



whole brain thinking



Additional resources
required:
None



This module is
suitable for:
Staff at all levels



Time required to
run this module:
45 – 55 minutes

aims of this module:

- To provide an explanation of left brain/right brain thinking.
 - To explain the importance of 'whole brain thinking'.
 - To explain how our development and education may have affected the way we think.
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Explain that we are now going to look at the way the brain works, and why some people appear to be more creative than others.

Tell the group that you are also going to expel some myths about creativity and about the brain.

Ask:

How many of you have heard of left brain and right brain thinking?

Explain that in the 1960's and early 1970's, two scientists, Roger Sperry and Robert Ornstein, discovered that each side of the brain appears to have primary responsibility for certain thought processes. (This is not to suggest the other side of the brain switches off or isn't working – just that more activity is on one side).

Put simply, Sperry and Ornstein discovered that in most cases the left side of the brain is primarily responsible for 'logical' thinking, whilst the right side of the brain is primarily responsible for more 'intuitive thinking', for example, imagination and recognising patterns in colour and shape.

An easy way to remember this distinction is to remember:

L for Left.

L for Logic.



Sperry and Ornstein's findings appear to hold true in about 90% of cases. In some cases, the side of the brain used for different thought processes appears reversed – in other words logical thinking might involve the right brain more than the left brain. There appears to be some correlation between this and being left handed, although it would be untrue to say that all right handed people use their left brain for logical thinking and all left handed people used the opposite side of their brain.

In a small proportion of people it appears difficult to find any side dominant during different types of thinking/activities, with brain activity appearing much more random.

It might be useful to point out that we are probably only just beginning to understand some of the complexities of the brain, and that we still have much more to learn.

Exercise



Show Overhead 1, which lists a series of thought processes or activities, and provide participants with the module handout.

Working individually, ask participants to spend a few minutes allocating the thoughts and activities to the side of the brain that they think is most likely to be in control of it.


Discuss the results and compare them to the answers below:

Left	Right
Sequence Lists Analysis Following a process step by step Proof reading a document Working out simple algebra	Feeling a rhythm Daydreaming Imagination Recognition of colour Appreciation of dimension and distance

Writing a story has been deliberately included as a tester – it should involve both sides of the brain. For example, the left in structuring the story and correct use of grammar/spelling, and the right in ‘imagining’ the content.

Ask:

What side of the brain do creative people use?

 <p>The response you are likely to get is the right hand side of the brain.</p>
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Explain that until fairly recently it was assumed that creative people were ‘right brain thinkers’. Subsequent studies though have shown that the most creative people tend to be ‘whole brain thinkers’ making effective use of both sides of their brain and all types of thinking.

Provide participants with some examples of whole brain thinking from the following list:

Picasso

Whilst he was an artist, an activity primarily associated with the right brain, Picasso made many margin notes about the specific compilation of colours – showing left brain thinking too. What's more, his Cubist paintings introduced a mathematical (left brain) concept to his work.

Einstein

A scientist – an activity you'd normally associate with left-brain. Einstein was nearly thrown out of school for daydreaming. His theory of relativity was born out of daydreaming about riding sunbeams through space.

Lewis Carol

As well as writing *Alice in Wonderland* and nonsense poems such as 'Jabberwocky' (right brain), Lewis Carol was an expert mathematician as well as being a deacon in holy orders and a university lecturer.

Leonardo da Vinci

Leonardo da Vinci is possibly the greatest example of a whole brain thinker. He was an artist (he painted the *Mona Lisa*), and sculptor, as well as being a scientist, inventor, architect and mechanic. He designed a flying machine that resembled the modern helicopter more than 400 years before it became a reality.

Emphasise that to become truly creative, we have to learn to use our whole brain.

Ask:

Which type of thinking tends to be developed most in the West – left brain or right brain?

The answer is Left. Our education tends to focus on logical thinking (for example mathematics and structured essay writing), and many of the more artistic activities are often undervalued.



If participants find it difficult to accept this point, introduce the concept of Dr. Howard Gardner's 7 types of intelligence to encourage them to recognise in a different way the limitations of a 'traditional' education. Use the notes below for this.

However, if participants are happy with the concept of whole brain thinking and time is pressing you might prefer to omit this section of the module.

Explain that Dr Howard Gardner, in his book 'Frames of Mind' defined 7 types of intelligence.

Put simply these are:

- Mathematical Logical – relates to the ability to think logically and use numbers.
- Verbal Linguistic – relates to the ability to use words.
- Visual Spatial – relates to the ability to see or use patterns and designs.
- Bodily Kinaesthetic – relates to the ability to use movement and the body. For example, a sportsman or dancer would be 'strong' in this intelligence.
- Musical – relates to the ability to understand musical concepts such as tone, rhythm and harmony etc.

