

HOW Your Brain "Sees" a Logo



Logos play an important emotional role in influencing decision making, especially when information or time is limited. Neuroscientists have been studying how the brain perceives and recognizes a logo design, and how it impacts decision making. Here is some of what they've learned.

What happens when you see a logo

- 1** You see a logo and your eye sends a signal along the *fusiform gyrus* to the *Primary Visual Cortex (V1)* where it first perceives color then identifies the shape and form of the logo.

YOU SEE				
YOU THINK	"Red on white. Dot in a circle. Bullseye."	"Tapered shape moving upward left to right."	"Yellow curves. Red box."	

- 2** These elements are then "grouped" to identify the object that you see. This happens in the *V2 area of the Visual Cortex*.

YOU SEE				
YOU THINK	"That's a red target."	"That's a swoosh."	"Two gold arches. M."	

- 3** Next your brain matches that visual pattern to previous experiences with the same pattern stored in your memory.

YOU SEE				
YOU THINK	"Target logo, Target store."	"Nike."	"McDonald's. Hamburgers."	

- 4** Last, your brain adds "semantic attributes" from your previous experiences with the logo, like the product name and brand attributes as well as your preferences, to provide meaning and recognition.

YOU SEE				
YOU THINK	"Quality. Value. I need to pick up some milk."	"Just do it. Jordan. Shoes."	"It's lunchtime. I'm hungry. Fries sound good."	

All of this happens in roughly 400 milliseconds.



What your brain is looking at:



COLOR

Scientists believe that your eye doesn't see color at all—your brain creates it through neural processes that take place along the *fusiform gyrus*, the *Hippocampus*, and the *primary visual cortex* located at the back of the brain.^{1,2}



SHAPE

Once the color is identified near the back of the visual cortex, a signal is sent forward to the "what pathway" near the front of the visual cortex where shape and objects are recognized. It can even see shapes that aren't there (like objects hidden in the white space of a logo).³



MEANING

While color and shape are "bottom up" information, that is, it is gathered from the immediate environment; context and meaning is "top down" information added by your memory to help you understand and think about what it all means. This process uses many parts of the brain, but primarily the *amygdala* and *orbitofrontal cortex* where emotions and rewards are processed.

What Science Says About A Logo's Effect on Your Thinking

Over the past two decades, neuroscientist have used brain imaging (fMRI) to take a closer look at how we think about logos. Here are some of the most interesting findings:

There isn't a single place in the brain where logos are processed. Sports and luxury brands (like Nike and Mercedes) trigger responses in the *medial prefrontal cortex* and *precuneus*, while value brands (like Walmart) activate neurons in the *anterior cingulate cortex*.⁴



Brands that we like elicit activity in the *ventral medial frontal pole*, which is the area where we form self-esteem and the idea of who we are. This would suggest that our favorite brands play a large role in how we see ourselves. Something like: I'm a Coke person. Or, I'm the kind of person who likes and uses Apple products.⁵

Our familiarity with a logo design determines which part of the brain thinks about it when we see it. "Strong" brands tend to trigger activity in the part of the brain associated with positive emotions and reward (*pallidum*, *posterior cingulate* and *frontal cortex*), while unknown brands activate neurons in areas of the brain associated with negative emotions (*insula*). This suggests that people use experience not declarative information to evaluate brands.⁶



We do not think about logos the same way we think about trivial objects or even animals. Well-liked brands trigger responses in the same brain areas where human relationships (friendships for example) are processed. This may mean that biologically there is very little difference between relationships between two humans and a human and a brand.⁷

Logos can actually change behavior. When scientists showed (subliminally) an Apple logo to some students, and an IBM logo to others, the students who saw the Apple logo performed better on the students who saw the Disney logo (again subliminally) performed better on an honesty test than student who saw an E! TV logo.⁸



Where your brain thinks about logos:

Posterior Cingulate Cortex

There is still a lot of debate about the function of the PCC, however it has been firmly linked to emotional salience.

Hippocampus

Plays a part in forming new memories about experiences.

Prefrontal Cortex

Front of the brain where we process high-level thought, action, and emotions. Plays an important part in adding meaning and context to the patterns and images the brain sees.

Visual Cortex

Responsible for processing visual information. It's made up of several areas:

V1 (pattern recognition)
V2 (object identification)
V3 (There's still significant debate about the function of this area.)
V4 (orientation, shape identification, and color)
V5 (motion)

Insular Cortex

A portion of the cerebral cortex linked to emotion, self awareness, and interpersonal functioning.

Fusiform Gyrus

Part of the temporal lobe that plays a part in color recognition

Amygdala

Almond-shaped group of nuclei used to process memory and emotional reactions.

Orbitofrontal Cortex

Area immediately behind the eyes where decision making takes place, also where we compare expected reward and punishment.

Created by Logomaker.com, the do-it-yourself logo maker tool used by more than a million small businesses to create a logo.

Notes:
1 "Study Shows that Color Plays Musical Chairs in the Brain", UChicagoNews, October 2, 2009.
2 Zeki, S. and Ludvica, Marina, "Three Cortical Stages of Colour Processing in the Human Brain", Brain, Vol 121, pp. 1669-1685, 1998.
3 Sanguinetti, Joseph, et al, "The Grounding of an Object: Perceived as Shapeless yet Processed for Semantics", Psychological Science, November 12, 2013.
4 Schaefer, Michael and Rötter, Michael, "Thinking on Luxury or Pragmatic Brand Products: Brain Responses to Different Categories of Culturally Based Brands", Brain Research, Vol. 1165, Aug. 24, 2007, pp. 98-104.
5 Journal of Customer Behaviour, Volume 11, Number 1, Spring 2012, pp. 69-93/25.
6 Esch, Franz-Rudolf, "Brands on the Brain: Do Consumers Use Declarative Information or Experienced Emotions to Evaluate Brands?" Journal of Consumer Psychology, Vol. 22-1, Jan. 2012, pp. 75-85.
7 Simons, José Paulo, "Perceiving Brands After Logo Perception: An Event-related fMRI Study" Online, bit.ly/1us05ue.
8 Fitzsimons, Graeme, et al, "Automatic Effects of Brand Exposure on Motivated Behavior: How Apple Makes You Think Different", Journal of Consumer Research, Vol. 35, June 2008, pp. 21-35.

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