THE BUYING BRAIN

Secrets for Selling to the Subconscious Mind

DR. A. K. PRADEEP
Founder & CEO, NeuroFocus, Inc.

SURPRISING INSIGHTS FROM THE WORLD'S LEADING NEUROMARKETING LAB

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For my dear children, Alexis, Shane, and Devin,
whose intelligence and laughter light up my life.

FOREWORD

As a professional marketing strategist, my entire career has been about getting into the heads of buyers. I've used tools that are familiar to generations of marketers, conducting primary research about my buyers by interviewing them, and drawing on secondary sources such as analysts' opinions and studies. Then, armed with that information, I've directed my teams of both staffers and agencies to create advertisements, websites, or trade show booths and tested these efforts via a focus group or A/B testing.

Damn, I thought I was really doing it right—until I read *The Buying Brain*, that is.

In these pages, I learned that I've been focused for all these years on just a tiny part of my buyers' brains! Like most marketers, I've been obsessing over the tip of the iceberg—that part of the consumer that we can see, touch, and hear.

I've asked questions designed to probe consumers' *conscious* minds. But the answers to questions like "Do you like this ad?" and "When I mention this brand, what animal do you think of?" and "Would you prefer red or green for that button?" seem downright quaint when compared to the potential fruits of probing the enormous activity in buyers' *subconscious* brains.

In this remarkable book, Dr. A. K. Pradeep shows us that as many as 95 percent of buyer decisions are made by the subconscious mind. Yes, you read that correctly!

Use of the word *secret* in many marketing book titles is an exaggeration at best and a fabrication at worst. But that accusation is absolutely untrue of *The Buying Brain: Secrets*

of Selling to the Subconscious Mind, because this book unlocked mysteries for me (a reasonably knowledgeable marketing author and practitioner) in every chapter. I learned that there are differences between male and female brains that have profound importance to marketers. I learned that your brain changes with age, and knowing the nature of this transition can make your marketing to various age groups come alive. I even learned how to market effectively to new mothers (yup, her brain changes, too).

Because Pradeep is the guiding force behind the world's top neuromarketing lab, many of the world's largest and most sophisticated companies are using his ideas. These companies are applying the latest advances in neuroscience to create brands, products, websites, package designs, marketing campaigns, store environments, and more.

Now these powerful neuromarketing ideas are available to you in this engaging and easy-to-digest book.

Marketers have known for years that if you understand the human brain, you will design better offerings, create better marketing, and sell more products. Now, finally, marketers possess a more complete understanding of the entire human brain.

—David Meerman Scott
Business Week best-selling author of
The New Rules of Marketing & PR
www.WebInkNow.com
twitter.com/dmscott