- Intrapersonal – relates to the ability to reflect and be philosophical, understanding one’s own feelings.
- Interpersonal – relates to the ability to interact effectively with others, understanding their thoughts and feelings.



An 8th intelligence, 'naturalist', was later added to this list.

Ask:

How many of you feel your education developed all of these intelligences equally?

Most participants will agree that most of our education focuses on mathematical logical and verbal linguistic intelligence.

Part of the reason for this might be that the effectiveness of 'teaching' in these areas is easier to measure. For example mathematical calculations are either right or wrong; equally spelling is either right or wrong. It is much harder to objectively measure how 'good' a painting is or movement in a dance – although there is a tendency to introduce 'rules' to these activities in order to make them measurable.

Ask:

Which side of the brain would you most associate with measurement?

The desire to objectively measure whether things are right or wrong is probably a predominantly left brain activity. It seeks to remove the need for gut feelings or instinct, which is much more associated with right brain (and to some extent the lower (and in an evolutionary sense older) parts of the brain) and instead apply logical and process thinking.

An example of society applying left brain rules to a right brain activity is found in Jordan Ayan's book, 'Aha'. In it, Ayan tells of the time his 3 year old son went off to kindergarten and came back with a 'fail' grade at art.

Why?

Because he had refused to colour between the lines.

Exercise



If you omitted the section on Gardner's types of intelligence, it is recommended you rejoin the notes here.

Ask participants to put something down on page 4 of the handout about what they have learnt so far today.



It is very important that you use the words above, and do not elaborate on the instruction in any way, or provide further guidance. If participants ask questions, repeat the instruction by saying:

"What I'd like you to do is put something down on page 4 of your handout that will help you remember what you've learnt so far."

Allow them 5 to 10 minutes depending on need.

When participants have done this explain that from an early age, we begin to conform to normal standards of behaviour and to approach tasks in a way we consider 'normal' and which 'follows the rules'. We'll often do this even when there are no prescribed rules.

This desire to conform appears to be instinctive. We are social animals – we like to fit into a group. We tend to dislike being isolated from a group.

It can also be safer to conform. For example think about when you first went to secondary school. One of your primary concerns then might well have been not to stand out from the crowd, but to fit in. Being the odd one out could lead to bullying or lack of acceptance.

With this in mind, discuss what happened in this exercise.

Discussion Questions	Learning Points
Who asked for clarification before beginning the task?	The desire to fit in on this occasion and not to 'get it wrong' may have led to some participants asking for further clarification on the task.
How many of you if going out, will ask your friends what they'll be wearing before deciding what to wear yourself?	Following the same principle, many of us will often ask friends what they are wearing if they are going to the same party as us. The purpose is to establish a code, or set of rules we can follow, in order to ensure we don't stand out too much.

Discussion Questions (continued)	Learning Points (continued)
In this exercise, how many of you made some notes using words alone?	In this exercise, when they couldn't get clarification, or if they didn't ask, most participants are likely to have followed rules that didn't even exist, but which they believed others would follow.
Was this a conscious decision?	Because they have traditionally made notes to record information, they will have applied those rules to this task, even though the instruction was deliberately vague and didn't mention 'writing' or 'notes'. In most cases this decision will not have been conscious.
How many of you contained what you wrote within the box?	When challenged it is amazing too how many people write notes carefully inside the box, without even consciously deciding to take that approach. (Normally about 90% of participants will write some notes neatly inside the box).
What led you to do that?	Research has shown the effects of growing up on creativity. In one study the ability to generate 'original' responses to questions was measured by comparing these to 'standard' answers.
Why did you do that?	The results showed:
What does this tell you about yourselves?	Age 5 and under – 90% originality
What impact does this have on your creativity?	Age 7 – 20% originality
	Adults – 2% originality

