Can you “see” images in your mind? Some people can't - Adam Zeman — 中英對照學習手本

TED-Ed（講解：Adam Zeman）· 5 分 19 秒

中英對照學習手本 · 每段約 100 字 · 段落開頭時間碼可點擊跳轉影片

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▶ 00:00:07 102 words 1 / 7

When reading Lewis Carroll’s “Alice’s Adventures in Wonderland,” most readers visualize the Queen's croquet game play out in their heads. “...it was all ridges and furrows; the balls were live hedgehogs, the mallets live flamingos, and the soldiers had to double themselves up and to stand on their hands and feet, to make the arches.” A few might see vivid details, such as the pattern of the hedgehog's quills or the flush of the queen's face. However, a small fraction of readers have a drastically different experience. As the scene plays out on the page, within their heads, they “see” absolutely nothing.

> 閱讀 Lewis Carroll 的《Alice's Adventures in Wonderland》時，多數讀者腦中都會浮現皇后那場槌球賽的畫面。「……地上全是高低起伏的溝溝壟壟；球是活生生的刺蝟，球槌是活生生的火烈鳥，士兵們還得把自己對摺起來，用手腳倒立著，排出那些拱門。」有些人還能看見生動的細節，例如刺蝟身上尖刺的紋路，或者皇后臉上泛起的紅暈。然而，有一小撮讀者的經驗卻截然不同：場景明明在書頁上展開，在他們腦裡卻甚麼都「看見」不到。

(v.) **visualize**
在腦中想像；把...形象化

(adj.) **vivid**
生動的；鮮明的

(n.) **quills**
尖刺；動物的刺

(n.) **flush**
臉上的紅暈；潮紅

(adv.) **drastically**
極大地；大幅地

(n.) **fraction**
一小部分；比例

▶ 00:00:47 119 words 2 / 7

This inability to clearly visualize images in the mind's eye is known as aphantasia, and it applies to around 4% of the world's population. It was first characterized by a psychologist in the 19th century, who asked study participants to visualize their breakfast table and then rate the vividness and color of this mental picture. He determined that mental imagery exists on a spectrum. At one end are people with aphantasia, and at the other are people with hyperphantasia, with imagery so real, it rivals seeing. And most people land somewhere in between these two extremes. But how do we know if someone with aphantasia isn't describing the same experience as someone with mental imagery, just in different terms?

> 這種無法在腦中清楚看見畫面的狀況，叫做「心盲症」（aphantasia），全球約有 4% 的人口是這樣的。最早提出這個概念的，是 19 世紀一位心理學家：他要受試者想像自己早餐桌上的擺設，再為腦中這幅畫面的生動程度與顏色評分。結果他發現，心理圖像其實存在一個光譜——光譜的一端是心盲症者，另一端則是「想像力過度」（hyperphantasia）的人，他們的心像真實得幾乎與親眼目睹無異。大多數人則落在這兩個極端之間。可是，我們又憑甚麼斷定一名心盲症者，不是用另一套字眼去描述與有心像的人相同的經歷呢？

(v.) **characterized**
描述特徵；界定

(n.) **imagery**
心理意象；心像

(n.) **spectrum**
光譜；範圍

(v.) **rivals**
與...不相上下；比得上

(n.) **extremes**
極端；兩極

▶ 00:01:35 100 words 3 / 7

In other words, how does one objectively measure what's going on in someone else's mind? In one study, scientists looked for clues in people's eyes. They investigated differences in pupillary light reflexes, or how the pupil automatically constricts in response to light. Even just imagining that you are looking into a light will cause the pupil to narrow— or at least it will if you have mental imagery. They found that the eyes of people with aphantasia don't constrict when imagining light. Brain-imaging studies may help decipher another perplexing phenomenon: people with aphantasia can see mental imagery when they dream.

> 換句話說，別人腦子裡發生的事，究竟可以怎樣客觀地量度？有一項研究，科學家就在人的眼睛裡找線索。他們研究的是瞳孔對光反射的差異，也就是瞳孔遇光時會自動收縮的機制。只要想像自己正望著一道光，瞳孔就會縮小——至少，有心理圖像的人是這樣。他們發現，心盲症者在想像光線時，瞳孔並不會收縮。腦部影像研究或有助於破解另一個令人費解的現象：心盲症者在做夢的時候，是看得到心像的。

(adv.) **objectively**
客觀地

(n.) **reflexes**
反射；生理反應

(v.) **constricts**
收縮；縮小

(v.) **decipher**
解開；破解

(adj.) **perplexing**
令人費解的；令人困惑的

(n.) **phenomenon**
現象

▶ 00:02:18 111 words 4 / 7

How this happens is likely explained by the contrasting ways the brain generates deliberate visualization versus dream imagery. Typically, conjuring a mental image involves multiple brain regions, and is sometimes referred to as a top-down process. First, actively trying to visualize an object activates cognitive control regions of our brain. This then drives activity in regions of the brain associated with memory and vision, creating a mental picture. People with hyperphantasia tend to have stronger connections between these regions compared to those with aphantasia. As for dreaming, many scientists believe this imagery is produced by a different bottom-up pathway, through activity deep in the brain spontaneously activating visual and memory systems.

