



Work Based Learning  
at Middlesex University

# Metaphor, embodied learning and WBL

Dr Mike Howarth: Programme Adviser, Institute for  
Work Based Learning, Middlesex University

p: 01992 587292, e: [m.howarth@mdx.ac.uk](mailto:m.howarth@mdx.ac.uk), w: mhmvr.com

# Presentation summary

The argument / the presentation journey or route

**A:** Metaphor operates as embodied learning +

**B:** Neuroscience confirms and explains how metaphor works =

**C:** Neuroscience informs the IWBL approach?

- Application at a personal level: teaching
- Implications in wider WBL/University context

# A: Understanding metaphor

- **A metaphor is not** just ‘a literary figure of speech’. Figurative language, that uses an image, story or tangible thing to represent a less tangible thing or some intangible quality or idea’. (simile, metonym, synecdoche)
- **Any metaphor we utter is** the process of a whole physical embodied experience of an individual in the world (Lakoff and Johnson).

# Metaphor and WBL

- **The issue:** We are largely oblivious to the embodied, experiential operation of metaphor.
- We do not seem to be aware of its operation.

## **However.....**

- What we do in Work Based Learning is an example of the embodied, experiential operation of metaphor.
- The Work Based Learning process - fine detail of project activity (left hemisphere) and reflection upon the work (right hemisphere) mirrors the operation of the brain.

# An extreme illustration: Rope

- Rope culture 200 years ago
  - navy, industry, ropewalks
- Ashley Book of Knots:
  - 3, 854 diagrams, 450 knot types.
- Non-literate culture
- Learning by doing



# Turk's Head



The name "TURK'S-HEAD" first appears in Darcy Lever's *The Sheet Anchor* (1808), but the knot is much older. I have a powder horn dated 1676 which has several TURK'S-HEADS carved around it, and Leonardo da Vinci (1452-1519) shows a number in disk form, in a drawing that is reproduced by Ohrvall in *Om Knutar* (1916).

In discussing the SINGLE-STRAND TURK'S-HEAD the use of the word *strand* will be avoided as it is ambiguous. *Cord* or *line* will designate the material of the knot and the word *lead* will designate a single circuit of the cord around the cylinder or barrel. The size of a knot is designated by the number of its leads and bights. Bights are the scallops or coves formed by the cord where it changes direction at the rims. The total number of leads denotes the width of a knot along the cylinder, and the total number of bights denotes the length of a knot *around* the barrel or cylinder.

Each reappearance of the *cord* or *lead* on the surface will be termed a *part*. Only one part, the upper one, is in evidence at each crossing in the finished knot. To *follow* a cord or lead is to parallel it with identical over-and-under sequence, which alternates in the common TURK'S-HEAD. When a lead has been followed throughout a whole knot, the knot is said to have been *doubled*.

The sailor interprets the word *double* in his own way. When a finished knot consists of two parallel cords the sailor describes it as having been *doubled twice* when it exhibits three parallel cords throughout, it has been *doubled three times*.

A knot that is doubled three times is said by sailors to have three lays. It is also called a THREE-PLY KNOT.

*Tucking over a cord* is the same as *passing* or *crossing over*. A sailor may *tuck* either under and over, or over and under.

1303, 1305. Ordinarily the sailor ties a TURK'S-HEAD directly around his fingers. When it has been formed it is placed around the object that is to be its permanent support.

[ 232 ]

## THE TURK'S-HEAD

There are two sizes that the sailor commonly ties in this direct manual way: #1303, which has three leads and two bights; and #1305, which has three leads and four bights.

1304. An unusual but simple method of tying the THREE-LEAD, TWO-BIGHT TURK'S-HEAD is to first make the FIGURE-EIGHT KNOT, then insert thumb and finger into two compartments as shown, and pinch them together. When the two ends meet the knot is complete.

1306. The sailor also ties the THREE-LEAD BY FIVE-BIGHT KNOT, either directly or more often by lengthening #1305, a process that is later described as #1316.

1307. Occasionally he ties directly the FIVE-LEAD BY THREE-BIGHT KNOT as shown here. After reaching the position of the left diagram, the left turn of the two center leads is shifted to the right over the next one to assume the position of the right diagram. To complete the knot, follow the line indicated by the arrow. Any of the TURK'S-HEADS may be doubled or tripled by paralleling one end with the other.

