



Sex on the Brain

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Differences between male and female brain structures affect the way we perceive and interact with products. Understanding these differences can result in a design language that resonates better with both genders.

Boys like things, girls like people

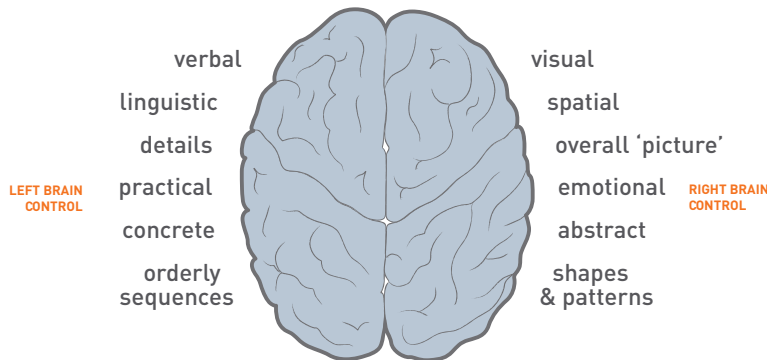
In the “nature vs. nurture” debate, people who favor “nurture” believe that we come out of the womb untainted, and are ultimately defined by our experiences. But in truth, we enter the world with prewired reactions to situations and predetermined behaviors. For instance, females are more people-orientated than men right from the start. Baby girls, only three days old, sustain eye contact with adults approximately twice as long as their male counterparts!¹ As early as four months old, baby girls can distinguish facial features and are able to distinguish between photos of people they know versus strangers. Baby boys are not able to do that?²

The brain develops at different rates for girls and boys. The left side of a baby girl’s brain develops more rapidly than that of a boy, which means she will speak sooner and better than her brother, read earlier and learn foreign languages more quickly. Boys, however, develop the right side more quickly than girls, giving them superior spatial, logical and perceptual skills. This allows males to excel at problem solving, building and math at an earlier age.

In teenagers the trend continues. In a study where participants were presented two images simultaneously, one of a person and one of an object, girls more frequently reported seeing the person, the boys the

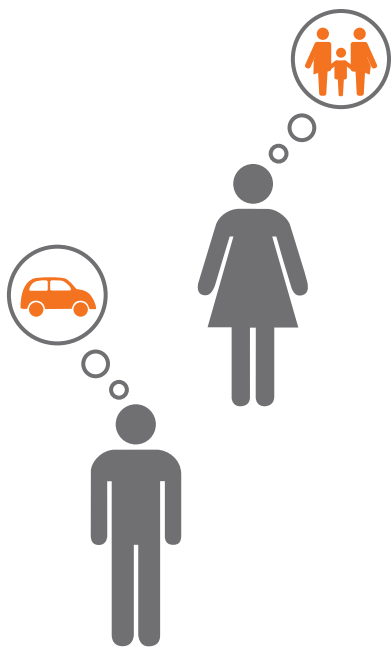
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Everyone knows there’s a difference between men and women, right? Or is there? If you lived through the sixties you might be inclined to say “no”. For more than 30 years culture has been obsessed with making males and females more alike. However, we are now on the brink of cultural re-enlightenment, of re-discovering and celebrating gender differences. The world today is more sensitive to the needs of each individual, so we can design more successful products and experiences by discovering our strengths and



[Figure 1]
The basic structure of the brain.

compensating for our weaknesses. And to do this we need to acknowledge some fundamental differences between the male and female brain.



[Figure 2]
Males and females have different predetermined behaviors.

object.³ Studies of college students found that girls talked about the people in their lives while boys discussed sports, politics and class work.⁴ And when shopping for consumer electronics, boys are primarily concerned about what the product can do and how it looks while girls are more interested in what the product does for them and who it will connect them to.

It's all in the mind

Men and women have the exact same number of brain cells. But even after accounting for differences in body size, the male brain is larger on average than the female brain by 9%.⁵ Are men packing more information into their bigger cells? No. The female brain is just more tightly packed. The structure of the brain is inherently different, which explains the gender's different aptitude for certain skills. For example, among the top 10% of math whizzes the boy-to-girl ratio is 3:1, yet for the top 1% of math geniuses boys outnumber girls 13:1.⁶

Men and women also use both the left and the right sides of the brain for verbal and visual tasks. However for women, the functional division between left and right side activities is less clearly defined. So while males use the right hemisphere more efficiently than females, females use both hemispheres together. This may explain why females can find it harder to quickly tell their left from their right hand.