> 要解釋這個現象，大概得從大腦「主動想像」與「夢中意象」兩種截然不同的生成方式說起。一般來說，憑空召喚一幅心像，需要多個腦區同時參與，過程有時被稱為「由上而下」的運作。首先，主動嘗試想像一件物件，會啟動大腦的認知控制區域；這一步再推動與記憶、視覺相關的腦區活動，一幅心像就這樣成形。跟心盲症者相比，想像力過度的人這些腦區之間的連結往往更強。至於做夢，許多科學家相信夢中意象走的是另一條「由下而上」的路徑——大腦深處的活動自發地啟動視覺與記憶系統。

(adj.) **contrasting**
截然不同的；對比的

(v.) **conjuring**
憑空召喚；想像出

(phr.) **referred to**
被稱為；稱作

(v.) **activates**
啟動；使活躍

(n.) **pathway**
路徑；途徑

(adv.) **spontaneously**
自發地；自然地

▶ 00:03:10 102 words 5 / 7

So, what causes the spectrum of mental imagery to develop? Aphantasia often runs in families, suggesting that the vividness of your mental canvas may be influenced by your genes. While most people with aphantasia have it their entire lives, some people can develop it later in life— often due to brain injury or psychological conditions. But in most cases, imagery extremes aren't considered disorders in need of treatment, but rather intriguing variations in human experience. For example, for those with a mind's eye, the excitement of a thrilling story will cause them to sweat a little, even if they don't notice it.

> 那麼，心理圖像這個光譜究竟因何而生？心盲症常常在同一個家族裡出現，顯示你腦中那塊畫布的生動程度，可能受基因影響。雖然大多數心盲症者一生都是如此，但也有些人是成年後才出現的——常見的原因是腦部受傷，或有心理方面的狀況。不過在大多數個案裡，心像過於極端並不算需要治療的疾病，反而是饒有趣味的人類體驗差異。舉個例子，對那些心裡有「眼睛」的人來說，精彩刺激的故事會令他們微微冒汗，即使他們自己都察覺不到。

(v.) **suggesting**
顯示；暗示

(adj.) **entire**
整個的；全程的

(n.) **injury**
傷害；損傷

(adj.) **psychological**
心理上的

(n.) **disorders**
失調；障礙

(adj.) **intriguing**
饒有趣味的；引人入勝的

(n.) **variations**
差異；變化

▶ 00:03:50 100 words 6 / 7

People with aphantasia, however, lack this sweat response— presumably because it depends on the emotional effect of imagining the the storyline. At the same time, scientists have speculated that aphantasia may be protective against certain mental health disorders, specifically those related to negative imagery, like PTSD— though more research is needed. Recalling details, like the food served at last year's holiday party, may not be as difficult for people with hyperphantasia, as they tend to have a richer memory of past events and can "relive" these experiences in greater detail. Differences in mental imagery may even influence your career choice.

> 不過，心盲症者並沒有這種出汗反應——大概因為這種反應有賴於想像情節時帶來的情緒效果。與此同時，科學家推測心盲症或許對某些心理健康失調具有保護作用，尤其是與負面心像有關的那一類，例如創傷後壓力症候群（PTSD）——但這仍需要更多研究證實。回想細節，例如去年派對上供應過哪些食物，對想像力過度的人來說未必那麼困難，因為他們對過去發生的事通常有更豐富的記憶，能更仔細地「重溫」這些經歷。心像程度的差異，甚至可能影響你的職業選擇。

(n.) **response**
反應

(adv.) **presumably**
大概；據推測

(adj.) **emotional**
情緒上的

(v.) **speculated**
推測

(adj.) **protective**
具保護作用的

(v.) **recalling**
回想；憶起

(v.) **relive**
重溫；重新體驗

▶ 00:04:34 62 words 7 / 7

A survey of over 2,000 people found that those with aphantasia are more likely to work in STEM professions, while people with hyperphantasia tend to gravitate towards jobs in the arts, media, and design. We may never be able to fully understand what's happening in another person's mind. The inner worlds of those around you might be quite different from your own.

> 一項超過 2,000 人參與的調查發現，心盲症者較容易投身 STEM（科學、科技、工程與數學）相關的專業，想像力過度的人則多數選擇藝術、媒體與設計方面的工作。我們或許永遠無法完全明白別人腦中正在發生甚麼。你身邊那些人的內心世界，很可能跟你自己的相去甚遠。

(n.) **survey**
調查

(n.) **professions**
專業；職業

(v.) **gravitate**
受吸引；傾向

(adv.) **fully**
完全地

(n.) **worlds**
世界；內心世界