1308, 1309, 1310, 1311. There are several manual methods of tying the FOUR-LEAD BY THREE-BIGHT KNOT. No particular technique is required. After reaching the position shown in any final diagram the knot is placed around its permanent support and "faired," but not drawn up. The lay is then paralleled as many times as wished by "following the lead" that has been established. To do this tuck in one end beside its opposing end, and continue to tuck contrariwise and parallel with the other end, following the lead with identical over-and-under sequence. The second lead must be kept always on the same side of the first lead, either right or left according to how it was started. When the knot has as many plies as desired it is worked snug with a pricker. This is done by progressing from one end of the cord to the other through the whole knot, back and forth, gradually pricking up and hauling out the slack. The knot must not at any time be distorted by pulling too strongly on any one part. When completed it should be so snug around its support that it will not slip. To tie #1311: Start as if you were making KNIFE LANYARD KNOT #781.

I have known several sailors who could tie directly in hand  $4L \times 5B$  and  $5L \times 4B$  TURK'S-HEADS but in each case their methods were individual and often too cumbersome to be generally practical. They were also perhaps unnecessary, as it is easier to tie large knots by *raising* smaller ones to larger dimensions. For this purpose there are several different methods to follow.

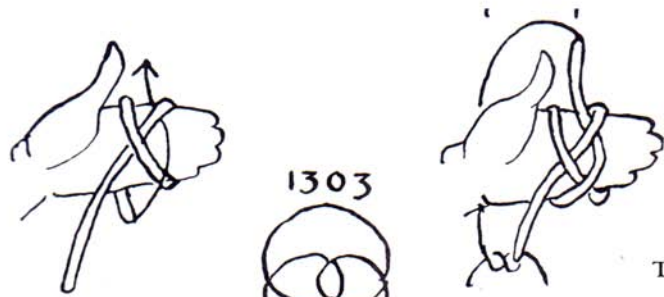
There is but one actual limitation to the size and proportions of SINGLE-LINE TURK'S-HEADS: *A knot of one line is impossible in which the number of leads and the number of bights have a common divisor*. All others are possible if the knot tier has sufficient time and cord at his disposal.

This "Law of the Common Divisor" was discovered at the same time by George H. Taber and the author.

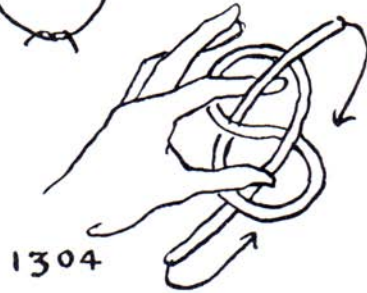
The operation of the Law of the Common Divisor is quite simple. For example, within the limits of twenty-four leads and twenty-four bights there are 576 combinations. Of these combinations, 240 have a common divisor and cannot be tied as a TURK'S-HEAD, and 336 have no common divisor and can be tied. If a knot is attempted in one cord with dimensions that possess a common divisor, the working end and the standing end will meet before the desired knot is complete. Such a knot, being composed of more than one line, can be tied only as a MULTI-STRAND KNOT.

[ 233 ]