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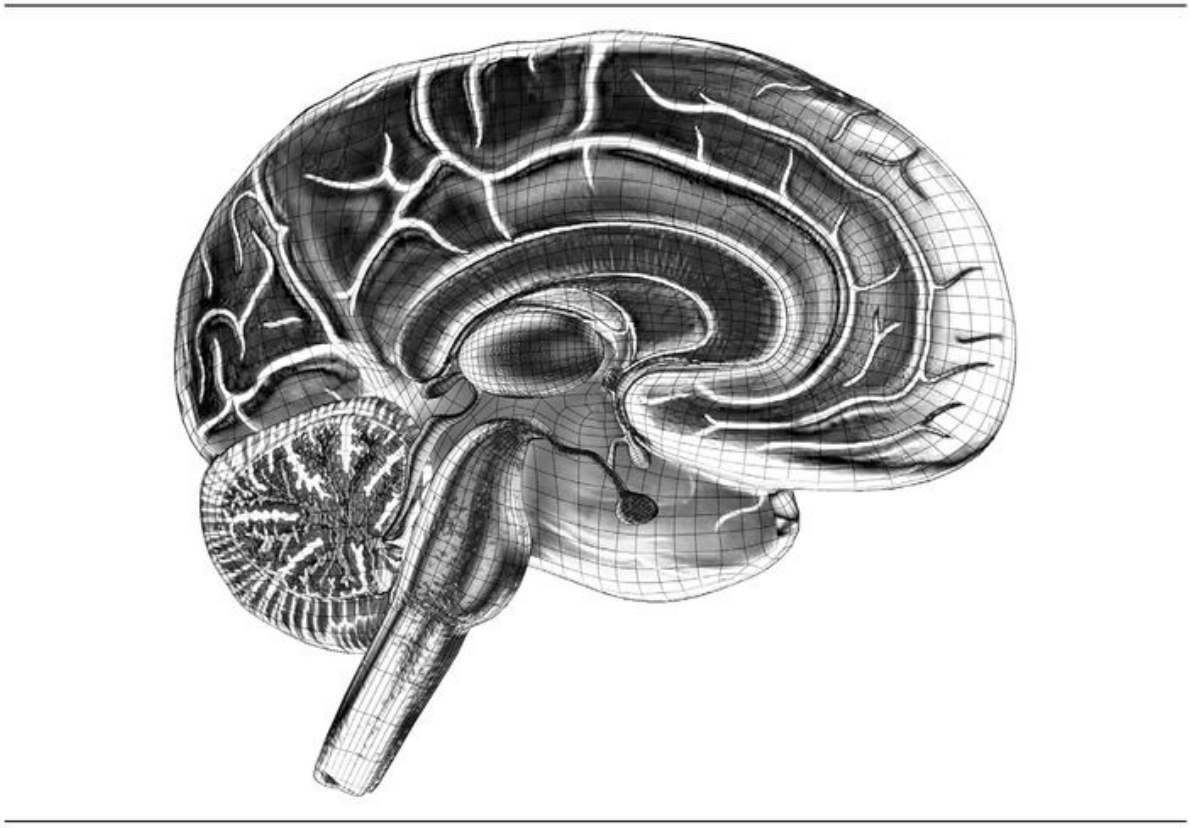
PART 1

INTRODUCING THE BUYING BRAIN

Source: Photo by BigStock.com



Understanding the human mind in biological terms has emerged as the central challenge of science in the twenty-first century.

—Dr. Eric Kandel, Neuroscientist and winner of the Nobel Prize for
Physiology or Medicine; NeuroFocus Advisory Board Member.

CHAPTER 1

$1 TRILLION TO PERSUADE THE BRAIN

Millions of people in our global economy have jobs that depend on communicating with and persuading human brains. A trillion dollars is spent on this effort every year.

Yet few of us understand how all those human brains really work—what is attractive to them, how they decide what they like and don't like, or how they decide to buy or not buy the infinite variety of products and services presented for their consideration every day.

This book is about **how and why brains buy**. It dips into a wellspring of new knowledge that has been pouring out of the neurosciences over the last few decades, especially the last five years, and describes actionable insights for businesspeople and marketers that can be derived from that knowledge and applied directly to the global industry of persuasion.

These are remarkable times. It is a rare event when a science, its enabling technology, and a set of real, practical problems come together all at once to revolutionize and expand our capabilities in the world. It happened with chemistry in the eighteenth century, physics in the nineteenth century, microbiology in the twentieth century, and now neuroscience in the twenty-first century. As Charlie Rose said in a recent series of interviews devoted to the neurosciences, "we have learned more about the brain in the last five years than in all human history combined."

I am lucky to be surrounded by the best neuroscience team in the world to help me understand these developments and I am going to share them with you in this book.

What have we learned?

The basic lesson is that human brains process much of their sensory input subconsciously. This is, of course, counterintuitive because we can't think about how we think when we're not aware of the thinking we're thinking about! But the basic fact is undeniable and is validated by literally thousands of scientific studies. Most of the work our brains are doing day and night occurs below the threshold of our personal conscious awareness. Imagine all the work your brain was doing (that you weren't aware of) just decoding the second sentence in this paragraph!

Scientists have tried to express the ratio of subconscious to conscious brain activity in many ways. I like the formulation I first came across in Timothy Wilson's book, *Strangers to Ourselves: Discovering the Adaptive Unconscious*.

Our senses are taking in about 11 million bits of information every second. Most of that comes through our eyes, but all the other senses are contributing as well—hearing, touch, smell, taste, and spatial sensations. Our conscious brains—that part of thinking in which we are aware of thinking—can only process, at best, 40 bits of information per second. All the rest is processed subconsciously. That's a ratio, if I'm doing my math correctly, of 99.999 percent subconscious to conscious processing. No wonder our brains often appear to be a mystery to us.

