

We're just starting to learn more about aphantasia, the inability to picture things with the mind's eye

May 17 2023, by Emiko Muraki and Penny Pexman



Credit: AI-generated image ([disclaimer](#))

When asked to close their eyes and imagine a sunset, most people can bring to mind an image of the sun setting on the horizon. Some people may experience more vivid details, such as vibrant colors, while others may produce a mental image that is blurry or lacks detail. But recent

research has found that some people don't experience mental imagery at all.

This [lack of mental imagery is called aphantasia](#). People with aphantasia are often surprised when they learn others see mental images in their minds. Many people with aphantasia have said they assumed others were [speaking metaphorically when they described seeing something in their "mind's eye."](#)

This is because our internal mental processes are not visible to others, so it is easy to assume everyone's minds operate in the same way. It is estimated that [roughly four percent of people have aphantasia](#).

People with aphantasia report a lack of [visual imagery](#), and [97 percent also report deficits in at least one other modality of imagery](#), like being unable to imagine certain sounds or tastes.

Everyday mental imagery

Mental imagery is involved in many other everyday cognitive processes. For example, visual and spatial imagery may play an important role in autobiographical memory. One study found that people with a tendency to generate vivid high-resolution mental images of objects and scenes can [recall personal memories more quickly and in greater detail](#).

People with aphantasia are able to remember autobiographical facts, but when recalling [life events](#) they report [fewer details and a less emotional experience](#), despite describing the events as important or personally relevant.

Mental imagery is also experienced when dreaming. Interestingly, [60 percent of people with aphantasia report visual imagery in their dreams](#), although the quality of their experience is different from that of people

with typical imagery ability. When dreaming, people with aphantasia report reduced experience across all senses, lower overall awareness and less sense of control.

The fact that people with aphantasia have some preserved [mental imagery](#) while dreaming suggests that aphantasia could be a deficit in [voluntary mental imagery](#)—the ability to deliberately bring images to mind—rather than involuntary mental imagery.

Imagery and reading

Many people also use mental imagery when reading. When we read, we create mental models to help make sense of the words and sentences, and research shows that we create these models using mental imagery.

For example, after reading a sentence such as "the ranger saw the eagle in the sky," [people tend to be faster to recognize a picture of an eagle with outstretched wings, rather than a picture of an eagle sitting](#). This is because they visualize or simulate the situation described in the sentence, and this can help them quickly identify a picture that matches the imagined situation.

Aphantasia seems to affect whether or not people build mental models while they read. One study found that [when reading descriptions of scary scenarios, people with aphantasia showed less emotional or physiological responses](#), suggesting their comprehension was less affected by imagined or simulated sensory experience.

These simulations can also occur subconsciously when we read single words and can [help us access word meanings more quickly](#). For instance, when reading words related to sensory experiences such as vision, action and smell, [the brain areas responsible for these senses are also active](#). However, there is currently no research on whether this is also true for

people with aphantasia, so we don't know if they subconsciously simulate sensory or motor information when reading single words.

Different modes

People with aphantasia do not always consider their lack of mental imagery to be a negative thing. [Some even credit their lack of imagery for success in other areas such as science and mathematics.](#)

People with aphantasia also pursue creative vocations in fields such as visual art or writing, so mental [imagery](#) is not the same as imagination. In fact, [the University of Glasgow curated an art exhibition featuring work by artists with aphantasia and those with hyperphantasia \(extremely vivid mental imagery\).](#)

Discovering conditions like aphantasia tells us there may be different "modes" of cognition. For some people, thinking may involve simulating past sensory experiences both consciously and unconsciously. For others, and for people who have aphantasia, thinking may involve accessing facts.

Aphantasia shows us there is diversity in human cognition—despite our assumptions, our minds do not all work the same way. Research on aphantasia is just beginning, but it is a promising avenue to better understand the inner workings of the human mind.

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Citation: We're just starting to learn more about aphantasia, the inability to picture things with

the mind's eye (2023, May 17) retrieved 2 May 2024 from
<https://medicalxpress.com/news/2023-05-aphantasia-inability-picture-mind-eye.html>

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