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Facial similarities basis for BBC vocal experiment

Paul Warren
WATCH YOUR LANGUAGE

IT'S sometimes jokingly said that people who live together for a long time start to resemble one another, or that some dog-owners end up looking like their dogs. Or perhaps we just choose partners and pets that resemble us in some way.

Of course, genetically related people such as siblings do tend to look like one another. Also, they often sound like one another, though not only because they are physically similar but also because they grow up in the same environments. Until I moved to New Zealand and experienced some interesting vowel movements, it was often difficult for my parents to distinguish me from my brother over the phone.

But do unrelated people who look like one another also sound like one another?

Material World, BBC Radio 4's weekly science show, runs an annual competition called So You Think You Want To Be a Scientist. One of the four finalists finishing their projects is William Rudling, a professional illustrator who has spent a lot of time over the years looking at people's faces and listening to them speak.

He is looking into this idea that people with similar facial features also sound similar, and gives English actresses Dame Judi Dench and Samantha Bond as examples. Dench and Bond have worked together frequently, so perhaps their close interaction has contributed to similarities in their speech by a process that linguists refer to as accommodation.

The more interesting notion is that complete strangers with similar faces might sound like one another.

The BBC has paired Rudling up with phonetician Paul Carter from Leeds University as his mentor. They plan to record people speaking and to take their photographs and to use the recordings and photographs in a web-based experiment to test the idea that similar faces go with similar voices. There is some scientific basis for expecting that this might be the case.

The nature of our voices is determined at least in part by our physical make up. Some of this is not directly related to faces. For example, people with larger frames and bigger chest cavities tend to amplify sounds lower in the register, and such people have different voice qualities from smaller people.

Voice pitch is also linked to anatomy (women tend to have higher voices than men because their vocal cords are smaller), though qualities like breathy voicing can be more individual.

Importantly for Rudling's hypothesis, parts of the head are also closely linked to our speech sounds. We shape our consonant and vowel sounds in our mouths. Vowels in particular are affected by the size and shape of our mouths. We make different vowel sounds by shaping the spaces inside the mouth through the position of our jaw, tongue and lips, and thereby amplifying different sound frequencies.

An individual's basic voice quality will also be influenced by the physical properties of these parts of our anatomy, as well as by the nasal cavity, which affects the nature of sounds like "n" and "m". Larger mouths, for example, will result in a lower "timbre" for a given vowel.

Of course, there is no guarantee that a particular face will have a predictable voice quality. After all, there are plenty of comedians who make their living as convincing mimics of famous personalities, and forensic phoneticians called as expert witnesses regularly remind courts that recorded voices are rarely a reliable means of identifying a culprit.

Most importantly though, many aspects of how we speak result from learned behaviour. So children learn the speech characteristics of the local and social accents that they are exposed to or with which they identify. And the fact that I now sound more different from my brother than I used to is due to the speech-related learning that I continue to experience.

What Rudling and Carter hope to discover, though, is that although a lot of speech behaviour is learned, some basic anatomically determined characteristics mean that similar-sounding voices can be linked to similar-looking faces.

To follow their experiment, and to try it out yourself, go to facebook.com/BBC.face.experiment.

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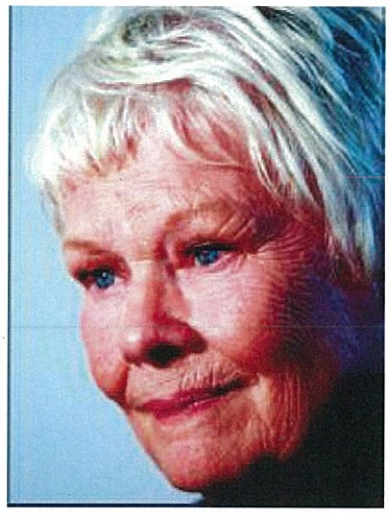
Samantha Bond



Dame Judi Dench