

Excerpt from *The Brain That Changes Itself* by Norman Doidge M.D.
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When the Brain is Caught Between Two Cultures

Patricia Kuhl, of the University of Washington in Seattle, has done brain-wave studies that show that human infants are capable of hearing *any* sound distinction in all the thousands of languages of our species. But once the critical period of auditory cortex development closes, an infant reared in a single culture loses the capacity to hear many of those sounds, and unused neurons are pruned away, until the brain map is dominated by the language of its culture. Now its brain filters out thousands of sounds. A Japanese six-month-old can hear the English *r – l* distinction as well as an American infant. At one year she no longer can. Should that child later immigrate, she will have difficulty hearing and speaking new sounds properly.

Immigration is usually an unending, brutal workout for the adult brain, requiring a massive rewiring of vast amounts of our cortical real estate. It is a far more difficult matter than simply learning new things, because the new culture is in competition with neural networks that had their critical period of development in the native land. Successful assimilation, with few exceptions, requires at least a generation. Only immigrant children who pass through their critical periods in the new culture can hope to find immigration less disorienting and traumatizing. For most, culture shock is brain shock.

Cultural differences are so persistent because when our native culture is learned and wired into our brains, it becomes “second nature,” seemingly as “natural” as many of the instincts we were born with. The tastes our culture creates – in foods, in type of family, in love, in music – often seem “natural,” even though they may be acquired tastes. The ways we conduct nonverbal communication – how close we stand to other people, the rhythms and volume of our speech, how long we wait before interrupting a conversation – all seem “natural” to us, because they are so deeply wired into our brains. When we change cultures, we are shocked to learn that these customs are not natural at all. Indeed, even when we make a modest change, such as moving to a new house, we

discover that something as basic as our sense of space, which seems so natural to us, and numerous routines we were not even aware we had, must slowly be altered while the brain rewires itself.