Why Focusing Makes The Human Brain Work Properly

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Biology can help us to step 'beyond duality'. People generally blame Descartes for the trouble he caused with duality by separating *res cogitans,* mental activity, from *res extensa,* physical matter. No doubt this worked for him, but it has left us with a mind-body split that persists to this day. Focusers may feel that by aligning mind with body we have resolved the split, yet by imagining that the body where we feel things is the source of knowing and wisdom, we risk creating new dualities of body and brain, and of feeling and thinking. Understanding the biology of the embodied brain can help to keep us whole.

Gendlin poses the question "what is a person such that focusing is possible?" and answers it with philosophy. I want to address this question with science, not to supplant the philosophy but to add to it – despite Gendlin's tendency to dismiss science as redundant 'unit model' thinking. Neurobiology is an emerging science, and cross-referencing it with subjective experience can be both stimulating and illuminating. And it leads to a fascinating conclusion: Focusing may address the main 'design problem' with the human brain.

Focusing happens in the brain! Well, most of it does. While we feel felt senses and felt shifts in our bodies, the noticing, attending, sensing what feels 'right', the coming of words and images, the interaction of thoughts and feelings and so forth – all these things happen in the brain. And what is interesting is how the brain works differently when body and feeling are included in the ambit of consciousness.

Three common misperceptions about the brain. These can prevent our having a reasonably objective understanding of what happens in the brain. The first misperception is believing the mind to be separate from the body: this is not a problem for focusers! We know that's wrong, and so does neurobiology. The second may be more challenging: the tendency to equate the brain with deliberate thinking, so that things that don't feel like 'being in my head' must happen somewhere else. Not so: the brain is like the ocean – most of what goes on in it never breaks the surface of consciousness. The body is not wiser than the brain, but the brain does need bodily feedback for wisdom to emerge from it.

The third misperception is thinking we are individuals who venture forth from separation to relate to others. Neurobiology agrees with Gendlin on this: we are 'interaction first'. The brain comes out of the box relating to mother from day one and never looks back. Dan Siegel describes it as the 'social organ' of the body. If you can stay on the right side of these three misperceptions, the whole subject starts to make more sense.

Eight things about the brain to get your head around. Let's go through them one by one.

1. *Your brain is the most complex and therefore wonderful thing in the universe.* Underestimating what it's capable of is not smart.

2. *Brain cells like to talk to each other.* Brain cells are called *neurons,* and you have a lot of them, around 100 billion. Unlike other cells in the body, neurons don't renew themselves as life goes by: most of them grow in the womb, and if you're lucky most of them will last until you die. And unlike other cells, they are useless on their own: they need to talk to other neurons to do their job. So, like trees, they sprout roots and branches which connect up with each other via *synapses* – microscopic gaps between the root of one neuron and the branch of another, and across which flows the chemistry of your brain.

3. *Synapses enable your neurons to network on a massive scale.* The potential number of synapses in your brain is greater than the number of particles in the universe – so cosmic consciousness is built in! Because your destiny is to be a person rather than a walking universe, you end up with a selection of synapses resulting from the interaction of your genes and your experience: a number around 1,000 trillion. You need such an unimaginably large number because in your synaptic networks lie all your memories and experiences and everything you've ever learnt - and the particularity that is you.

4. *Your brain is a jungle.* All those neuron-trees networking with each other make for a complicated tangle. Local areas of them form *neuronal groups,* or jungles to you and I, and then each jungle has to connect with jungles elsewhere in the brain to play its role in the whole thing – so the brain is really a jungle of jungles. Over one thousand separate areas of the brain have been mapped out so far on the basis of the different roles they play, and they network with each other via those trillions of synaptic connections – pathways through the jungles. All these neural jungles and pathways add up to the overwhelming complexity of the brain. The scope here for human intricacy and implicitness is vast: we could say that the brain represents a cornucopia of Gendlinian 'crossing'.

5. *Your brain is a process.* Of course it's a structure too, but one that's always humming and that's always changing, "an enchanted loom where millions of flashing shuttles weave a dissolving pattern" said Charles Sherrington, an early pioneer of neuroscience. Using and not using your synapses changes them. By the time you finish reading this article you will have tens of thousands of new and changed synapses, and you will also have lost a few (don't worry about it: your brain is just trying to remain efficient and not get overloaded). If you have a good night's sleep tonight, your chances of retaining some of what you are reading and your responses to it will be improved, because those synaptic changes will be reinforced. This feature of brains is called *plasticity:* it enables you to keep learning new stuff until the day you die.