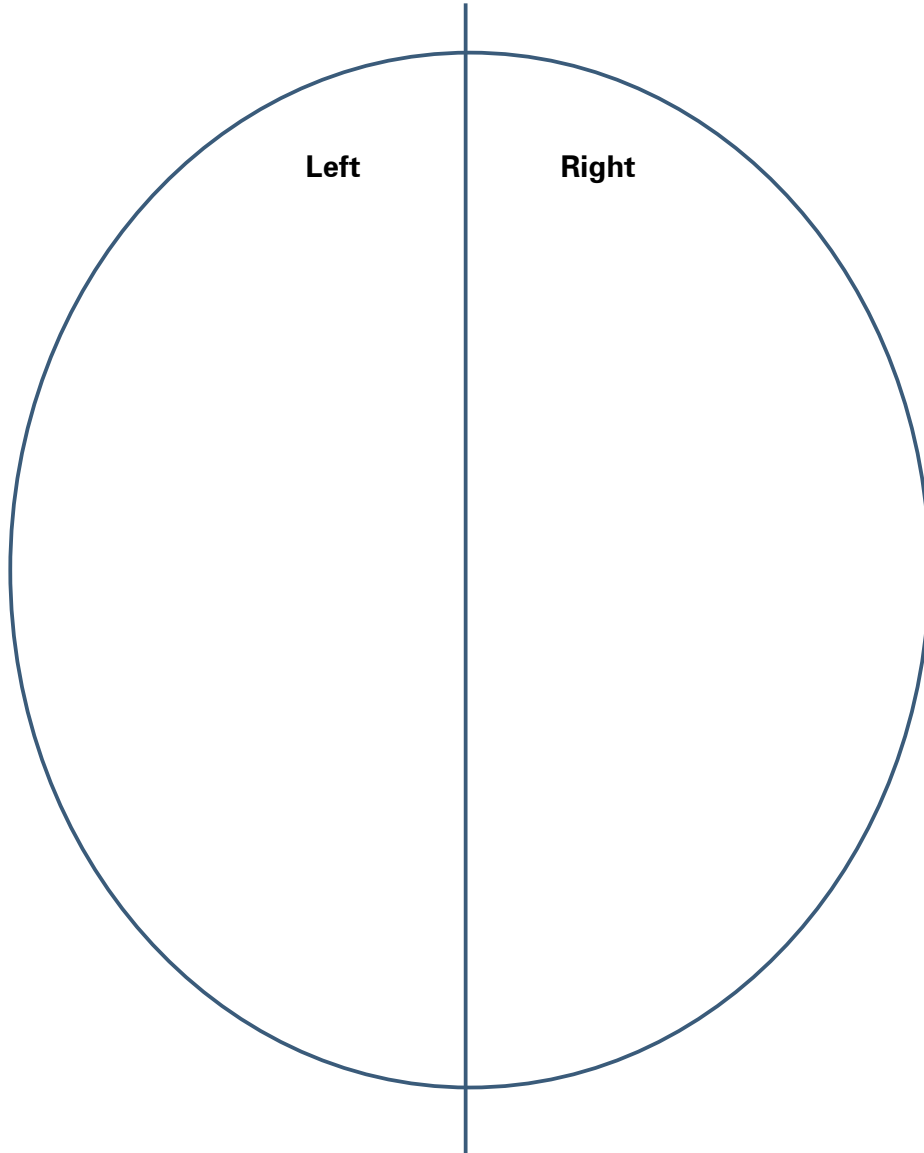
Discussion Questions (continued)	Learning Points (continued)
	<p>It is important for participants to recognise that the 'rules' in this case didn't necessarily result in the best solution being applied. Using imagery, colour and creating a unique pattern with the information may have been more beneficial.</p>
<p>How else could you have recorded the information?</p>	<p>Images, colour and pattern could have been used to record the information. A picture paints a thousand words. Creating a unique visual pattern with information makes it more memorable. Words on a page look much like any other words on a page.</p>
<p>What has this module taught you?</p>	
<p>What are the key learning points for you?</p>	

Ask participants to make notes following the conclusion of this module.

The following pages of this free sample show the participants' handout and overhead slide template for this module. The copyright symbol would not normally appear on the handouts.

whole brain thinking

left brain or right brain



whole brain thinking

In the 1960's and early 1970's two scientists identified that the two sides of the human brain, which are linked together by a complex series of nerve fibres called Corpus Callosum, deal primarily with different types of mental activity.

Subsequent studies have shown that creative people tend to be 'whole brain' thinkers, able to make effective use of both sides of the brain.

For example, Picasso made many margin notes about the specific compilation of colours, whilst his Cubist paintings introduced a mathematical concept to his work.

Einstein, a scientist and mathematician, activities that you might associate with left brain thinking, was nearly thrown out of school for daydreaming.

Possibly the greatest example of whole brain thinking is Leonardo Da Vinci. As well as being an artist and sculptor, responsible for such great works as the Mona Lisa, he was a scientist, inventor, architect and mechanic. Amongst other things he designed a flying machine that resembled the modern helicopter more than 400 years before such things became reality.

In addition to left and right brain, recent years have seen increasing interest in the roles of the upper and lower brain. Our brains evolved from the stem at the bottom of the brain to the limbic, or lower, brain. The cerebral or upper brain is the most recent to evolve. Some evidence suggests that the lower brain governs our deepest emotions, our gut feelings and instincts.

To become more creative we have to learn to use our whole brain, and the full range of emotional and logical intelligences at our disposal.



Notes:

What have I learnt?

Notes:

left brain or right brain?



Feeling a rhythm

Imagination

Analysis

Sequence

Daydreaming

Writing a story

Working out algebra

Recognition of colour

Proof reading a document

Following a process step by step

Appreciation of dimension and distance

