# Savants are remarkable but uncreative

Geake, “Release the Genius Inside You” *New Scientist* 6 April 2004

# Veridicality ain’t creativity

Much savant artistic output is remarkable in its veridicality, e.g. savant pianists accurately reproducing an entire piece having heard it only the once.

But, the want of originality or interpretation counts against savant output as being highly creative.

In previous studies of high-functioning artistic savants, their drawings were rated no better than those of non-artistic normals of matched mental age.

For an artistic product to be regarded as creative requires a high degree of original intellectual or emotional connectivity to areas of human experience which are external to the art form itself.

Such connectivity is often unconscious or implicit, all the more so in what come to be regarded as creatively great works.

Self-referential art, often the province of student artists, is not usually destined for providence. Non-referential art, such as savants typically produce, counts even less.

To be creative we don’t need to switch to a “savant-like view of the world”. Rather, we need to exploit the very rules and mindsets that we have acquired over the years.

It is the mental exploration of putative links between concepts at this higher cognitive level that constitutes creative thinking.

E.g., in music, creative epitomes are found in orchestral conducting and composition; fields devoid of savants.

# Creative intelligence requires cerebral connectivity

In sum, an induced reduction of higher brain functioning is unlikely to lead to creativity or genius.

Professor Snyder is proof of this himself in that his theory and experiments require his higher brain functions to create them in the first place.

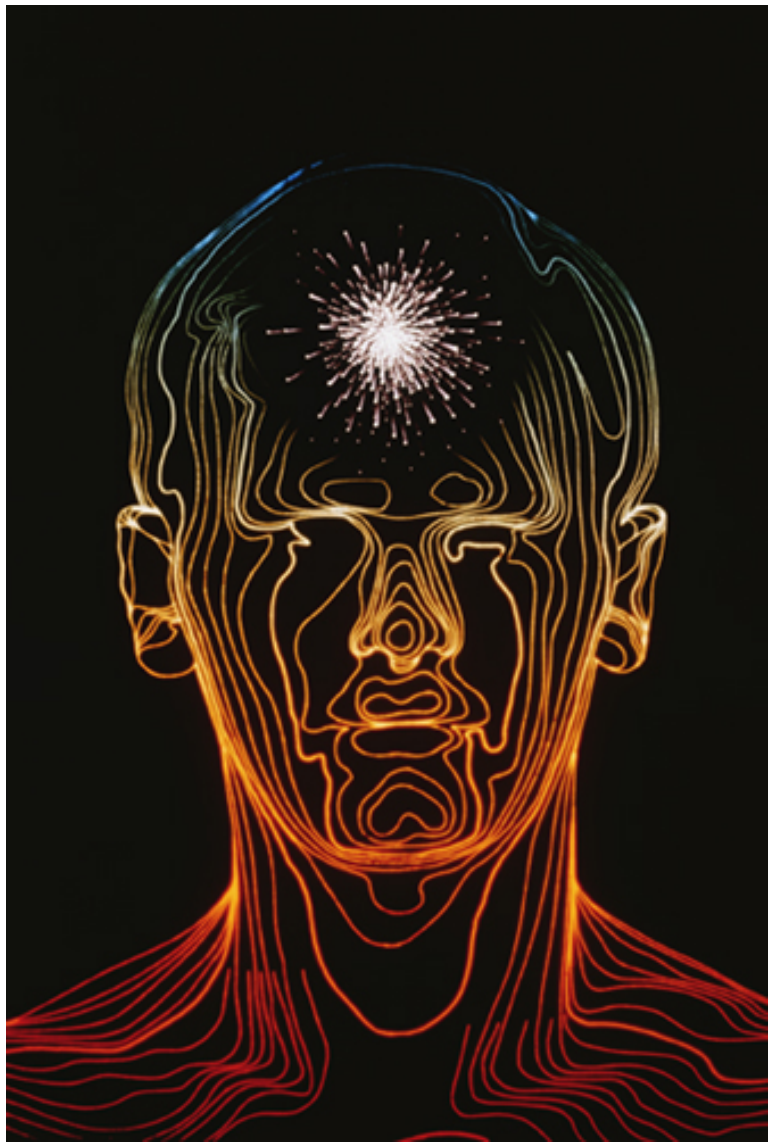
As a creative scientist, he is no savant.