Men more often think according to abstract principles and logical laws. For instance, on mental rotation tests (gauging the ability to imagine what a complex shape looks like from a different angle) males consistently and substantially outperform females.⁷ Perhaps this explains the lack of females in the product design industry?⁸

There are also differences in Grey Matter (GM) and White Matter (WM) in the brain, which affects the way genders process information. GM is a type of tissue needed to process

information, and WM is the connective tissue needed for information transfer across distant regions. Women have higher percentage of GM whereas men have higher percentage of WM. There is a parallel relationship between WM and spatial ability, and since men have higher levels of WM they tend to outperform women on those tasks. Verbal tasks require less intrahemispheric transfer than spatial tasks, and with higher levels of GM, women have superior verbal skills?

As a result of these fundamental changes, men and women often respond very differently to the same stimuli. Yale University conducted a study that tested college students' ability to set a VCR from written instructions. While 68% of the men were able to do it on their first try, only 16% of the women were able to accomplish the task.¹⁰ Remember, sometimes a feature or technical procedure that seems straightforward to "everyone" may not be so.

Are men better drivers?

Research indicates that men's spatial skills—judging distance, movement, speed and hand-eye coordination—are superb. Does this make them better at parking a car? In a study done by the Discovery Channel, five men and women of similar ages were asked to parallel park a car. The men averaged one minute, while the women on average took three times as long.¹¹ Design innovations that understand gender differences could be more sensitive to innate abilities, creating a universal improvement for both genders. For example, Nissan's "Around View Monitor" system not only makes parallel parking easier, it's also cool. Who wouldn't want to park their car as if they were playing a video game?

In another example, John and Ashley Sims took note of how women physically turn maps to the direction they are heading. As a result they printed a map with two directions, the reverse side with all

the names flipped accordingly. They received more than 15,000 orders from women but only a handful from men.¹²

Some scientists believe that the brain structure accounts for women's ability to think more holistically, viewing each element as part of a bigger picture. Women are known to take into account many details from varied sources—such as sight, speech and emotional overtones—and merge these inputs together to draw a non-linear conclusion. Some may call this women's intuition.¹³ It's therefore important to consider the whole experience when designing for women, who often form an opinion on a product based on the entire service and points of contact they have experienced with the brand.¹⁴

Design for gender

More than 99% of genetic coding is identical between men and women.¹⁵ Although less than one percent seems like a small difference, it's vast in terms of how men and women think, feel and act. While these gender nuances are subtle and often overlooked, the differences should be taken into account when designing a product or service that can truly be appreciated as universal design.

And we know that sex matters to the consumer. Long after the age of four, when gender identity is said to be firmly established,¹⁶ we see people clearly identifying the sex of their car or debating the gender of an iPod. So as designers, we need to understand these inherent differences as well as the impact of preconceived roles within society and the value placed on individual identity.

In fact, if we can harness all these differences—variations in physical strength, mental skills and social expectations—we could use this knowledge to optimize products and services that are better designed to appeal to men, women or both.

- 1 Barletta, Marti. *Marketing To Women*. Chicago: Dearborn Trade, 2006.
- 2 Moir, Anne and David Jessel. *Brain Sex: The Real Differences Between Men & Women*. New York: Dell, 1998.
- 3 Ibid.
- 4 Blum, Deborah. *Sex on the Brain: The Biological Differences Between Men and Women*. Viking, 1997.
- 5 Brizendine, Louann. *The Female Brain*. New York: Broadway Books, 2006.
- 6 Barletta, Marti. *Marketing To Women*. Chicago: Dearborn Trade, 2006.
- 7 Ibid.
- 8 Ibid.
- 9 Gur, Ruben, Bruce Turetsky, Mie Matsui, Michelle Yan, Waren Bilker, Paul Hughett & Raquel Gur. "Sex Differences in Brain Gray and White Matter in Healthy Young Adults: Correlations with Cognitive Performance." *The Journal of Neuroscience*. 19.10 (1999): 1, 6.
- 10 Ibid.
- 11 *Science of the Sexes*. Discovery Channel. 2002.
- 12 Pease, Barbara, and Allan Pease. *Why Men Don't Listen and Women Can't Read Maps*. New York: Broadway Books, 2001.
- 13 Barletta, Marti. *Marketing To Women*. Chicago: Dearborn Trade, 2006.
- 14 Smart Design and Femme Den's previous white paper titled 'Design and Gender: Thinking about Sex' explores this issue in more depth.
- 15 'Brizendine, Louann. *The Female Brain*. New York: Broadway Books, 2006.
- 16 Moir, Anne and David Jessel. *Brain Sex: The Real Differences Between Men & Women*. New York: Dell, 1998.