## Text instructions



THE TURK'S-HEAD



# The illustrations



# The Ropeman

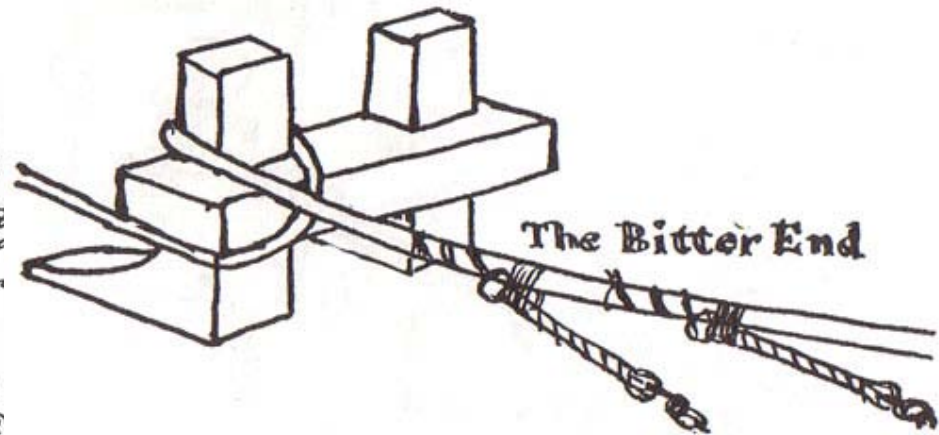
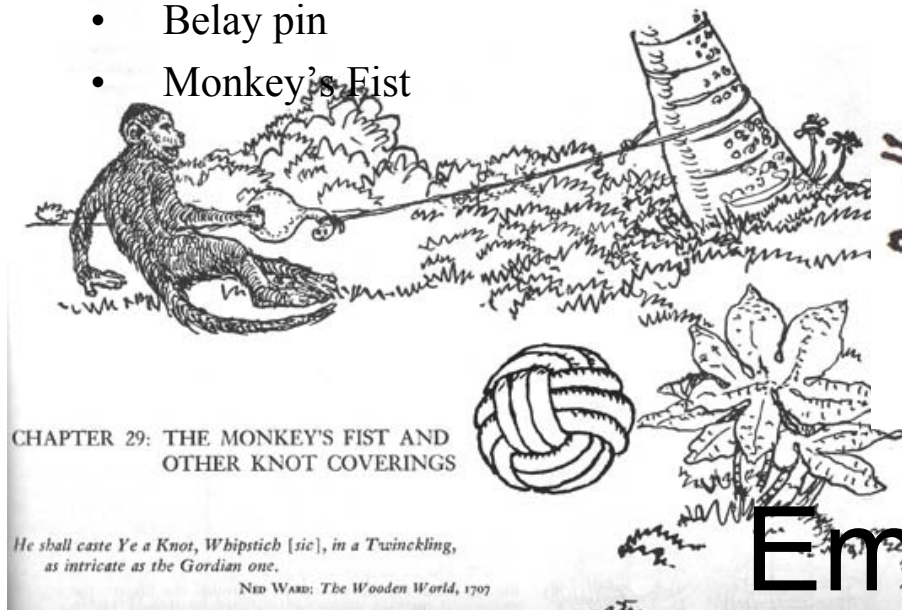


<http://www.ropeman.co.uk>

# Rope metaphors

- Turk's Head
- Dead Eye
- Bentinck
- Grommet
- Starter
- Bitter End
- Nipper
- Toeing the Line
- Becket
- Belay pin
- Monkey's Fist

- Bit, bight
- Cutting the knot
- Get knotted
- Money for old rope
- Give a man enough rope and he'll hang himself
- I got roped in
- At the end of his rope
- Learn the ropes, know the ropes, on the ropes



## Embodied Learning



deadeye

grommet

fid (fiddle about?)

marlinspike

belay pin

becket

# Final Example: Beowulf

‘Linguistic river of rivers... A journey of language’  
that inspired his translation suffer - polian - thole

‘They’ll just have to thole,’ my aunt would say about  
some family member who had suffered an unforeseen  
Bereavement. (Seamus Heaney, 2007)



**SUFFER!!**



The Thole Pin



# B: Neuroscience & metaphor

Scientific discoveries of the brain reveal:

- Its structure is related to its function.
- Two halves = two different realities and experience
- One side of the brain may manage metaphor while the other performs motor actions.
- A metaphor 'lights up' more of the brain
- When action and language take place together more brain activity occurs
- Sides of the brain compete and cooperate.

