

Are Dreams the Final Unconquered Frontier?

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In the now-legendary film *Inception*, Christopher Nolan introduces us to a dystopian world where controlling dreams is as simple as plugging into a small device connected to your brain. A world where dreams are no longer private experiences but can be hacked by others for questionable purposes. Fourteen years after its release, is it still too soon to ask if Nolan’s world is purely science fiction?

Waking Up in a Dream

Typically, when we dream, we believe we are experiencing our daily lives—even when the experience defies physical laws or takes us to places that do not exist. In contrast, during a lucid dream, we do not need to wake up to recognise that what we’re experiencing is just a dream. In a way, lucid dreams are like a form of virtual reality, letting us explore the depths of our imagination in vivid detail. These kinds of dreams are rare; while about half the population has had a lucid dream at least once, they do not occur often.

For decades, scientists have been searching for the perfect method to induce lucid dreams. One approach is “reality testing,” which involves frequently asking yourself while awake if you’re dreaming or not. Other techniques focus on being more aware of bodily sensations or paying close attention to the process of falling asleep, such as through relaxation or meditation exercises. External devices have also been developed, like headbands that detect when you’re in REM sleep (the phase of sleep when dreams are most common) and produces flashing lights to signal you’re dreaming. These lights can weave their way into your dreams and alert you to the fact that you’re asleep, much like how the characters in *Inception* use Édith Piaf’s “*Non, je ne regrette rien*” as their wake-up cue. However, even with external devices, you still need some mental training to recognise the signals as cues for lucidity. But what if we could have lucid dreams with no effort at all?

Lucid Dreams on Demand

Over the years, several companies have tried to develop portable devices to bring *Inception* closer to reality, at least when it comes to controlling dreams. The latest player is the startup *Prophetic*, which claims to be developing a headband that can induce lucid dreams while you sleep.

According to *Prophetic*’s founders, their technology builds on neuroscience research using transcranial electrical stimulation to activate brain areas linked to lucid dreaming. For example, a research team led by Ursula Voss found that applying gamma waves (a specific type of brainwave) to the frontal and temporal areas of the brain increased lucid dreaming (Voss et al., 2014). *Prophetic* claims they’re creating a more advanced version of this

technology, using focused transcranial ultrasound stimulation (*tFUS*), which can target deeper regions of the brain. They are also incorporating artificial intelligence to monitor brain activity and fine-tune the stimulation needed to trigger lucid dreaming states.

The Risks of Widespread Lucid Dreaming

In *Inception* (spoiler alert!), prolonged use of devices for lucid dreaming leads to dangerous consequences. For example, one of the main characters accidentally dies after confusing the dream world with reality and jumping off a skyscraper. Could frequent lucid dreaming lead to dissociation in real life?

The evidence so far is limited, but a recent study found that people who experience lucid dreams more often tend to have higher levels of delusional beliefs in memory tasks. However, it seems the main trigger for these effects could be reality-testing exercises used by individuals with dissociative tendencies (Mallet et al., 2022). More research is needed to understand these links.

Another potential concern is how inducing greater attention and metacognition while dreaming might affect our sleep. One possibility is that these devices could cause overly intense lucid dreams that disrupt rest. An unusual and poorly understood phenomenon called “epic dreaming” offers a cautionary tale. Despite its name, it refers to a relentless and exhausting dreaming experience, as if you have been dreaming nonstop all night. It feels less like sleeping and more like binge-watching TV all night long. While no research has directly connected lucid dream induction techniques to an increased likelihood of epic dreaming, any method that prolongs dreams without waking up might lead to similar effects.

Finally, we must consider the mental health implications of unwanted lucid dreaming states. A common goal of lucid dreaming is to control the narrative and act freely in the dream. However, fully controllable lucid dreams are rare. Sometimes, we might experience a “lucid nightmare” and realise that we are dreaming but are unable to wake up or change the dream’s content.

Working While You Sleep

Prophetic also claims their device could make sleep more productive by using lucid dreaming to solve creative problems or practice skills. But should we encourage these devices for such purposes?

In scientific studies, lucid dreaming has shown promise for enhancing certain motor skills. For instance, Michael Erlacher’s research team found that athletes who practiced routines in lucid dreams saw measurable improvements when performing them awake (Erlacher et al., 2012). Other researchers have even used lucid dreaming to connect the dream world with physical tasks, like controlling a real-world avatar through dream-generated signals or composing music.

While these experiments are meant to explore the potential of lucid dreams and the conscious state they represent, it is easy to imagine a future where companies exploit devices

like *Prophetic's* to boost employee productivity. The mere existence of such technology could pressure users to turn their dreams into yet another avenue for work. In a world where we are constantly pushed to produce more and better, it is not hard to see how, without proper guidelines, we might feel obligated to work even in our sleep.

It seems the reality of *Inception* is still some way off. Even so, we should ask ourselves how far we really want to go in controlling our dreams and whether this level of manipulation is worth pursuing beyond scientific research.

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