The challenge for marketers and product developers is obvious. "How do I get into that 40 bits of consciously

considered information?” That’s what this book is about.

It is written for marketers and businesspeople. There are enough books about the brain that make me go “wow!” They are written by neuroscientists, social scientists, and psychologists. They create a sense of wonder for the brain and what it does.

In this book I tackle the question that my Fortune 500 clients ask me, “Brain science is nice, but, *so what*? Tell me how I use this knowledge. How do I change my brand strategy using neuromarketing? How do I change product design and pricing using neuromarketing? How do I analyze packages to make sure they will pop on the shelf? Are there things I should be doing in the store in the aisles to make our consumers desire our products? How can I make sure I get the returns on our investment in advertising?”

“And by the way,” (clients tell me) “neuromarketing cannot be a set of ‘cool, cute ideas,’ but must be a systematic process and framework that can live and flourish in the workplace and workflow of my corporation.”

This book explains those frameworks, workflows, and processes that enable a Chief Executive Officer (CEO), Chief Marketing Officer (CMO), Vice President of Brands, Vice President of Insights, and a Market Researcher to implement brain-based marketing in a corporation. These frameworks are born from analyzing thousands of brands, products, designs, pricing mechanisms, packages, in-store Point-of-Sale (POS) elements, Web storefronts, TV advertising, print advertising, Internet advertising, and more in our NeuroLabs across the world.

The frameworks and actionable concepts presented in this book will also be invaluable to those in the supply chain: brand marketing consultants, product designers, pricing

clinicians, package design firms, in-store designers, Web design firms, and advertising agencies.

The interplay of conscious and subconscious processes in the human brain presents a fundamental challenge for people in the business of developing products and getting other people to buy and try them. Marketers and product developers have suspected this for years.

If people do not have access to all the sources of their decisions and behaviors, then **they can't tell us why they do what they do**. So if we only listen to their articulated reports of what they like and don't like, we may well be led astray. An 80 percent failure rate of new products in the marketplace, with all the economic costs that implies, gives us some pretty strong evidence that this is the case!

The problem for marketers and product developers is how to find out what people really want and need. That's where brain scientists come in.

I love helping companies do marketing and product development. I love being able to apply these new neuro-based tools to making products and messages more effective. The business I lead has worked with many companies—large and small, domestic and global—and I can tell you this: Companies come to us with humility and tremendous respect for their current and potential customers. They all want to know the same things:

- Do consumers notice us?
- Do consumers like us?
- Do consumers remember us?

In a free marketplace of competing ideas, the consumer is, and will remain, the boss. Giant corporations still rise and fall at the whim of the consumer, based on their ability to meet that consumer's wants and needs better than their competition.

So here are the basic principles that drive everything you are going to read in this book.

- Neuromarketing provides a real competitive advantage in a crowded and cluttered marketplace.
- While the languages of people and the ways they express themselves change from country to country and culture to culture, the language of change from country to country and culture to culture, the language of the brain is universal, thus opening the door for global norms.
- Neuro-design of products and services opens the door to design products and services that appeal to the inner truths and aesthetic sensibilities within all of us.
- Every aspect of brands, products, packages, in-store, and advertising is changed by neuromarketing today, and that trend is explosive.
- My goal is to get you to put the book down and apply what you learned in your work tomorrow.

CHAPTER 2

NEUROMARKETING TECHNOLOGY

At the end of this chapter, you'll know and be able to use the following:

- Why it's critical to use a dense array of EEG sensors to cover the whole brain
- Why neurological testing can rely on sample sizes far smaller than surveys and even some focus groups, and get results that are more scientifically accurate
- The differences between EEG, fMRI, and biometrics

So much attention is being paid to the advances that neuromarketing is making in today's marketplace that its origins have gone largely unnoticed. I want to shine a little light on the reasons why this marriage of science and marketing was consummated, and the driving forces behind it.

It usually surprises audiences I address to learn that electroencephalography (EEG), the basic technology underlying most brainwave-based neuromarketing and the form of neurological testing that we use at NeuroFocus, is not really new. In fact, it is the staple methodology used in neuroscience laboratories around the world.