*What might be the implications for WBL?*

McGilchrist, I, (2009) The Master and his Emissary

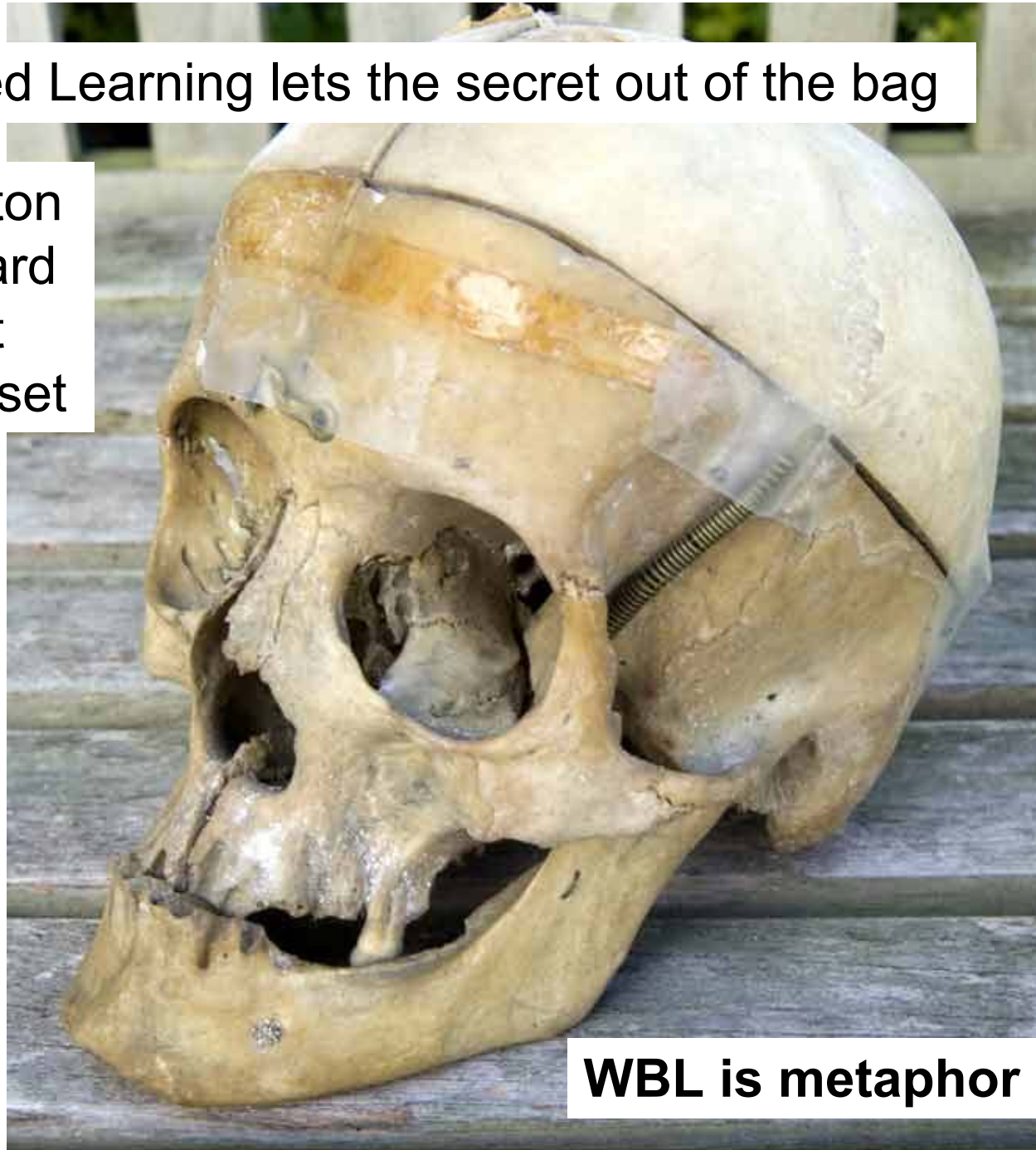
# B: Neuroscience & metaphor



Metaphor a reflexivity references in neuroscience publications

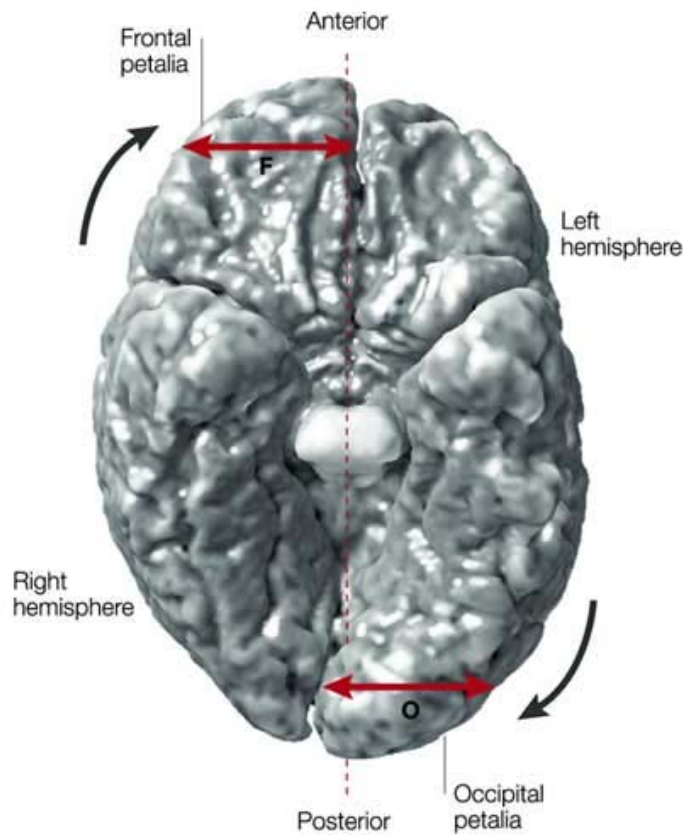
Work Based Learning lets the secret out of the bag

