

Images And Ideas

Dr. C. George Boeree

Shippensburg University

Original E-text:

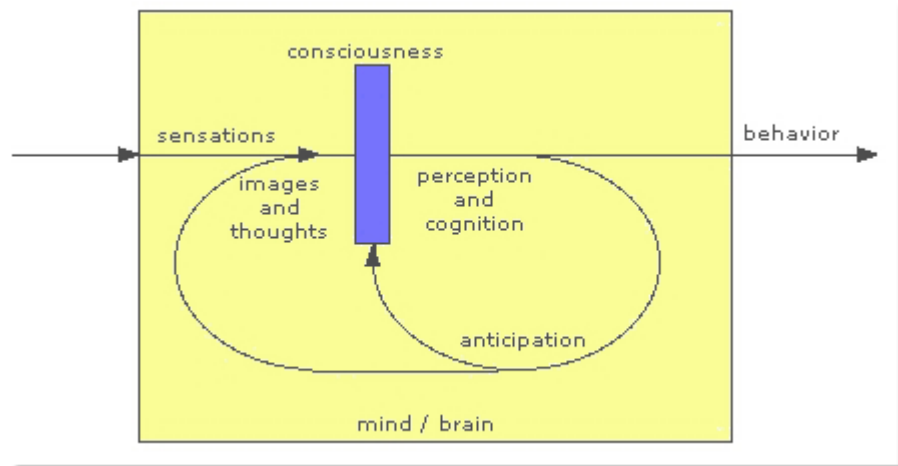
[<http://www.ship.edu/%7Ecgboeree/imagesandideas.html>]

The current wisdom suggests that mental events such as images are actions-in-the-making, or actions unrealized, or perceptual "searches." We "draw" a unicorn in our minds by "looking" for a horse with a single horn, etc. We "hear" a song in our minds by "listening" for the notes, the sound of the instruments and the voices, the words. This active, constructionist conception of images is often connected with the idea of anticipation,* especially as Ulric Neisser discussed it in *Cognition and Reality* or, earlier, George Kelly in his books on Personal Construct Theory.

I agree that much – perhaps most – of our imagery is of this nature. There are times, however, when images are experienced more suddenly, in a brilliant flash even, than constructionism implies. And, to take the opposite extreme, quite often we anticipate in a more "generic" fashion, as when we anticipate a human being – any human being – and not some specific one, that is to say we anticipate with an idea more than with an image. The sudden complete image and the generic idea require a somewhat richer conception of anticipation.

Imagine that the signals coming from our sensory neurons are met by neurons that have been "primed" by anticipation. That is, based on the events of the prior moments of interaction between the neural structures that are the result of our lifetime of learning, neurons or neural nets are activated, and when the sensory circumstances that they predict are confirmed by incoming sensory signals, these neurons or neural nets pass that information deeper into, let us assume, association cortex, where they lead to the next set of anticipations. If the anticipations are not confirmed by incoming sensory information (say within a certain time span), signals indicating that non-confirmation are sent on to trigger new anticipations that attempt to correct the mistaken anticipations (along with actions and emotional experiences as well, one presumes). This latter effect could be considered the basis of learning.

* For a detailed description of possible mechanisms for anticipation, please see *Causes and Reasons: The Mechanics of Anticipation*. (<http://www.ship.edu/%7Ecgboeree/anticipation.html>)



Now imagine a situation where we detach ourselves from incoming sensory information: We are asleep and dreaming, perhaps, or have closed our eyes or are staring at a blank page. We can nevertheless generate anticipations, and set neurons or neural nets into that anticipatory mode. But, instead of having them send signals only when confirmed by sensory information, our new state allows these anticipatory neurons to pass on their signals deeper into association cortex without confirmation. They may even have further repercussions by triggering new anticipations, actions, emotions, and even learning.

In the usual perceptual interaction with the world, all the neurons that are primed to receive incoming information from the senses at a particular time could be considered our total anticipations for that moment. In the restricted mode, retracted from interaction with the senses, all the primed neurons would be an image or an idea.

Now consider the difference between ideas and images. Images may be understood as the activity of anticipatory neurons nearer the sensory end of our mental structure. A strong image is the anticipation of a highly specific set of sensations. As far as our deeper associative processes are concerned, what we are experiencing is the *meaning* of our anticipations without the substance of them.

Given a "white" sensory field (white light or white noise, for examples), strong image anticipation will select from that field the expected qualities, giving us an iconic or echoic experience that, in circumstances of minimal or unusual information, could be mistaken for an actual event. The complete or near-complete absence of sensory input also gives a kind of empty surface to "project" image anticipations onto. In the absence of actual sensory information to compare it to, the image will be perceived as more-or-less vivid.

Ideas, on the other hand, reflect the activity of anticipatory neurons deeper in the mind's structure which are the main ingredients of imageless thought. The idea of "horse" may manifest itself at any moment in the image of some particular horse, but need not. Ideas should not, therefore, be confused with "fuzzy" perceptions. Ideas are the "purer" meanings of our anticipations, experienced at a

greater distance from sensation.

To summarize, a constructive, anticipation-based understanding of imagery and ideation need not rely solely on embodied or action-oriented processes. Images and ideas can just as well be understood as the activation of certain neural structures usually used to anticipate sensory information.