Learning Neuro-anatomy
The Occupational Therapy Way!

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1. Introduction

2. Active Learning Theory

3. Workshop

4. Evaluation

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Active Learning

- A strategy and methodology based on teaching as learning facilitation (Kane 2004).
- Active learning is a recognised approach to enhance learner engagement (Machemer & Crawford 2007).
The Activity

• Active learning strategies involve Learners experiencing the learning content in a multiple modalities

• (Cherney 2008).
Neuroplasticity

• ‘Learning is strengthened not only in relation to how many neurons fire in a neural network, but also by how they are distributed across different domains, such as the motor & sensory cortices’
  (Alexander 2010- Cambridge Report)

• Activities develop the frequency of the synapses in the brain
  (John Hall 2005)
The Value of Engagement

- Tell me and I’ll forget,
- Show me and I may remember,
- Involve me and I’ll understand.

*Chinese Proverb*
Workshop details

Motor highway board game

Brain Collage

3D Brain Modelling

Evaluation

Neuro-match Card game
Active learning Task needs to be:

- Mutimodal
- Authentic
- Self reference effect
- Interaction
- Inquiry, Debate, problem-solving

Learner

Back stage teacher

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Social Interactions and the development of thought

- learners work together to solve a problem-by co-ordinating their actions, they arrive at cognitive solutions that neither of them are able to reach alone.
- Cognitive tools that are first constructed jointly to solve problems in a social situation, then become part of a person's own methods.
‘Back Stage’ Teacher

• Allow the learners to learn for themselves will give greater meaning & understanding.
• The organisation needs to come from the learners themselves.
• Piaget
Constructivism

- Active learning strategies require constructivist approaches to knowledge processing. This includes independent inquiry, and structuring and restructuring of knowledge.

(Hart et al 2004)
(Monk & Silman 2011)
Activities

Active Learning
- Drama
- Drawing
- Video
- Construction
- Group work
- Presentations

Traditional Learning
- Lecture
- E-lecture
- Workshops

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How to relate this to Neuroanatomy

• *Ensure that this is related to practice*
• *Relate to OT process*
• *Relate to students on a personal level*
• *Ensure tasks can allow students to place their own stamp, on the learning experience*
• *Social interaction*
• *Introduce team working, problem-solving*
Welcome to the Brain Dig

- https://www.youtube.com/watch?v=ncCoRg7Aj9Q&feature=youtu.be
Msc Module

• Sheffield Hallam University
• Msc 15 credit Distant learning module
• “Understanding and applying cognitive and perceptual processing to practice”
• Explores:
  • Understanding neuroanatomy in relation to cognition and perceptual function
  • The use of cognitive rehabilitation models, approaches and techniques to rehabilitation.
• Applicable for allied health professionals that work within neurology, paediatrics, and mental health.
References

• Cavanagh, Michael (2011). Students’ experiences of active engagement through cooperative learning activities in lectures. *Active learning in higher education*, 12 (1), 23-33.


• Student perceptions of active learning in a large cross-disciplinary classroom. (2007). *Active learning in higher education, 8* (1), 9-30.
Applying Learning Theories

Vygotsky & Piaget

• Social elements of learning
• Co-operative activity, collaborative problem solving and sharing.
• Reflection (independently or with support)
• Metacognition (personal beliefs and reflection on prior knowledge/experiences)
The subject content needs to be:

• Translated into real life situations which reach learners on a personal level (their prior knowledge and lived-experiences),

• In the context of their learning (Cavanagh 2011).

• There needs to be a link between the context in which we acquire knowledge – to the context in which it is used so knowledge & skills are transferred. (Oates & Grayson 2006)
Self-reference effect phenomenon

• As the learner selects their own resources and methods- they lay down memories, and associations which have greater personal meaning and therefore can be retrieved much easier. (Cherney 2008).

• Apply the learning in ways that makes sense to them as individuals. (Fisher 2002)
Socio-cognitive conflict

- Shared collaboration of cognitive solutions to communication conflicts that lead to constructive change. Intellectual conflict requires both an intellectual solution and a social solution. (Buch et al 2008)

- Children, adolescents and adults have a capacity to benefit, in terms of developing their modes of thoughts, from situations in which the joint resolution of cognitive challenges is required. (Schwarz et al 2000)
Communication

• The success of active learning depends not on methodology alone but, constantly-evolving, dialectical relationship between the learners, mediated by the educator.
  (Kane 2004)

• Underlying interpersonal relationships are an important dynamic that in favourable circumstances can lead to productive change & development.
  (Oates & Grayson 2006)