..has a skeleton  
in the cupboard  
....and gets it  
out of the closet



**WBL is metaphor at work!**

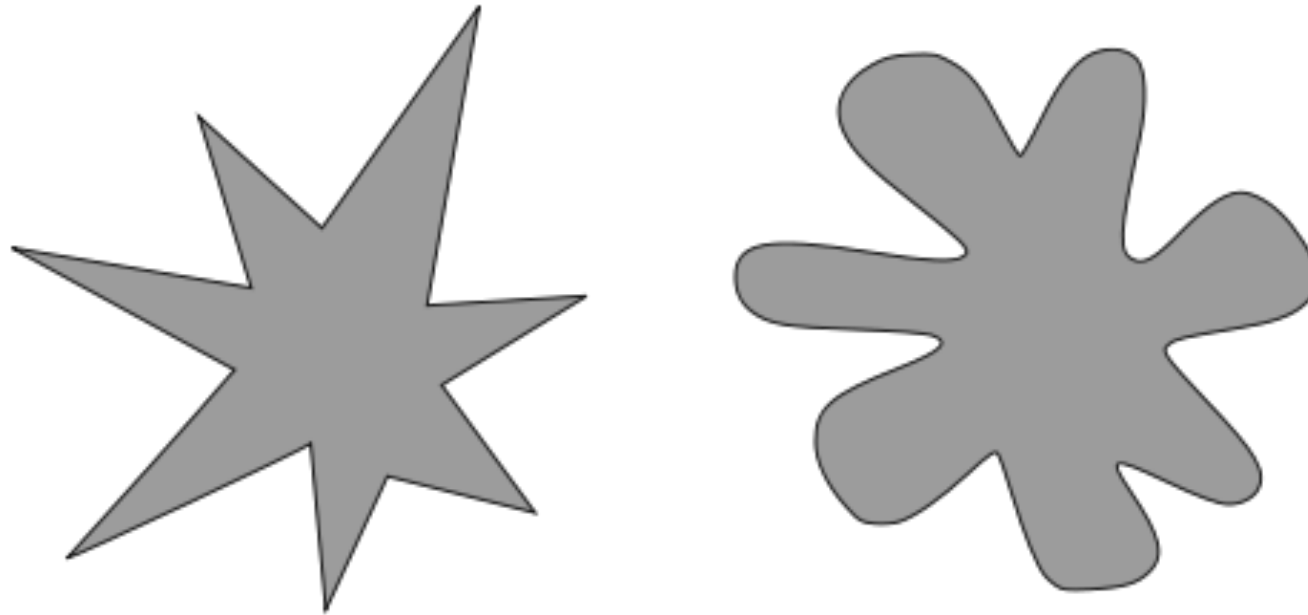
# Structure and function: example



Brain structure  
gives us a sense  
of left/right orientation

Yakovlevian torque

# The Bouba/Kiki Effect



Which is Bouba and which is Kiki?