Hans Berger made the first practical application of EEG measurement in the 1920s. He was the first scientist to design sensors to pick up electrical signals naturally emanating from the brain, and his discovery is directly responsible for our ability today to capture brainwave activity as accurately and reliably as we do. He understood

from the start that his invention could and should be used to measure the brain's full range of activity, not just an extremely small portion of it. When you consider how limited the state of neuroscience knowledge was some eight decades ago compared to today, Dr. Berger's comprehension and foresight is all the more impressive.

But in some key respects, his invention was the classic example of a great idea ahead of its time. EEG sensors could acquire the previously elusive tiny microvolts of electricity that are produced by brain activity, but the technology to integrate and fully analyze them was lacking. It would remain so until the advent of transistors, microprocessors, and the subsequent blossoming of digital technology many years later. Combined, these elements enabled us to untangle the complex interplay of brain electrical dynamics. It really took matching microchips with those microvolts before we could take full advantage of Berger's Flapper Age discovery.

It was quite a span of time from the Depression to the Digital Dawn, but EEG methodology coupled with fast, large memory-capacity computers enabled scientists at last to explore and, most importantly, understand the inner workings of the brain for the first time. However, even today, with all the processing power we have at our fingertips, we are still plumbing the depths of this amazing organ and making new discoveries on a daily basis.

CORTICAL GEOGRAPHY

The second element in the birth of neuromarketing is what we have learned about the brain's basic structure and the way it functions. Hopefully you won't tire of this fact, because I mention it in these pages several times, but it is

central to grasp the concept that **the brain is really an incredibly complex and interwoven series of neural networks.** The chapters on the brain and the senses delve into this phenomenon in great detail, but it's worth noting here because it is at the core of EEG measurement of brainwave activity.

There are seemingly endless statistics about the brain, but a few call out for mention here:

> The brain—that supercomputer inside your skull—is capable of roughly 200 million billion calculations per second.

This massive interconnectivity is what enables the human brain to perform all the amazing things we do, from walking upright and chewing gum at the same time, to scoring operas, performing brain surgery, and everything in between. As much as we have learned by isolating and identifying the brain's many specific regions and structures, if we hope to understand the real majesty and meaning of our minds, we have to adopt a "systems approach." Hans Berger's breakthrough paved the way towards gaining that neurological knowledge.

A man-made supercomputer has about 60,000 miles of wiring inside. The brain’s equivalent amount of interconnectivity would amount to more than 200,000 miles of “wiring”!

One more statistic illustrates how important full-brain measurement is for neuroscience, medicine, and neuromarketing:

Sixteen EEG sensors are the minimum number required by a clinical standard for determining brain death in humans.

This is why NeuroFocus applies high density arrays of EEG sensors to cover the full brain. Only this full brain coverage provides marketers with the entire scope of brainwave activity that occurs across multiple brain regions. Measurement across the entire brain is critical for understanding how the brain is responding to stimuli.

As groundbreaking as this combination of neuroscience with digital technology has been, it would not have given birth to neuromarketing without a third causative effect at work. And that is the state of market research methodologies and challenges at the dawn of the neuromarketing age.

MARKET RESEARCH CHALLENGES AND OPPORTUNITIES

The fact is, as sophisticated, and in many ways useful, as market research has become in modern economies, there have always been fundamental shortcomings associated with the various methodologies that are employed. These flaws have vexed both clients and researchers for decades, and no one has been able to devise comprehensive solutions without a deeper understanding of the brains being studied.

There are two basic reasons for this: first, traditional methods are inherently unable to duplicate what the brain does, how it operates, and how it forms perceptions of things like products, services, stores, ads, and everything else connected with modern marketing.

Behind the second reason is a fascinating neurological finding:

> When asked to recount how it reacted to something, in the course of responding *the brain actually alters the original data it recorded.*

This is the basic problem with surveys and focus groups—so-called “articulated” or “self-reported” responses. These research methods can work reasonably well when used to capture **facts** recounted by participants. But not so much when it comes to probing how consumers truly felt about or remembered something. It is extraordinarily difficult for people to describe in precise words the emotions that they experienced when exposed to a stimulus. We are asking our conscious mind to reconstruct what our subconscious mind recorded, and translate that into specific language that

accurately reflects how we felt or what we remembered at an earlier point in time.

