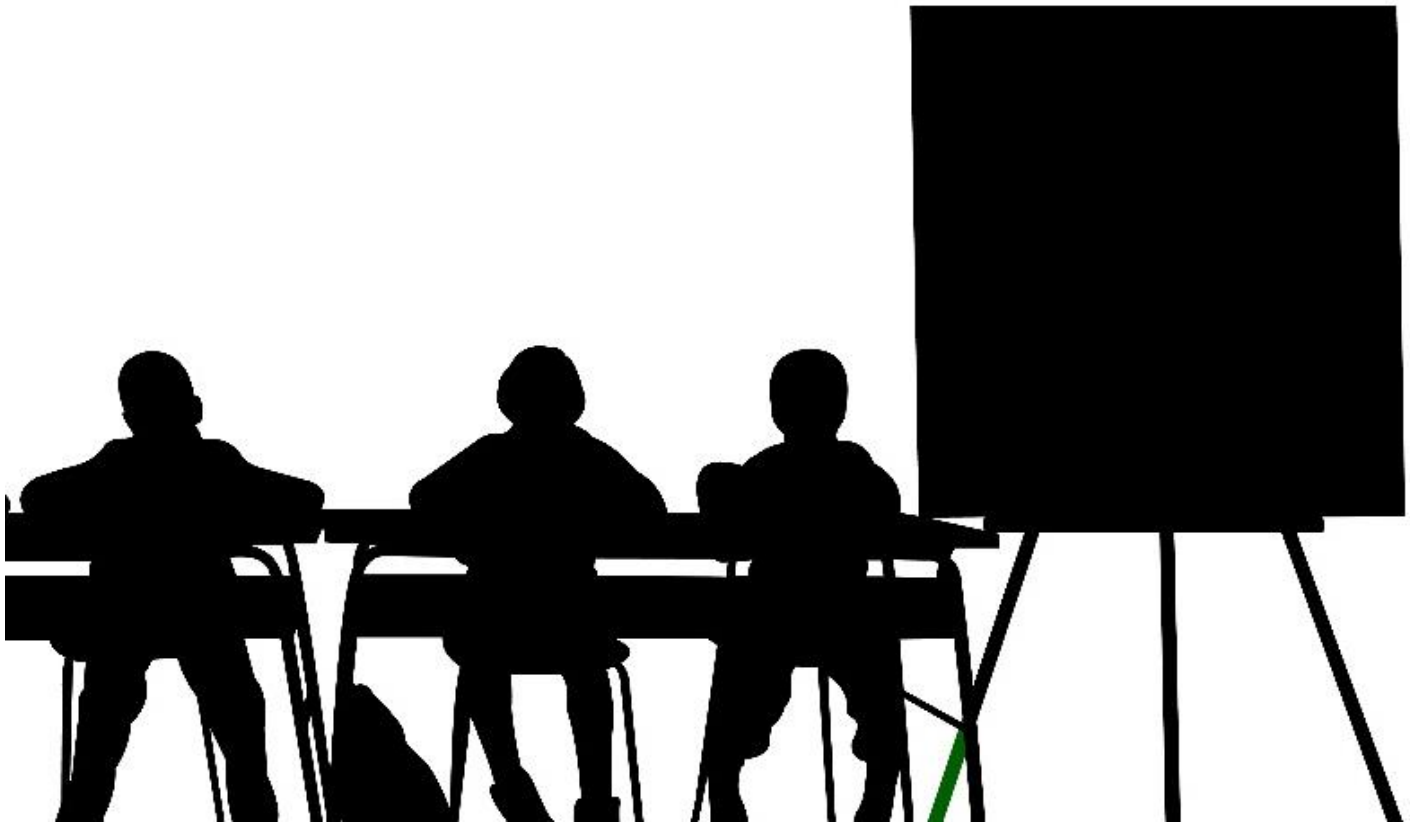
How many hours per week does a 16 year-old spend using digital devices?

Fact 2 Digital Lifestyles

- Restless
- Collaborative
- Learning by Doing
- Swift Gratification
- Multiple Identities
- Changing Thinking Skills
- Empowered

Question

How many hours does a typical 13 year-old sit during a school day?



Insight 1 Divided Attention

Multi-tasking

- ‘Our brains are not wired to multi-task well’
  (Earl Miller MIT 2015)
- There is a cognitive cost when switching rapidly from one task to another, and a physical cost (burning brain nutrients)

- Fast movement from one image, or text, to another creates ‘digital fatigue’
- Multi-tasking leads to superficial actions accompanied by superficial thinking, which over time, can be habit-forming.

- “*A woodpecker can tap a thousand trees and get nowhere, or tap one tree a thousand times and get dinner*”

Insight 2 Visualization

- We use less text and more images which are useful for concrete thinking but less suitable for abstract thinking
- As language serves to think, we can lose the habit of understanding and developing abstract concepts
- Intelligence develops through understanding and developing abstract concepts by drawing on what we already know and connecting this in new ways

- Q: How many times a day do we look at our mobile phones?