Metaphor: sound and shape links in the brain

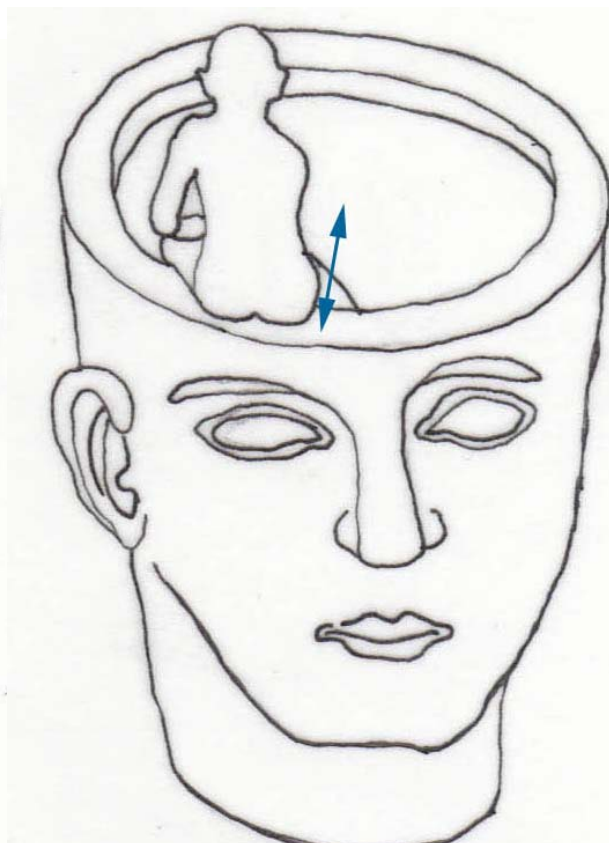
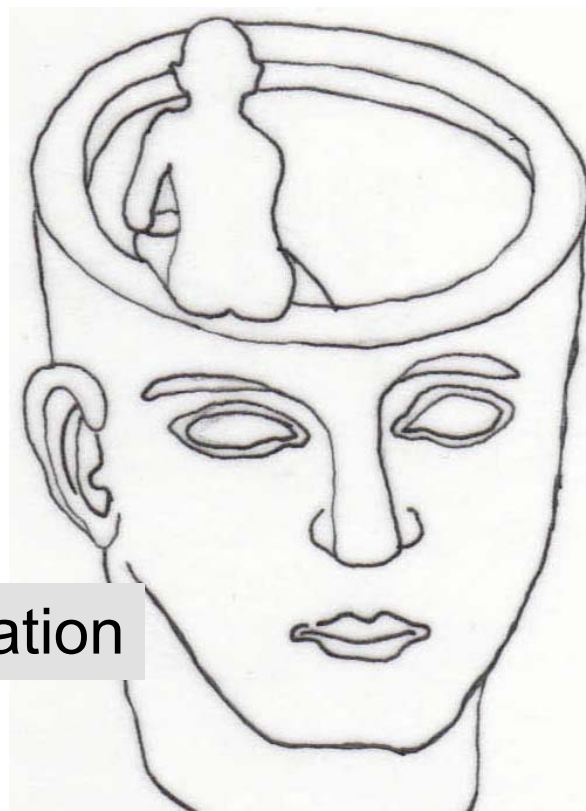
p. 109 Ramachandran, V. R. (2011). The Tell-Tale Brain