6. *Your experience is shaped by the vertical and horizontal structure of your brain.* The layout of brain areas is based on our evolutionary history and adds up to quite a mess. Vertically, the brain divides into the *cortex,* the wrinkly stuff, and the *sub-cortex* hidden beneath it*,* a collection of odd looking shapes such as the *brain*

stem and *cerebellum* at the bottom, and the *limbic system* in between these and the cortex. The limbic system includes the *amygdala* (a key player in our emotional reactions, especially fearful ones), the *hippocampus* (needed to lay down long-term memory), and the *hypothalamus* (adjusts body chemistry). When we are very emotional or overcome with urges and desires, sub-cortical areas are running the show, but when we feel centred and 'in touch', it's the cortex that predominates – though with the help of the sub-cortical jungles below, thanks to the self-integrating character of brain evolution.

Horizontally, as is well known, the cortex and the limbic system divide into the two *cerebral hemispheres,* so we have a 'right brain' and a 'left brain'. There are pathways to link them together, but they are visibly separate and they have functional differences. The notion of people being 'left-brained' or 'right-brained' is nonsense, but it is basically true that the left brain is *dominant* for thinking through details and for language, whereas the right brain is dominant for seeing the big picture, sensing the body and processing felt experience. Particularly relevant for us focusers is the fact that more nerve endings from the body feed into the right brain than the left. You need both sides of your brain to do anything satisfactorily, but the degree of their functional specialisation in the human brain mean that it is possible for thinking to become somewhat dissociated from feeling, and for language to take us away from a sense of being 'in my body'. This is the big 'design problem' I mentioned at the outset.

The felt sense seems to be a right brain dominant phenomenon: the right brain senses a bodily experience, the left struggles to find words to describe it. As we know, it's sometimes easier to express a felt sense in a movement, an image or a sound – all of which are right brain dominant, unlike words.

7. *Integration contrasts with dissociation.* The brain is naturally associative thanks to it's trillions of pathways that allow neurons to network with each other. But the human brain is so large and complex that one function can sometimes become dissociated from another. Traumatic experience can cause vertical dissociation between cortex and sub-cortex, while empathic failures in infancy can cause dissociation between left and right hemispheres, leading to difficulties naming feelings, symbolising, empathising and using imagination. In practice, each of us is likely to suffer some mix of the two that reflects our own past experience. Practicing Focusing, however, counters dissociation and encourages neural integration.

8. *Your brain is in your body as well as in your head.* The brain is a part of the *central nervous system* that extends down the spinal cord to the lower back – so your brain is in your body, it's just that nature has tucked most of it into your head to keep it out of the way of all the stuff gurgling around in your other organs. And the central nervous system is directly connected to everywhere else in the body via the *peripheral nervous system,* the nerves that connect skin, organs and glands to the spinal cord.

How do brain and body interact? The idea that the brain is a control centre sending instructions to an obedient body is way too simplistic. Nevertheless, the brain initiates the emotions we feel in the body, in response to external and internal (within the body and brain) triggers. The ebb and flow of emotion in the body involves sensations in our limbs as well as changes to breathing, to heart rate, to blood pressure and circulation, to muscles that tense and release, to the cocktail of hormones circulating in the blood, and to the state of our internal 'milieu' i.e. our organs, especially the heart, the lungs and the stomach.

While the brain initiates changes in the body, the body influences the brain by feeding the results back to it. This happens via the nervous system: and it's interesting that twice as many nerves go *to* the brain as radiate out *from* it. It also happens via the blood, which transports hormones released in the body into the brain. These feedback loops mean that bodily changes affect the brain. For example, 'beta-blocker' drugs that are prescribed to ease anxiety work by slowing the heart rate, which is signalled to the brain: the brain hears that the heart is no longer working overtime, and so adjusts itself for a less stressful state.

Sensing in the body keeps us fresh. The brain needs to know what's happening in the body to help both survive. After all, brain and body are fundamentally one thing, it's only the human mind that even dreams of separating them. Our fundamental sense of self is based on stable, though largely unconscious, patterns in the right hemisphere that reflect the body and its predominant emotional states. But to have a fresh sense of self, we have to sense the body again in a conscious way. That is, we can keep doing what we've always done without having to sense the body consciously, but to do something new and to feel alive rather than stuck, then we must return to our sense of the body.

The scientific term for sensing the inside of the body is *interoception,* as distinct from *proprioception* and *kinaesthesia,* the sense of where different parts of the body are in relation to each other and of how the body is moving through space. No wonder 'Wholebody Focusing' is so popular – it relies on all three modes of sensing, whereas chair-bound Focusing relies entirely on interoception.

How do we know what we're feeling? The US psychologist William James said more than a century ago that the experience of emotion follows the perception of one's physical reactions, e.g. "I'm trembling, therefore I'm afraid". Focusers may feel they agree with James, but science now knows otherwise. Emotional impulses in the limbic system are sent to the *prefrontal cortex* to influence thinking as well as to the body, the feedback from which confirms the direct signal. And the state of our brain, it's chemistry and neural activity, is part of our picture of how we feel. It's possible to know some of how we feel without tuning into the body.