Insight 3 Isolation

- Engagement, dis-engagement, and loneliness
- Social media changes the ways we relate to each other. It “reshapes the emotional landscapes of our emotional lives, but is it offering us the lives we want to lead?”

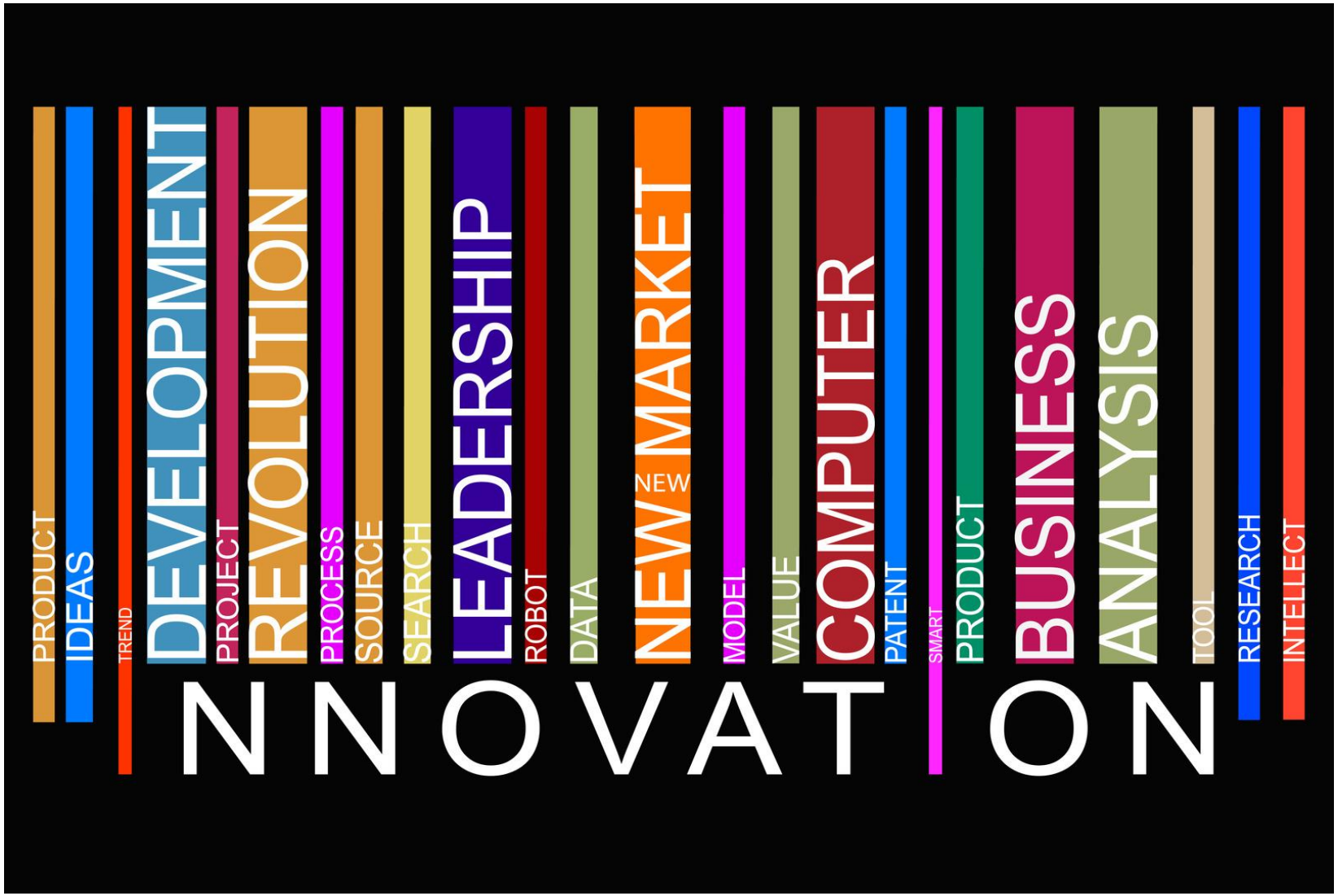
(Turkle 2011)

Insight 4 Currlcula Change

Case Maths

- Much maths involves calculating whilst almost all calculating is done by computers
- In maths we still find students learning to calculate by hand simple and unrealistic problems
- We need to use computers in maths education as they are used in real-life maths – for doing the calculating
- Coding should therefore be the foundation of a new computer-based maths
- This leads to literacy skills ‘on the prose of mathematics without getting lost in the grammar’ (Steve Jobs 1988)

Fact 3: Deeper Understanding of *Innovation through Integration*



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THANK YOU