# Reflective thought



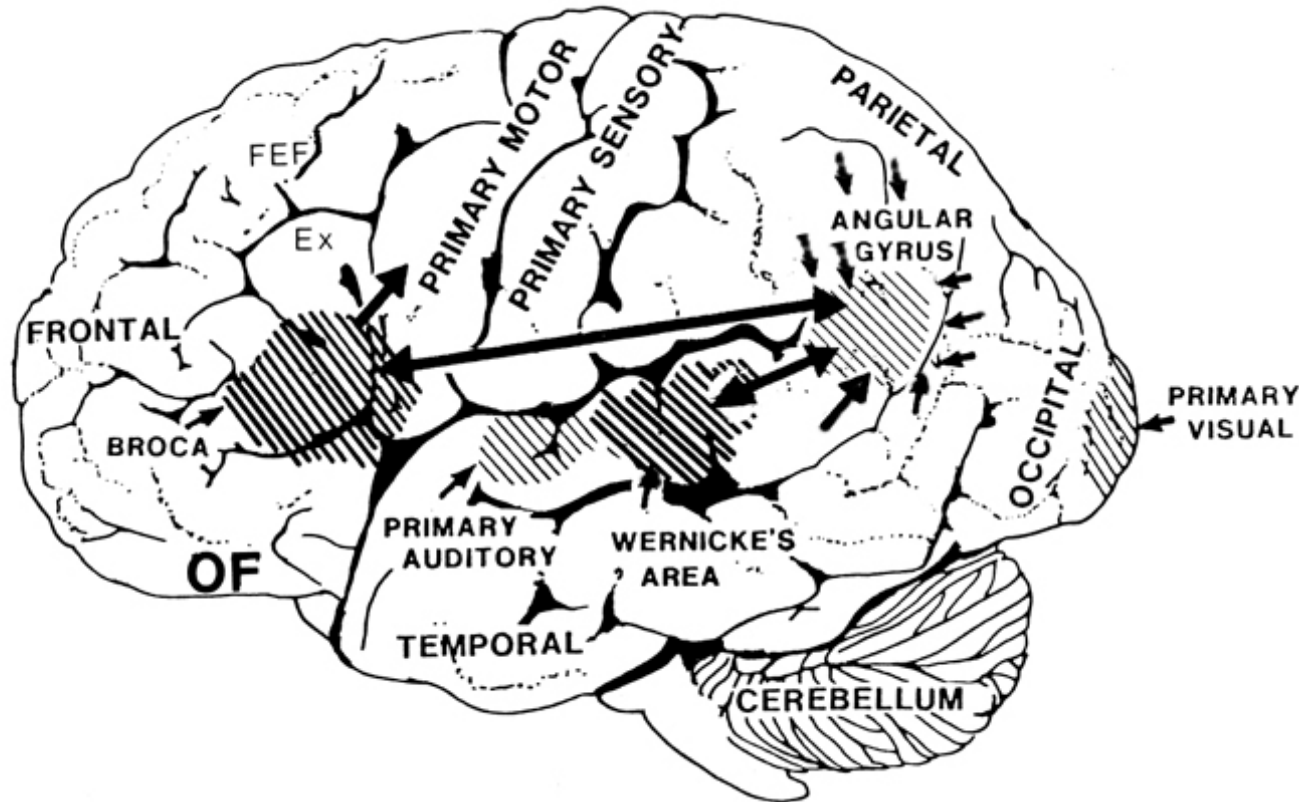
1: The superficial

2: The actual location



3: Reflection is created by the physical distance delay in mirror-neuron messages from cortex to frontal lobe

# IPL: the source of metaphor?



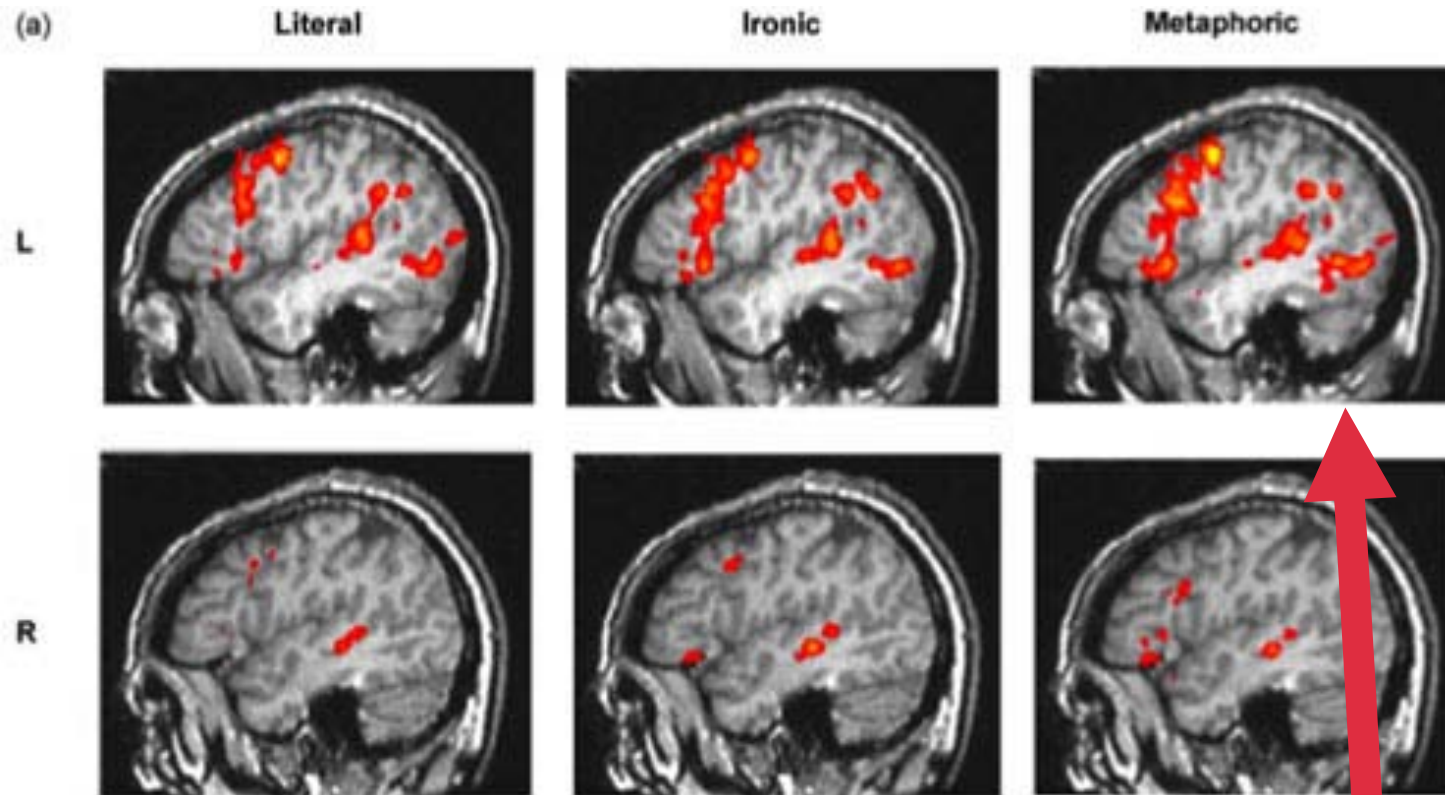
The left Inferior Parietal Lobule area = a physical relationship between body mapping and language creates metaphor

