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Skills for Computing

Topic 6:

Creative Thinking

V1.0

Learning Outcomes for this Topic

By the end of this topic, students should be able to:

- Understand types of thinking activities
- Understand the background to the TASC and Six Hats models

Brainstorms and Mind-maps

- ***Brain-storming:*** writing down as many connected ideas as you can possibly generate on a given subject

- ***Mind-mapping (sometimes a 'spider' or 'web' diagram):*** A similar process, but arranged to show connections and interconnections from a central point

Whole-Brain Thinking - 1

- The typical human brain has two hemispheres, each of which is dominant during certain activities.
  - It is worth noting that, though one half of the brain may be dominant, the other half is never inactive, so every activity is a combination of the two
- We refer to these as ‘right brain’ and ‘left brain’
  - ...though in a significant minority of people the two are reversed.

Whole-Brain Thinking - 2

- Many of the most creative people in history have been credited as being ‘whole-brain thinkers’ – i.e. people who can harness the strengths of both left- and right-brain thinking.

- Often-cited examples include Albert Einstein, Pablo Picasso and Leonardo da Vinci

Whole-Brain Thinking - 3

- In the 1960s and 1970s, scientists Roger Sperry and Robert Ornstein made the first discoveries about the specialisations of each side of the brain:

Left - 'logical' 'critical'

Right - 'intuitive' 'creative'

The Right Hemisphere: 'Blue Sky Thinking'

- Our right hemisphere is predominant for many creative activities, including any performance arts, using the imagination, daydreaming and recognising colours
- We often here about 'Blue Sky Thinking' – this means generating many ideas without any barriers, doubts or objections
- This is a perfect example of right-brained thinking

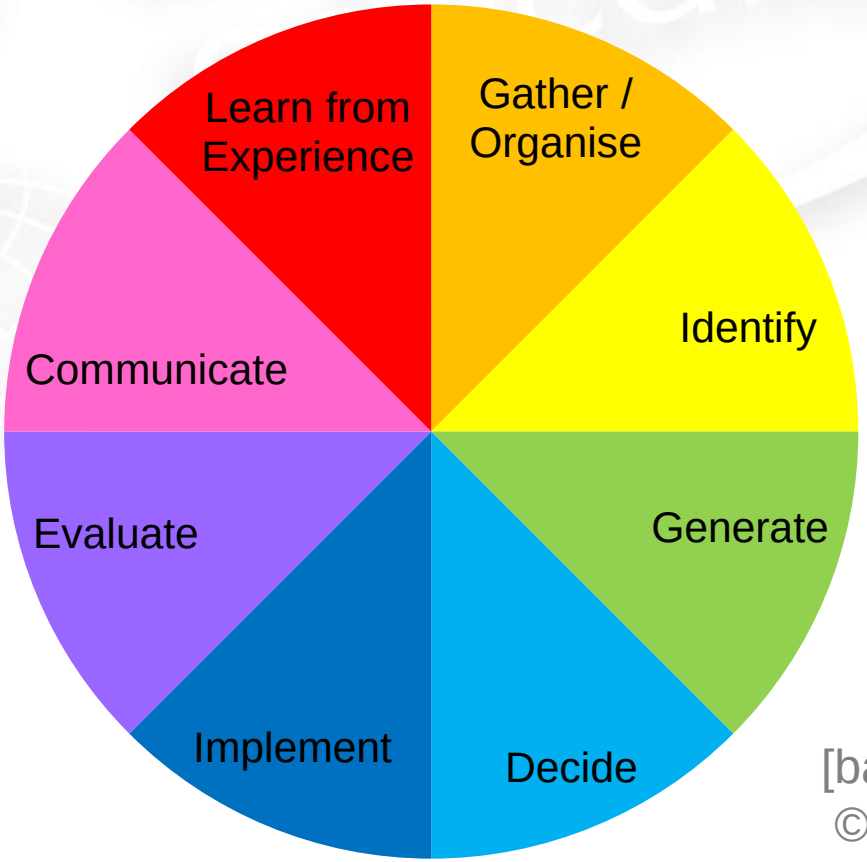
The Left Hemisphere: Logical and Critical Thinking

- Our left hemisphere is dominant when we are using logic – for example, making a list, following a step-by-step process, proof-reading a document or working out simple algebra.
- You may be familiar with the term Critical Thinking; this involves questioning assertions, trying to find the flaws in a position, and testing an argument in as harsh a manner as possible.
- This is an excellent example of left-brained thinking.

TASC - Introduction

- **T**hinking
- **A**ctively in a
- **S**ocial
- **C**ontext

The TASC Wheel



[based on the TASC wheel © Belle Wallace – www.tascwheel.com]

TASC and the Whole Brain

- TASC promotes whole-brain thinking through a balance of left/right:
  - ***Phase one*** and ***two*** identify and organise known information (combined)
  - ***Phase three*** – extreme creativity (right-brain)
  - ***Phase four*** – extreme criticality (left-brain)
  - ***Phase five*** – implementation (combined)
  - ***Phase six*** – evaluation (critical; left-brain)
  - ***Phase seven*** – communication (creative; right-brain)
  - ***Phase eight*** – learn from experience (combined)

Six Hats – Introduction

- Argument vs Parallel Thinking
  - History of dialectical problem-solving dates back to the ancient Greeks.
  - This involves establishing a thesis and antithesis, then evaluating them against each other
  - Parallel thinking means looking at all aspects together, alongside each other
- Argument: Opposition, disagreement
- Parallel: Possibilities

Six Hats Overview

- White - Objective
- Red - Emotional
- Yellow - Optimistic
- Black - Critical
- Green - Creative
- Blue – Control and Overview

Using the 6 Hats

Individual...

... or in a Group

Sequential...

... or in Parallel

Seminars

- The rest of this topic is made up of creative thinking seminars
- Before the seminars begin, make sure you have read the worksheets on TASC and Six Hats which are in your student guide – these will explain the main principles in more detail

References and Further Reading

- Wallace B and Maker J, et al (2004) *Thinking Skills and Problem-Solving: An Inclusive Approach*. London, David Fulton Publishers
- De Bono, Edward (1999): *Six Thinking Hats*. London, Penguin

Topic 6 – Creative Thinking

Any questions?