There are no savant scientists.

# Near-infrared laser spectroscopy

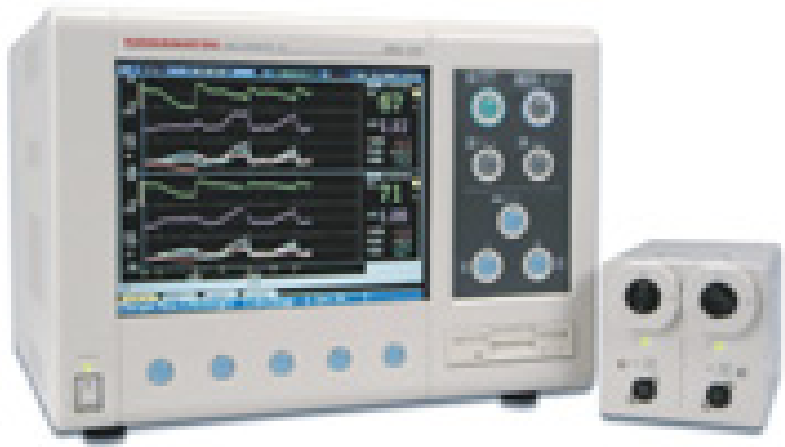
Measures blood flow and oxygen consumption in the brain

Could be used for scanning in natural settings



# Infra-red brain scanner for babies

The scanner shines harmless infrared light into the baby's brain. The "colour" of the light is then read by very sensitive light detectors placed on the baby's scalp while in the birth canal, and the information is passed to a computer. The oxygen level within the brain tissue is calculated continuously from the light readings and the information is displayed on a screen, allowing doctors and health staff to monitor the baby's condition.

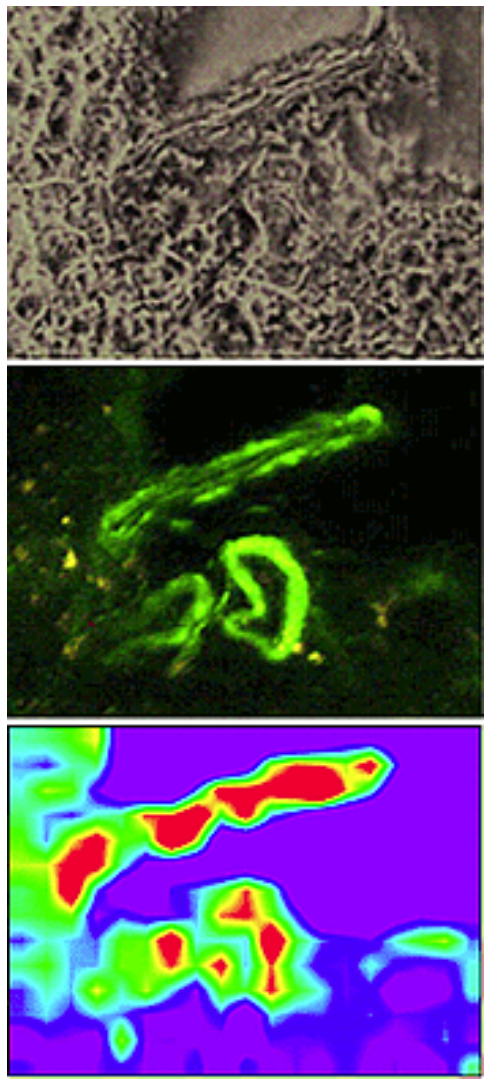


# Misfolded Protein Structure in Alzheimer's Disease Miller et al, 2002

Alzheimer's disease is characterized by the death of nerve cells in particular regions of the brain. The brain shrinks as gaps develop in the temporal lobe and hippocampus, which are responsible for storing and retrieving new information.

This in turn affects a patient's ability to remember, speak, think, and make decisions.

