

# Brain stimulation can boost creativity – but could it also help you hear inspirational voices?

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Credit: Andrea Piacquadio from Pexels

Steve Jobs, the late co-founder of Apple, once said "[creativity is just connecting things](#)". There's truth in that but there is another source of

creativity, too – the ideas that simply pop into our minds. In ancient times, these were seen as [gifts from the muses or gods](#). Today, people sometimes describe such ideas as coming from an inner voice or even a character separate from themselves.

The creative ability to make connections between things is something neuroscience can improve using a brain stimulation technique called transcranial direct current stimulation (tDCS), which passes a weak electric current through the brain via electrodes on the head. But could the same technique also boost creativity by summoning inner voices?

When I experienced tDCS in our research laboratory I merely felt a slight warmth and itch on my scalp. The technique is [considered safe](#) and [adverse effects are relatively minor](#). Of course, it is not something to be attempted at home.

It works by temporarily increasing the activity of the part of the brain under the positive electrode, decreasing it under the negative electrode, and altering connectivity within the brain. It has been used for a range of purposes, from boosting performance in [Air Force personnel](#) to [treating psychiatric disorders](#).

Researchers have also discovered it can increase creativity. A [recent study](#) found it allowed people to make more "outside of the box" connections. This study placed the positive electrode over the left frontopolar cortex, which is involved in processes including [multitasking, reasoning and memory](#). Participants who experienced tDCS were able to make more creative analogies.

But what about the experience of ideas that just pop up? Waiting for ideas to come is unnerving, as we come to realise we have little or no control over this process. As the stand-up comedian [Stewart Lee puts it](#):

"I don't know where the ideas come from, and it's terrifying. They seem to be absolute flukes ... I'm just hoping that some sort of event will descend on me."

Many writers have information descend on them from their characters, who can be experienced as [autonomous entities](#) that communicate with them. Writer [Hilary Mantel describes](#) the creation of her story, The Giant, O'Brien as "it being listened to by me". She asks:

"How can I seem to produce a character who acts in a way that is independent from me and foreign to me? Where did these thoughts come from?"

Author [JK Rowling reports](#) some of her characters come through a "mysterious process no one really understands," just popping up.

Could we use neurostimulation to facilitate this mysterious process? Could we even summon an artificial muse? To answer this, we need to consider people who already have them.

## **The science of inner voices**

A common way to experience others in our heads is through "hearing voices". [Most of us](#) have had fleeting such experiences, like hearing our name called when no one is there. [Around 2-3% of the population](#) have more extended voice-hearing experiences.

If the voice is nasty [this can cause problems](#) and lead the person to seek help. If, however, the voice is friendly or benign, and the person [has some control over it](#), they may [never need or seek help](#).

Some voices are [simply gibberish](#). Others say the same kind of thing over and over, like a stuck record. Some are like memories,

recapitulating the past. But others have more creative potential.

The French mathematician Françoise Chatelin [described how](#) hearing voices helped her "open a new door on the way to perceive numbers". The English psychologist [Eleanor Longden revealed how](#), when she was a student, voices told her answers during exams. Another English voice-hearer, Peter Bullimore, wrote a book using ideas and characters his voices gave him and says he "[couldn't have done it without them](#)".

Research shows tDCS can [reduce voice-hearing](#) in people diagnosed with schizophrenia, which is [what some want](#). Such studies typically increase the activity of the left prefrontal cortex, involved in planning and controlling our thoughts and actions, reduce activity in the left temporoparietal junction, involved in [communicating with others](#), and [alter the connectivity between the frontal and temporal lobes of the brain](#).

So, what would happen if we performed this *in reverse* – in people who don't hear voices? A recent study, [published in the journal Neuropsychologia](#), did something similar to this with healthy volunteers and found it caused them to be more likely to hallucinate words in white noise. [Other studies](#) have found neurostimulation of the left temporoparietal junction causes the feeling that an unseen person is near.

We are clearly a long way from an electric muse. Yet such research places it on the horizon. We would also need a cultural shift for this idea to be adopted – a move from viewing voice-hearing as [necessarily a sign of pathology](#) to one which accepts it can sometimes be [helpful, creative and desirable](#).

## **Beyond neuroscience**

Of course, other approaches can also push our brain to speak to us. "Sensory deprivation" – blocking a specific sense through, for example, blindfolds or earmuffs – has [some limited ability](#) to summon voices. Absorptive practices [such as prayer or meditation](#) can also cause [voice](#)-hearing. Indeed, practitioners of [Tulpamancy](#) claim to conjure up seemingly [sentient entities](#) through meditation.

A simpler, although obviously illegal, route are psychedelic drugs such as [DMT](#) and [psilocybin](#). As Terence McKenna once said of psilocybin, "[there is a mind there waiting](#)". Unfortunately, there are few formal studies of [what these encounters are like](#) and [how the brain creates them](#). Such research could tell us much about what our brains are capable of, and how.

Even if it were feasible to use neurostimulation to conjure ideas via voices, would it be ethical? Lacking control of voices and not liking what they said could [lead to distress and problems functioning](#). Voices could also be dangerously deified rather than critically considered, as the unseen are often [mistaken for the unerring](#).

Also, what would we have created – philosophically speaking? Could it exhibit intelligent human behaviour? Would it display self-conscious emotions, or even be conscious? This would be what many writers strive for. Indeed, Hilary Mantel describes the writing process as "[allowing a new consciousness to emerge](#)".

New understandings of the [brain](#) will, eventually, help us tap our inner wells for inspiration. This process may even shed light on how consciousness arises. As inventor Thomas Edison noted, though, it will only be through a lot of perspiration that such inspiration gets us anywhere.

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