The adult numeracy conundrum

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Introduction

- decades of investment on efforts to improve functional numeracy skills in workplace and beyond
  - programs
  - initiatives
  - funds

- intractable problems
  - poor adult numeracy skills
  - overt adult innumeracy
  - little real change in adult numeracy rates
...this is the

adult numeracy

conundrum
‘paradigm shift’

• Thomas Kuhn
  (The Structure of Scientific Revolutions, 1962)
  – *originally*: describes a change in basic assumptions within the ruling *scientific* theory
  – *now*: represents notion of a major change in a certain thought-pattern
    • radical change in personal beliefs, complex systems or organizations
    • replaces former ways of thinking & organizing with radically different ways
e.g. paradigm shifts in science

- from Ptolemaic geocentric cosmology to Copernican heliocentric system
- Newton’s unification of classical physics into a coherent mechanical worldview.
- from Maxwellian electromagnetics to Einsteinian Relativity
- from Lamarckian theories of evolution (inheritance of acquired characteristics) to Darwinian theory of evolution (natural selection)
- acceptance of Plate tectonics to explain large-scale geologic al changes
• from Newtonian physics to Einsteinian Relativistic worldview

• from classical mechanics to quantum mechanics

• cosmology
  – from ‘steady state’ to ‘big bang’
  – from ‘big bang’ to inflation
  – conflict between quantum mechanics & general relativity
    • relativistic cosmology
    • string theory
    • \(m\)-theory
    • ‘many worlds interpretation’
e.g. paradigm shifts in social sciences etc

- **‘social paradigm’** (Handa)
  - focuses on social circumstances which precipitate such a shift
  - addresses how that shift affects social institutions, including the institution of education
- **‘cognitive revolution’** – from behaviourism to cognitivism
- **economics** – ‘Keynesian revolution’
- **industrialisation** – from field to factory; from artisan to mass production
- **‘teachable moments’** – the time at which learning becomes possible or easiest
a paradigm shift is not merely a breakthrough

...it’s a radical change of perspective
The problem of adult (in)numeracy...

• The ‘standard model’:
  – deficit & remediation

• Basic premise:
  – innumerate adults are ‘broken’ & need to be fixed

• Cause:
  – insufficient or inadequate school-based maths education
    • often related to educational disadvantage due to social, economic, cultural, and ethnic factors
The problem of adult (in)numeracy...

• ‘Solution’:
  – programs of ‘re-education’
  – school-like maths curriculum (may be disguised) in schools, colleges, community education, work-place training, on-line, etc

• Motivation:
  – to work better, to get work, or get better work
  – to manage finances
  – to help kids with homework
  – ‘critical citizenship’
  – social justice: opportunity, welfare, health, life expectancy
  – productivity gains
  – reduced liability/losses
  – gains in social & economic capital
  – more competitive workforce in market-driven global economy
But it’s not working...

...why not?
Factors & factions...

- numerous agendas, ideologies, and viewpoints
- numerous interested parties
  - ‘factions’, whose influences drive public policy
- factionalism
  - clouds the real issue
  - presents lots of ‘solutions’ but no answers
random thoughts...

• Maybe it doesn’t really matter that adults can’t ‘do fractions’ or read graphs and charts (etc, etc) – society still gets along pretty well as it is and there are plenty of ways for adults to learn stuff if they want to.
• Maybe the problem doesn’t actually reside with adult learners & the numeracy programs intended to help them. Maybe it’s more to do with who sets the adult numeracy agenda, what’s in it, the purpose it’s supposed to serve, and how outcomes are determined...
• Maybe the ‘adult numeracy problem’ is a fiction – a consequence of how numeracy is conceived and assessed rather than a reflection of adults’ competencies in general. Numeracy issues are complex and multi-dimensional: the appearance of the adult numeracy problem is an illusion of aggregation.
random thoughts...

• Maybe we can’t actually resolve the adult numeracy problem by focussing on (‘fixing’) adults *now*. Perhaps the only real answer is to do a better job with maths education in schools – teach it better or differently so that future generations of school leavers become more numerate adults
• Ask the wrong questions and you’ll have problems finding the right answers

• I don’t want to know the answer to the ‘adult numeracy problem’

• I want to know the *right* question to ask