Antonio Damasio, the neuroscientist who wrote *'The Feeling of What Happens',* the book which first sparked my interest in this subject, has proposed three other sorts of feelings that involve the body but that happen in the brain. *'As if' feelings* are based on memories of past feelings – so we do not have to re-create an emotional state in the body every time we reflect on a feeling. *'Somatic markers'* are neural records of gut

feelings, good and bad, that guide the brain's unconscious decision-making. And then there's the 'feeling of what happens', which Damasio says is the feeling *of* a feeling that enables us to know *what* we are feeling – and which he also proposes to be the key to human consciousness. And which sounds rather like a felt sense, does it not?

Not all felt senses are experienced as physical sensations. We don't always have to have a physical sensation to know what we're feeling. The felt sense seems to be a right brain dominant phenomenon that may or may not involve a current sensation in the body. Perhaps this is why many focusers say they don't experience their felt senses only *in* the physical body but also like an 'aura' *around* it – Gendlin's 'situational body', perhaps. But we may nevertheless need to turn our attention towards the body for the 'brain feeling' to become conscious, because feeling and body are closely related in the brain - or, we may need to engage the body sensing areas of the brain with their access to feelings that are remembered (whether consciously or unconsciously) as well as to feelings that are currently experienced in the body.

How do felt shifts happen? To my mind, the most striking thing about Focusing is that as we bring our felt experience into awareness – staying with it, describing it, symbolising it and so forth – we tend to feel better inside, even if painful or negative feelings are involved. And feeling better is not just for the sake of it, it enables the body to relax and the mind to be more open to the world and the people around us. Can neurobiology shed light on how this happens?

Felt shifts presumably involve neural processes of integration overcoming those that lead to dissociation. The latter is a compromise in the moment that confers a short-term advantage, but a compromise that ought to have a limited shelf life because of the ongoing inhibition of neural and bodily processes. While Focusing, we allow our attention to wander freely amongst brain areas involved in sensing and mapping the body, generating and registering emotion and feeling, consciousness and language, and all our other cognitive processes. I imagine it is through this inner invitation for aspects of our inner life to re-associate that the positive benefits of the felt shift come about. Neural integration feels good.

Can we think without noticing the body? Whilst cognitive science has for a long time considered thought to be autonomous from feeling, some neurobiologists are now saying that it is grounded in emotion and bodily states. It's apparent autonomy is an illusion. Obviously it is possible to think without conscious awareness of feeling and body, but we all know that our moods can affect our thinking. Feeling and the bodily milieu in which emotion happens are implicit in our thinking whether we notice it or not. Damasio, for example, says "the body is a ground reference for the mind".

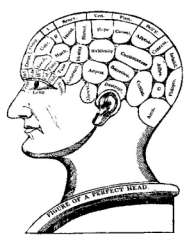
Thinking is clearly influenced by past emotional experience. But if the brain only refers to *past* emotional states, we may lose a sense of freshness in our thoughts. Focusing and TAE require us to tune into our *current* emotional and bodily states and the ongoing changes within them, which perhaps brings freshness and aliveness to our thoughts – and which may allow us to think new thoughts more easily.

How do you feel about language? Language is a big deal for neurobiologists who are interested in the particular version of consciousness found in the human brain. Joseph LeDoux, for example, thinks that language, which is centred in the left brain, has enabled not evolution but a revolution in how brains work. It allows us to associate anything with anything else. Susan Greenfield points out that our ability to string words into sentences enables us to tell stories, and stories enable us to leave the bodily here and now. We can turn our minds to art, to mythical worlds and to stuff that doesn't even exist.

The integration of language areas with body sensing areas in the human brain is incomplete, however, so knowing what the right thing to do is in a situation doesn't always lead to our doing it, and speaking can take us away from direct contact with personal experience. Daniel Stern says that while language enables infants to share their experience of the world with others, it also means they "become estranged from direct contact with their personal experience". In Focusing, we can let go of worrying what the words that come to us might mean to other people in other contexts, and we can let go of existing conceptual frameworks. We give ourselves freedom to mess around with language and concepts in ways that we don't normally permit ourselves to do. Our challenge is to use language in ways that *feel* satisfying, by re-associating it with personal experience and the body.

So, why does Focusing make our brains work better? In a healthy brain, many things that happen in Focusing *may* happen naturally: turning attention towards felt experience and symbolising it, creative thinking, empathising with other people, and so forth. Focusing offers a practice that encourages these things to happen and that discourages our human tendencies to dissociate, hide aspects of our inner life and tell lies – though what actually happens surely depends to some extent on how we use the 'technique'.

It could be argued that Focusing goes beyond other mindfulness practices by actively weaving together feeling and thinking, words and body, image and sensation. In re-associating left brain with right brain, and cortex with sub-cortex, it has a special role to play in helping our brains work in more integrated ways – overcoming the big design problem whereby language has developed at the expense of the automatic integration of cognitive and emotional networks. The evolutionary potential of human beings' increasingly specialised left and right brains depends on their integration into a functioning whole – a process we can influence with Focusing.



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