

# Contemplative Science: Four Challenges

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What we need to ask ourselves is, why is the philosophy of the contemplative traditions needed for neuroscientific study, and conversely, what is the need of neuroscience for the philosophy? Let me try and suggest an answer. Contemplative science, as a discipline, is rapidly establishing itself, primarily as the bottom-up neuroscientific study of contemplation, with the added insights of psychological theories of behaviour and affect, as in Richie Davidson's ground-breaking work on positive affect through alterations in brain and immune functions. This is clearly showing that neuroscience benefits from the study of contemplation, by treating meditative states as magnifiers of states of human consciousness, that can then be studied more directly.

In a profound sense, contemplation does not depend on science – but the *philosophical thinking* that informs contemplation could indeed benefit from both the informative analysis of the science *and* its explanatory limitations. To the extent all philosophy should seek to be consistent with the nature of reality available through scientific inquiry, so too the philosophy of contemplative traditions. But why should neuroscience take the *philosophy* of the contemplative traditions seriously? It is because we should look for a wider and more equal relationship

between science and contemplation. By this I mean, not just between the science and the *practice* of contemplation – after all, much of the current research in contemplative science is exemplary in the respectful relationship between contemplative and scientist. Rather, I mean the relationship between science and the thought that informs contemplative practice.

Contemplative practices developed in close interaction with an intellectual tradition of debate. Even when the core of the contemplative experience was held to be beyond language, these traditions sought to explain why this was so; and they did this by carefully presenting their view of the world and human consciousness of it. It is now agreed that there should be an interaction between first-person study (what I experience and how I report it) and third-person study (what it looks like to a scientific observer, in terms of behaviour and brain states). But Buddhist, Hindu and Jain contemplation *always* had this interaction – Indian philosophy is essentially the third-person study of spiritual experience. In order to understand the full significance of contemplation, therefore, neuroscience has to engage with the philosophy through which the traditions *themselves* understood contemplation.

This leads me to the first of four challenges that face contemplative science – which, if met, can be very fruitful.

The first is that contemporary neuroscience is actually deeply influenced by philosophy – Western philosophy. Many key terms of study are drawn from ideas first articulated in the specific context of early modern Europe. In order to attain to the equal relationship I mentioned

earlier, we should be sensitive to this historical fact, and make an effort to gain a better understanding of the Indo-Tibetan philosophy that directly informed the contemplative traditions. Terms like ‘mind’, ‘ego’, ‘knowledge’, ‘perception’, ‘intention’, ‘awareness’, ‘content’, ‘knowledge’ are not theoretically neutral. They come from specific philosophical contexts. All scientists, and not just the brilliant ones, must recognise the philosophical origin of scientific terms. Then, in the context of contemplative science, they must expand their horizons and interpret these terms from Indo-Tibetan perspectives as well. The first challenge, therefore, is the thorough re-conceptualisation of the terms of contemplative science.

But there are other challenges, and I will list them from the general to the more specific.

The second challenge has to do with a fundamental assumption of much neuroscience, and that is reductionism or physicalism. Reductionism is the view our experience, the what-it-is-like to think or feel anything – what philosophers call phenomenology – all this can be reduced to physical states. These states are neural. So the sound you hear when I speak – perhaps the boredom you are feeling just now – is just a matter of neurons firing in the brain. Such reductionism can also be called physicalism, because it holds that all phenomenology is just physical states, that is to say, states of the brain. Treating consciousness reductively or physicalistically has led to enormous strides in our understanding of some elements of life. But this is a problem for respectful scientific engagement with contemplation, because, whatever the disagreements amongst themselves, the classical Indo-Tibetan traditions

were all committed to a spiritual answer to life's suffering, and would not agree that, in the end, there is nothing but physical states.

Now, the strategy of relying on neural correlates of consciousness has taken us quite far. Both scientists and contemplatives can agree that phenomenal states are correlated to neural states. But how far can contemplative science go with this? The correlates are between first-person or self-reports and the states registered through fMRI or PET or other scans. But at least two problems loom. One is that because any human state of sufficient complexity (as in contemplation) requires report, such report must itself have a neural correlate. So an infinite regress threatens, each new brain state requiring a further report to be correlated with. Another problem is that reports, being linguistic, require concepts; but key meditative states in most traditions are held to be beyond conceptual activity. A major challenge, therefore, is to think of how to go beyond the neural correlates of consciousness. And study of behaviour alone will not do that.

The third challenge is related to this. The conceptual vocabulary used in neuroscience has to be clarified. To a large extent, we are now dependent on proxies – i.e., observables standing in for unobservable phenomenal or dispositional states. For example, we look at variations in startle reflex for vaguer descriptors like calmness. Happiness is taken as certain neurons firing (or 'getting frisky' as one philosopher put it). But fMRIs are not what could be called 'cerebrasopes', machines for reading minds. They just read brains. But the relevant states are not so easily read through neural correlates or other physical correlates like gaze saccades.

The contemplative traditions make many distinctions between different types of happiness or tranquillity. A great deal of clarification of the concepts is needed.

The final, and very technical challenge concerns the domination of computationalism in the standard theory of mind that informs top-down cognitive scientific theory. This is based on philosophical arguments that bet that the mind indeed works in ways that replicate formal logic (that is to say, like a computer does). Even if computationalism is re-thought as analogical rather than digital, so that its algorithmic functions are somehow less like computers and more like organisms, there are grounds for being pessimistic for thinking organic consciousness is computational in any sense. Now, classical Indian reasoning structures cognitive processes in ways that are not captured by computational logic. Such classical Indian theories of reasoning are foundational to the Hindu and Buddhist approaches to the nature of consciousness – and therefore of the contemplative techniques for the transformation of consciousness. While syntactical processing may indeed be found in sets of synaptic structures, it is not at all clear that the symbolic representations used in computationalism capture the way we are conscious. A smoother theoretical flow between contemplative practices, the understanding of consciousness that informs them, and the appropriate approach to the neuroscientific data, is therefore required.

Let me end with an example of the sort of research that an Indo-Tibetan philosopher would dream of, if contemplative science meets these challenges, and becomes more integrated in future. Wolf Singer has

hypothesised that phenomenal consciousness emerges from the formation of meta-representations through the coding of widely distributed neurons. We could pursue this line by looking for satisfactory answers to the following questions: is some kind of computation required to operationalise the study of contemplative states along these lines? Could there be alternative ways of operationalising the study of dynamical assemblies that seem to produce that *heightened* unity of awareness that contemplation appears to produce? And could such unity be better theorised through, say, Yogacara or Advaita accounts of consciousness? Of course, such dreams are some distance away. But the work of the Mind Life Institute, and the tremendous commitment to the fostering of contemplative science in India indicated by this conference, shows that that distance is not *so* far off.