

## Brain or Mind?

Kathy Niu

Brain or Mind? Structure or function, science or philosophy, genes or environment, anatomy or art, logic or emotion, the list goes on. As with the rest of life, the answer is rarely black or white, but rather both to make every shade of gray.

I walk down the long corridor of our inpatient state psychiatric hospital, where we care for our sickest patients with refractory mental illnesses. I look forward to interviewing my patient with lifelong schizophrenia. He adamantly maintains he is a target because others are jealous of how he has designed famous buildings and fighter planes, and that he is owed millions of dollars to this day. He has been admitted for five years, and I still wonder if there is any budge to his delusions of persecution and grandeur. As I make my usual stroll down to the patient's room, the surprising strum of a guitar greets me. I stop to see him through the large window of a small music room. Through his dense delusions, he plays a beautiful rendition of "Hotel California" by The Eagles. His voice hits me.

*"There were voices down the corridor,  
I thought I heard them say  
Welcome to the Hotel California"*

Sound waves tap on the tympanic membrane, vibrating bones to the cochlea, cranial nerve VIII to the cochlear nucleus, superior olivary nucleus, lateral lemniscus to the inferior colliculus, then medial geniculate body, and finally the primary auditory cortex.

*"And still those voices are calling from far away,  
Wake you up in the middle of the night  
Just to hear them say  
Welcome to the Hotel California"*

But that is just a mere conduit to deliver auditory stimuli to the brain. He accesses his procedural memory and executes precise motor skills through his basal ganglia. The cerebellar drum keeps timing, and through multimodal integration and association areas, he is able to listen and play in sync. Perhaps where the real magic occurs, dopamine arrives at the nucleus accumbens for the pursuit and pleasure of music, involving instruction from the prefrontal cortex, and linking to emotional memories via the amygdala and hippocampus. I suppose I should not have been surprised that his psychotic symptoms lie just tangent, leaving his ability to create and enjoy music unharmed.

*"And she said, 'we are all just prisoners here, of our own device'  
Last thing I remember, I was  
Running for the door  
I had to find the passage back to the place I was before"*

As I walk away to interview him a different time, the music fades. I am left with an eerie interpretation of the lyrics, but also a deeper appreciation of the whole person behind the glass. I comb through his labs and later perform a detailed neurologic exam to feel confident we have not missed some other reversible process. Yet, what am I left with? Even as I systematically deconstruct a problem and localize the “lesion,” I am constantly amazed by humanity. Does knowing which neuron is firing make a melody any less sweet on this quiet afternoon?

*“Relax' said the night man,  
'We are programmed to receive.  
You can check out any time you like,  
But you can never leave'”*

The very organ that tortures itself also brings the greatest pleasure, defining and infusing meaning to life. The antipsychotic medication I was considering to increase will also block the same dopaminergic pathways that drive and reward him. I am frequently reminded to remain humble as sometimes there are no obvious answers. At this point, I realize that my goal was not to change his psychotic symptoms. My objective is to minimize suffering, maintain safety in the community, and have him keep enjoying his guitar. Every day, I have the privilege of bearing witness to the melding of biology and psychology. And if you allow yourself, you will see and accept quite a colorful palette to the human experience.