

HEI and Schools Partnership

The process of learning

The human brain maturing from infancy

Experience the food of brain development

All the senses contribute to development

Memory working best when reinforced

Practice is a key mode of learning

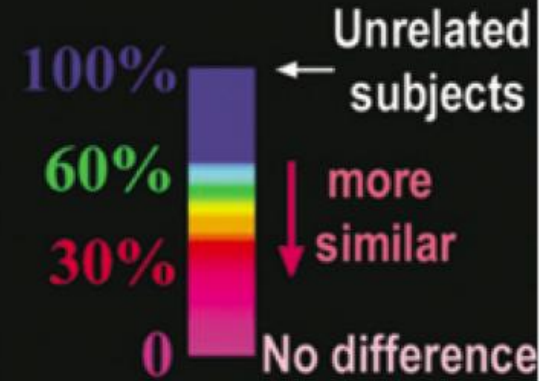
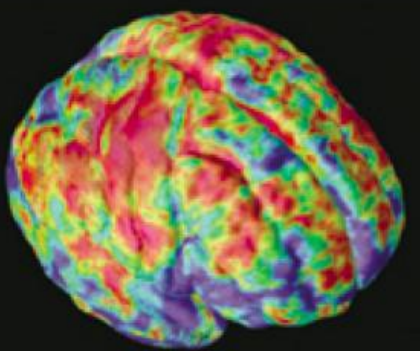
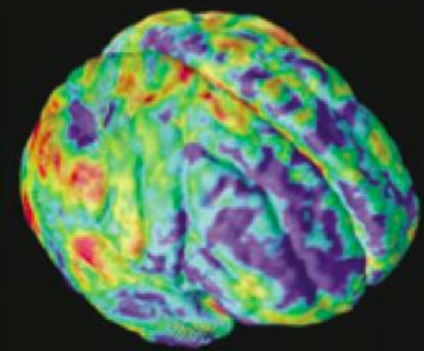
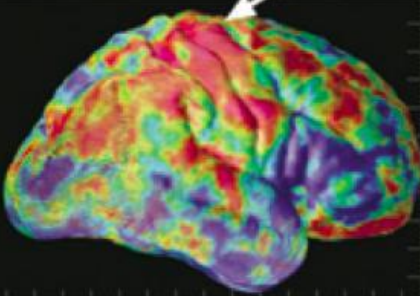
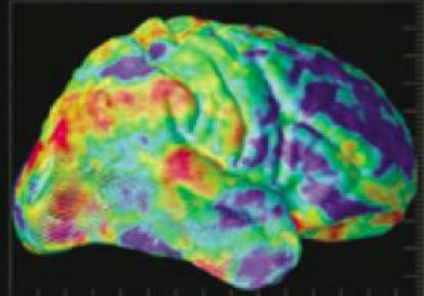
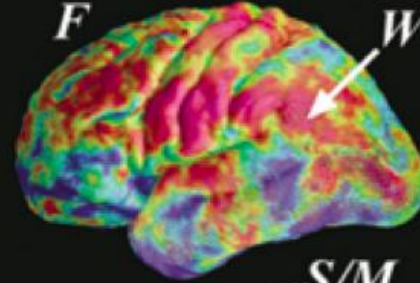
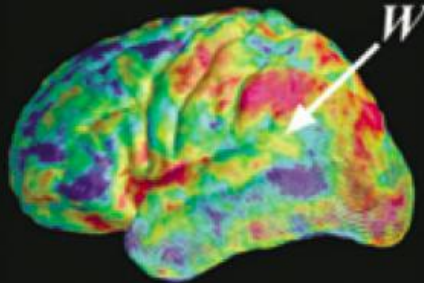
Play, fun, exploring are all important

The importance of socialisation and humour

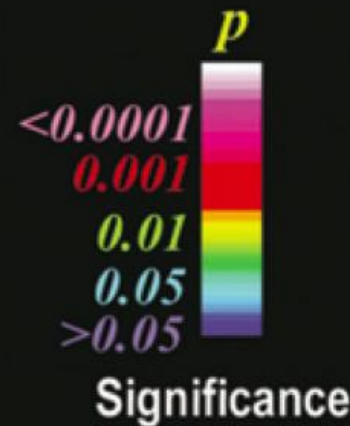
Unrelated
subjects (reference)

Fraternal
twins (DZ)

Identical
twins (MZ)



Average gray matter
difference (as % of
normal differences)



P.M. Thompson et al. (2001) Nature Neuroscience 4, 1253

W - Wernicke's cortex F - Frontal cortex S/M - Sensorimotor cortex

Two House of Lords enquiries into Science in Schools

Insufficient time for professional career development

Inspirational teachers hugely valuable

Many science teachers not teaching first subject

Indequate practical science in many schools

Many schools with very inadequate science space

Reach Out Lab

High staff/student ratio

Specialist 'experts' and schoolteachers together

Encouraged to solve own problems

Some group working – often 'threes'

Use of 'soft' mathematics wherever possible

Presentational skills

Ethics and debate.

