CAMBRIDGE TEACHERS' CONFERENCE
11 - 13 September 2011

Lynn Botes

I would like to thank **ACESA** for the partial financial support to have been able to attend the Cambridge Teachers' Conference of 2011.

Their essential question and outcome: "*How will I change my teaching as a consequence of what I have discovered about learning and the brain during this conference?",* definitely had a positive and changing effect on me which I would like to share with primary school teachers as far as possible.

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Theme of the Conference:

Learning Teaching and the Brain

The duration of the conference was 2 full days consisting of the following:

1. Keynote Speakers:

- Prof Usha Goswami
- Dr Paul Howard-Jones

2. Work sessions in groups

- Group leader: David Sommerville

3. Practical session: School visit in Cambridge (St Matthew's Primary School)

Keynote Speakers

Prof Usha Goswami
Professor of Cognitive Developmental Neuroscience at the University of Cambridge

My personal keynotes from her speech:

Neuro-myths: for e.g. left and right brain learners. You do get different types of cognitive functions but it doesn't mean you only use that part of your brain. This will let you loose the learners if you believe in this.

Phonology is the sound structure of a specific language.
Syllable awareness, rhyming awareness (important for 3 - 4 year children)
Phoneme awareness is critical for reading, that is the smallest units of sounds that can change e.g. *cat vs pat; blue vs clue*

Always combine spirit, body and mind in teaching.

Your environment must be optimized as it can be changed to enhance learning - supportive learning environment is essential.

Patterns of neural activities corresponds to your mental state

Dr Paul Howard-Jones
He researched at the interface of neuroscience and education, with a special interest in learning games (www.neuroeducational.net)

Teenagers' brain development is unusual, some parts develop faster than others. High reasoning issues takes place in your frontal lobes and in the parietal lobes the controlling of impulses.
Cognitive ability evens out by teenagers e.g. their memory ability - this causes trouble for a teenager.
Inappropriate risk taking occurs because it is underactive at their age.

Brain plasticity - it is in your control and you can build it. It is not a biological limit to what you can achieve it is "plastic" and the experience you choose to undertake and receive, will change it's function - its plasticity, even its structure.

Working memory (is very limited) it's a bottle neck in learning - can be trained - it must become automatic. It is closely related to academic achievement.
Effect of working memory training: after up to 19 days for 30mins a day, your basic intelligence will improve as a result of this "brain training"

When you visualise you activate almost as much of the cortex as when you do the real thing - thus: visualsing is a powerful learning tool.

Commercial companies tries to make money as they have brain based products. This caused strange ideas amongst teachers. The "ideas" of brain gym, learning styles etc - all of these are **incorrect.** Drinking less than 6 - 8 glasses of water a day can cause the brain to shrink/we only use 10% of our brain/exercising motor-perception skills can improve the brain - **these are all myths!**

Implicit learning is when you are learning something without learning how you learnt it!

Brain changes in response to education.

Other neuro-myths:

By the time most children start pre-school (around 3), the architecture of the brain has essentially been constructed (Myth of 3)

There is a sensitive- and critical period (neural concepts).
Critical window expired outside of which it was impossible to learn something - if the window of opportunity has passed you can not learn that aspect
The sensitive period is just the more difficult period to learn when you're outside that window period.

Truth: The brain keeps on constructing itself well over the period of 3 years - even in adulthood.

Brain fixing ideas:
We have preferences in learning styles (75+ types of inventory to find a preferred learning style). We all have preferences but unfortunately no convincing education benefits you in your preferred learning style. You should actually teach in a style that is **NOT** your preferred style (scientifically proven). You must teach in a variety of media (multi-media)! The brain is interconnected - they do not support a specific learning style.

Brain-gym can not be scientifically be recognised.

Food for Brain? Omega 3 does not improve your intelligence. There is no evidence that taking any supplements when you're taken out of the womb, will raise your intelligence.

Interesting: Sleep reproduces the neural activities resembling those recorded info during the day.

Emotional engagement (games) are fundamental to learning.
Emotion and memory circuits are closely linked.

"Big" doses of rewards enhances neuron connections (you will remember it better). That's why computer games are a good way to learn.