p177 Ramachandran, V. R. (2011). The Tell-Tale Brain

# Try this

Hold a pencil or biro between you lips

An example of metaphor operation:  
connectivity in the brain between  
emotion and muscles.



The brain 'lights up with metaphor' BUT  
Crossing of pathways and the mirror-neuron system,  
not specific areas of the brain, 'create' metaphor

# C: Neuroscience informs WBL?

## Application at a personal level: teaching

Going into work location:

- Example: from broadcasting
- Organise ideas:
  - Example: white box kit
- Conversation, story
  - Moving in the environment
    - Example: Walking and writing
    - Example: Walking and talking

Csikszentmihalyi, M.  
(1996). *Creativity*

Gauntlett, D. (2011).  
*Making is Connecting.*

Charney, D., (2011).  
*Power of Making.* V&A

Making is connecting

# Discussion in 3D

Ideas boxes



Physical discussions where issues, problems, ideas are drawn on boxes and moved around

# Improving the quality of writing

Amongst a range of specific techniques - “The Self Editor” - a common theme: movement

- Move the words around.
- Walk around. Read the sentence out.
- Move sections around again until they sound right.
- Enjoy the process!

# Improving online conversation



# Improving presentation methods



Click on image  
to go to link

- Move position to make a point.
- Use your hands. Make depth.
  - Example: techniques familiar in media

# Meaning as depth & distance



Prof David Boud at Middlesex University: MH

These examples compare the physical quality of *reflection*, *depth*, *perspective*, *distance* metaphors, embodied in a message (in the field of video)



Recent CBI launch of apprentice initiative!!

# Neuroscience: Making is Connecting?

Making teaching resources

Video resources made by an informed practitioner  
- (that's me!)

- Video tailored for IWBL
  - Lecturer to students
  - IWBL to externals
  - Peer to peer
  - Student case studies
  - Partner organisations:
    - Examples: Forum for the Future, V&A
  - Recording lectures for resources
    - Examples: Boud, Zukas, Cavanagh, Lane, Ghaye, Jennings
  - Recording conferences:
    - Examples: Cyprus WBL, 3rd Sector, HEA, informatology

# Neuroscience implications in a IWBL/University wide context

- Academic study of WBL
  - Patterns of cultural development driven by brain's hemisphere.
  - The divided nature of mental experience. (p241, McGilchrist,2009)
  - Theory and Practice merging
  - Tactile knowledge
    - Nietzsche, Heidegger, Kant. Gestalt revisited with a physiological component.
    - Informing study of academic behaviour in the workplace
- Supporting attitudes to WBL in a university
- HEFCE & current government policy.



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# Conclusion

These are the customers: these are the people with a whole-body experience.



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Dr Mike Howarth [mhmv.com](http://mhmv.com)