Follow up with e-learning



Oxygen assisted mountaineering.
George Ingle Finch developed high altitude breathing apparatus, first using it on the Everest Expedition, 1922

Fibre optics and their role in modern communications
Narinder Kapany and Harold Hopkins fibre optics pioneers and developers, 1950s

Heart and lung transplants
Magdi Yacoub pioneer of heart surgery and development of heart and heart-lung transplants, first heart-lung transplant in infants, performed first heart-lung operation, 1986

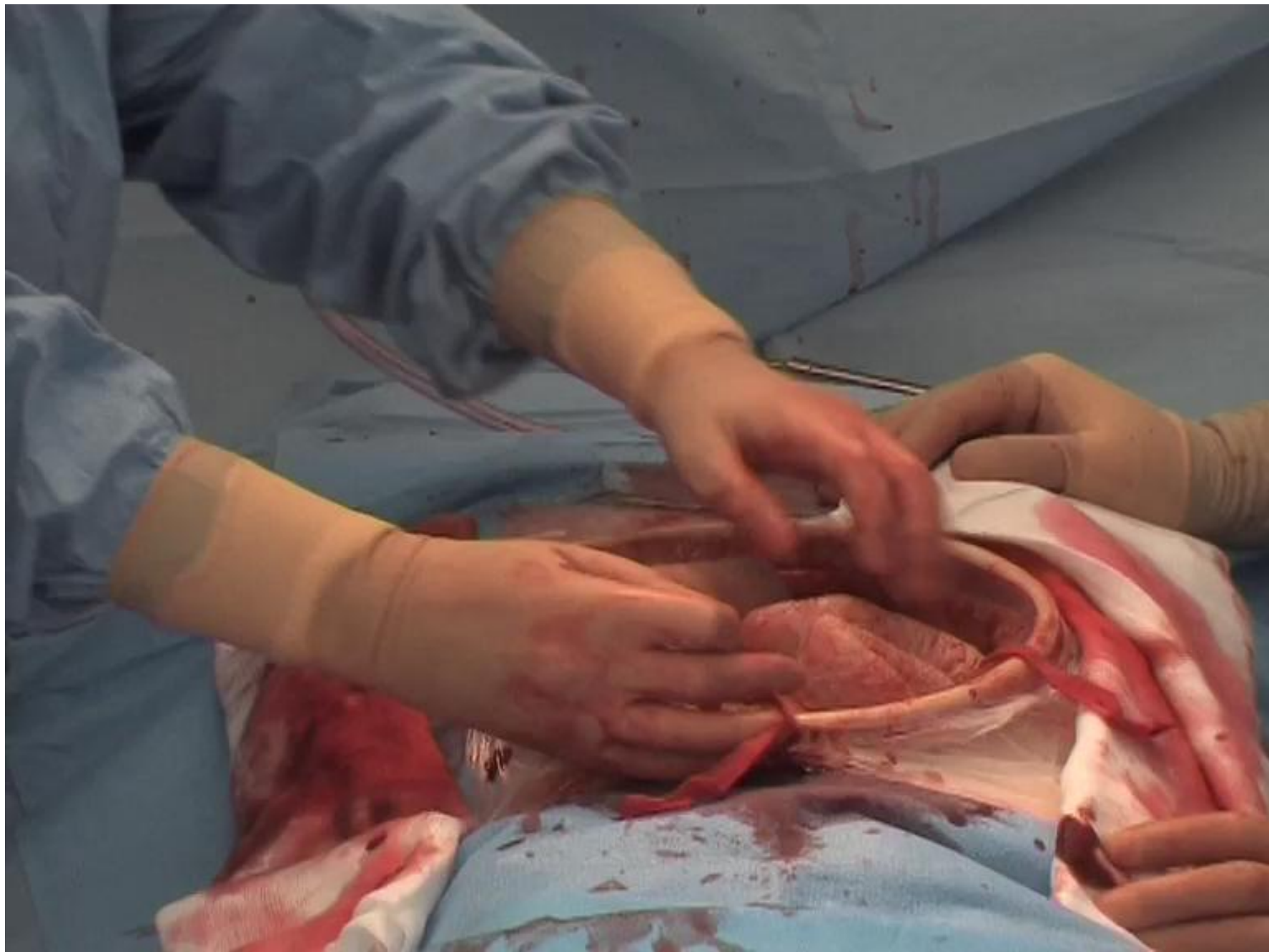
ASTEC















The Reach Out Lab, Imperial College

Research in progress

1. What works best e.g. repeated exposure, distance learning
2. Effect on undergraduates and graduate students
3. Teachers and their professional development
4. Short- and long-term impact on school students

Issues being addressed

Funding and sustainability

Income stream during school holidays

Involving parents/family

Space for teacher training

Researchers in residence

Partnership with the private sector

Partnership with other HEIs

Does the model work for arts/humanities?