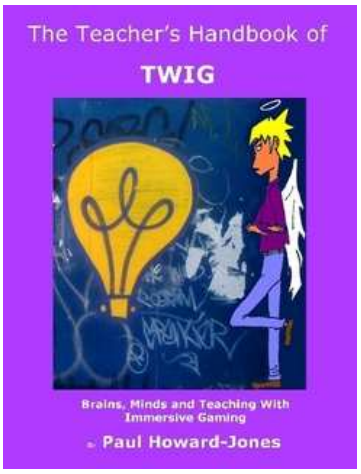
Relationship between the reward you are offering and the learning you see, is very poor (e.g. 2/4 gold stars).
Rewards system is closely related to the amount of learning achieved.

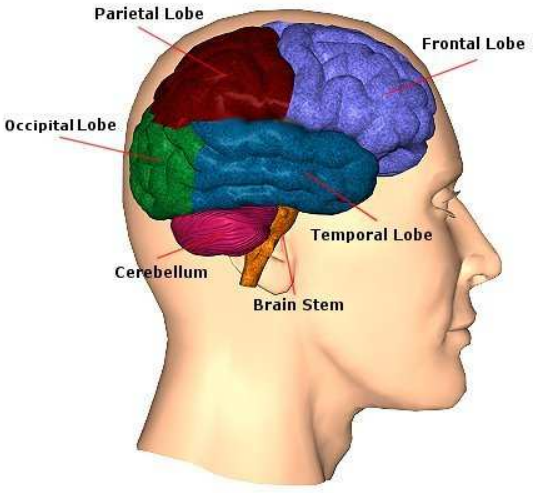
Reward uncertainty

The outcome must be unpredictable.
It enhances the response (major reason why video games is so exciting - rapid schedule of uncertain awards coming through).

The success of your competitor does not enhance your learning.
Competitors failures: your reward response shoots up (thus it's the best time to learn - out of other's mistakes)

Book: The teacher's handbook of Twig by Dr Paul Howard-Jones





Group sessions

I would like to share a few interesting facts/tips from colleagues and/or our group leader from Cambridge David Somerville, suggested reading material and websites which I gained during the group sessions:

Mnemonics has a useful place in the classroom. Get teachers to share some - it's extremely interesting and lots of fun for teachers …. can you imagine what it will do to a child?

eg. To remember the start of ***beautiful***
"big elephants are ugly"

Set up your ground rules for talking in your class, have clear rules in written form and stick to it.

Beware of:
- Neuro-myths
- Over simplification
- Partial knowledge

There is a place for Multi Modal Teaching

Do yourself a favour and tape yourself one day while teaching and listen to yourself that evening - this is a great self evaluation tool!

Your learning environment changes the brain!

"If you are emotionally engaged you're more likely to learn" Paul Howard-Jones
When we distance ourselves from what we are listening to or reading our learning brain shuts down.

Use highlighters when marking (especially language). You determine the coding, each colour represents a specific mistake. For eg. outstanding and correct efforts in green, spelling mistakes in blue etc

Suggested Books:

- Building Learning Power by Guy Claxton
- Growth Mindset by Carol Dweck
- Neil Mercer (see link below)
- Unlocking Formative Assessment by Shirley Clark
  ISBN: 9780340801260
- Children's Minds by Margaret C Donaldson
- Exploring Talk in School by Neil Mecer and Steve Hodgkinson
  ISBN: 9781847873798
- Targeting Assessment in the Primary Classroom
  ISBN: 978-0-34072-531-3
- The Learning Brain: Lessons for Education
  ISBN: 978-1-40512-401-0
- Dialogue and the development of Children's thinking
  ISBN: 978-0-41540-479-2
- Active Learning through formative assessment
  ISBN: 978-0-34097-445-2
- Children's Minds
  ISBN: 978-0-00686-122-5
- Cognitive Development, by Usha Goswami
  ISBN: 978-1-84169-531-0
- Developing teaching and Learning
  ISNB: 978-0-521-18335-2

Suggested Websites

Downloadable pfd book:

www.tlrp.org

-Click on publications
-Click on commentaries
-Search for the subject above
(purple cover)

www.educ.cam.ac.uk/people/staff/mercer - website on Neil Mercer

www.journeytoexcellence.org.uk – Formative Assessment by Dylan William also his personal website: www.dylanwilliam.net

Search: vcop pyramid templates for an excellent tool for teaching language

www.tes.co.uk - The largest network of teachers in the world

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