It is not known what causes nerve cells to die but there are characteristic appearances of the brain after death. In particular, "tangles" and "plaques" made from protein fragments are observed under the microscope in damaged areas of brain.



visible

UV

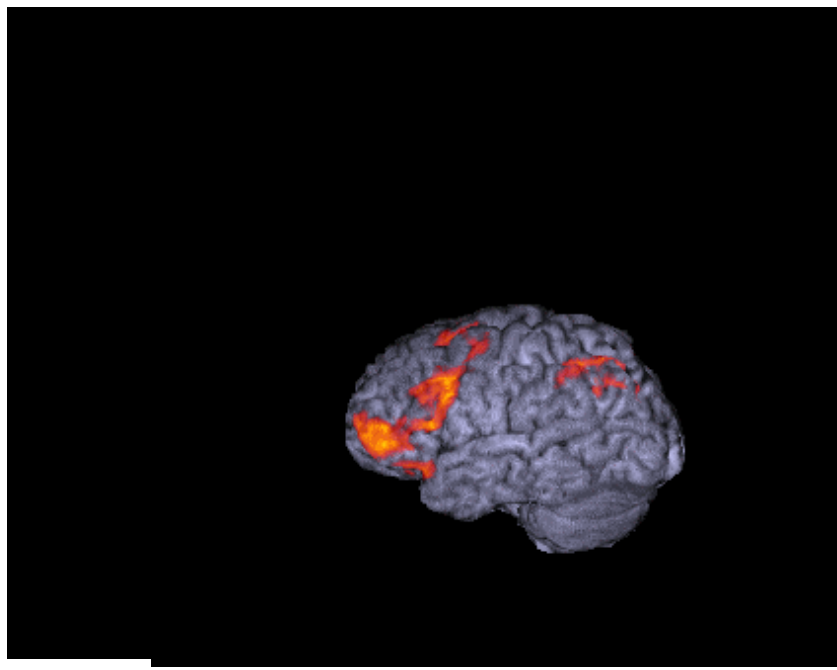
IR

# Giftedness and the brain

## Day 2

### Session 3: 1430-1600

- Future directions in neuroscience?
  - Connectivity
  - Time and place
  - Correlation and causation
  - Context
- Future of educational neuroscience?
  - Careers for gifted children



# Final question …

What shall I be when I grow up?

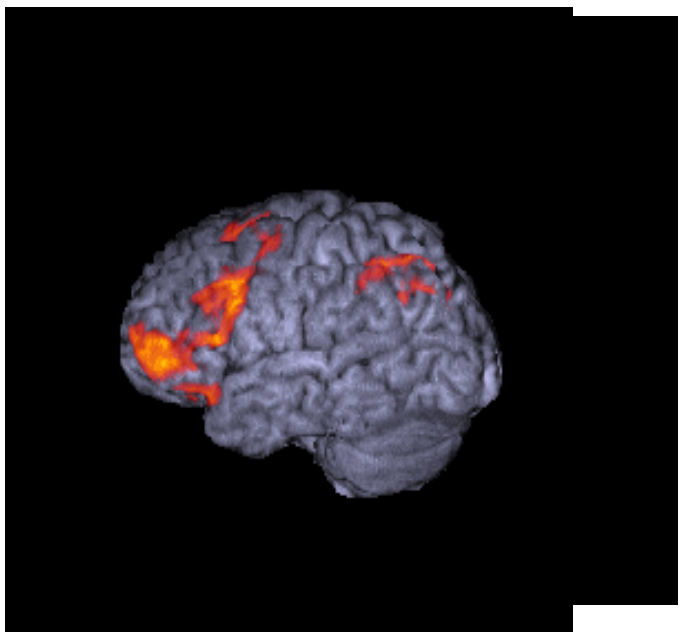
# Cognitive neuroscience as a career for gifted young adults

- the problem of how the brain works will never be completely resolved
- requires in-depth interconnected knowledge of physics, computing, mathematics, statistics, neuroanatomy, neurophysiology, cognitive psychology and philososphy

# Predicting the Future?

- Understanding of brain functioning will increase dramatically
- Brain imaging technology will become more user-friendly
- Cognitive neuroscience will become more influenced by educational concerns
- Educational practice will become more influenced by cognitive neuroscience

# Giftedness and the brain: educating children of high intelligence



THE END

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