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Prelude to perfect pitch

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By KATE McCARTIN

On Science

Want your infant to be a musical genius someday? Then you'd better pack up your bags and move right away to Beijing. Chinese musicians, you see, especially those who begin their musical training by the age of 4 or 5, have anedge. About 60 percent of them have perfect, or absolute, pitch, the ability to precisely name the notes they hear.

American musicians, however, trail far behind their Asian counterparts. Even if they start with music as early as the Chinese kids, only about 14 percent of the Americans end up with perfect pitch. And among children who started learning music later, at about 8 or 9, 42 percent of the Chinese students had perfect pitch, compared to none of the Americans.

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The Darwinian in you might scoff at my suggestion to move to China, implying that I'm just like the people who thought giraffes developed their distinctive shape because each generation stretched their necks a little more to reach the yummy tops of trees.

Surely, you might say, the easiest explanation for the Chinese affinity with pitch must be genetic. And if that is true, moving an American kid to Beijing isn't going

to do anything for him. Marry a Chinese guy, maybe, and you'll have some luck with the babies you produce. But move there with the same old genes? Ha!

You might be a little bit right. Genes may, indeed, play some role in the acquisition of perfect pitch. But according to Diana Deutsch, a psychology professor at the University of California, San Diego, your location -- or at least the language that the newborn baby hears -- may play a far greater role than DNA when it comes to future musical abilities.

Deutsch's latest work appeared earlier this year in the Journal of the Acoustical Society of America. Pitch is important to a certain extent in English, Deutsch said. Think of how you raise your voice at the end of a question, for instance. But to make that work, all you need is a basic sense of what is called "relative pitch" -- just that one note is higher than another, not that one is an A and one is a B-flat. Mandarin Chinese, however, is what linguists call a "tone language." This means that some words get their meanings not just from the sequences of syllables in the words, but also because of the pitch, or musical note, of the syllables.

In Mandarin, for instance, the word "ma" means "mother" when spoken in the first tone, "hemp" in the second tone, "horse" in the third tone and what Deutsch calls "a reproach" in the fourth tone. If you don't get your tones just right, you could be in a lot, a lot, of trouble with your Mama -- and maybe with the narcs and SPCA, too.

So in China, as in Vietnam and other tone-language speaking countries, you learn very early, way before you learn to speak, that notes are individual entities with definite, nonvarying identities.

Deutsch started looking at the relationship between perfect pitch and language years ago, during a study on language, not music. She noticed that speakers of Mandarin were amazingly consistent about the pitch of these (to our ear) confusing tone syllables. After investigating further, and realizing how profound the difference in pitch recognition was between the two countries, she became fascinated with the timing of the acquisition of perfect pitch among Chinese.

It corresponds exactly with what linguists (and middle-schoolers) have long known about language -- that there is a window during infancy and early childhood in which it is very easy to learn a second language. The older you get, though, the harder it is.

So the musical scale, Deutsch hypothesizes, is essentially a second language for children who already associate certain tones with meaningful words. The rest of us, however, who don't associate our mothers' names with G or E-flat, are at a distinct disadvantage when it comes to pitch. Deutsch's work has filled me with a certain joy. Not because I'm thrilled that my 4-year-old might still have time to end

up with perfect pitch if I get her into music and Chinese lessons now. As the wife of a very good musician (who does not have perfect pitch), I'm not convinced that perfect pitch is a necessary component of a satisfying musical life. (In fact, I'll bet it is incredibly annoying to hear the rest of us meander through the scale all day without a care.)

Instead, I'm glad for the reminder of how miraculous our babies really are. You start with two half-packages of basic DNA, and end up with a tiny creature who is filled with infinite possibilities. I've written before about how all babies are born able to recognize a rich array of universal concepts and capacities. It's only as they grow that they focus on the ideas important to their own languages and cultures and lose what they do not need.

Now Deutsch is saying pretty much the same thing. The brain of a newborn baby is so open to anything that is important, she says, that if the development of absolute pitch is of value, it happens. How cool is that?

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