Traditional market research must try to work around this structural shortcoming, plus a couple of others. Focus groups can be influenced by one or more strong-voiced, opinionated participants. Surveys must cover large numbers of respondents in order to compensate for the inherent "noise" or error in any individual's responses. These limitations are built-in for such "articulated response" methodologies.

So the third element in the birth of neuromarketing has been the fundamental **need in the market research world for more accurate, reliable, and actionable knowledge** in order to make more informed business decisions. This need is made all the more urgent by ever more competitive companies and economies.

Combine this need with the exponential growth in scientific knowledge of the brain, the advancement in computer technology, and the challenges of existing research approaches, and the advent of neuromarketing appears nothing less than inevitable.

Sample Size

One frequently asked question (FAQ) we encounter periodically has to do with sample size. Happily, here again neuroscience supplies the answer.

Traditional research methodologies require substantial sample sizes to approximate statistical validity. Fairly large numbers of people must be sampled in surveys to overcome variables such as language, education, culture, and other factors that can and do influence consumers' articulated responses.

In sharp contrast, neurological testing achieves more scientifically sound, rigorously reliable, and actionable results—and requires far smaller sample sizes to do so. Brainwave activity measurement dives below the surface of the consumer's conscious mind, to the deep subconscious level where the brain's initial registration of and reaction to stimuli occurs. While the human brain differs in some respects—for example, between men and women, or young children and seniors—**the fact is that our brains are far more alike than they are different.**

Because our brains are so remarkably alike, a thorough and scientifically sound neuromarketing research project **requires about 10 percent of the test subjects** required by conventional surveys.

No matter how large the sample size may be, conventional research results are also vulnerable to a basic neurological fact: what our brains actually perceive and recall is different from what we say we perceived and recalled when we're asked. The process of accessing that stored information and translating it into a physical response actually causes the brain to alter its original response. NeuroFocus measures at the stage of the cognitive timeline before that alteration occurs.

Alphabet Soup, with a Side of Biometrics

As with any new field, the terminology, technology, and methodology associated with what is now commonly referred to as neuromarketing can be daunting and confusing to nonscientists. While some might maintain that there's a marketing advantage to this aura of complexity, I disagree and firmly side with the late retail magnate Sy Syms, who said in his ads, "an educated consumer is our best customer."

So herewith is **a brief overview** of the two main technological pillars upon which the neuromarketing category is built. And a third methodology that really has nothing to do with neurological measurement per se, but is often thrown into the mix (especially by its practitioners, who dearly love to embrace all that is great about the brain, without actually measuring it at all!).

EEG

As you now know, this acronym stands for electroencephalography. It is a "passive" technology, using sensors (essentially, tiny and highly sensitive microphones) to capture the minute electrical signals that brainwave activity produces. It is completely noninvasive and comfortable. Neuroscience laboratories worldwide have used EEG technology for decades.

For full-brain coverage, which again is the sole scientific standard that any reputable EEG-based neurological testing company relies on, EEG sensors are embedded in a lightweight cap (closely resembling a typical swim cap) and deployed in high-density arrays. They measure the extremely low-voltage signals emitted by neurological activity at up to 2,000 times a second at each sensor's location.

At NeuroFocus, we apply high density arrays of EEG sensors to achieve full-brain monitoring. We do so for several reasons. **Many areas of the brain are responsible for several functions,** and because of this, we rely on full-brain coverage to know exactly which regions are operating simultaneously and in concert in response to a specific stimulus. If you only measure a very small number of areas, you are going to miss this essential element of

interconnectivity—and your results will be woefully inadequate by any recognized neurological standards.

Sensor placement is key as well. EEG sensors are so sensitive that they pick up a certain amount of artifacts —“noise,” in signal processing parlance—along with brainwave activity. A classic example is eye blinks. Muscle movements like blinks can generate up to 100 times the electrical voltage that brainwave activity creates—so you can see that it is critical in the analysis phase to screen for and eliminate that noise, to ensure that what is being analyzed is only the pure brain activity data, uncorrupted by muscle activity or other extraneous signals. If you only place EEG sensors in certain limited areas—such as on the temples or forehead alone—you are going to pick up an inordinately large ratio of artifacts, or “noise,” from muscle activity in that area, compared with the brainwave activity recorded.

Relying exclusively on full-brain testing assures not only that brainwave activity across all the relevant and interconnected regions of the brain is being captured, but also that sufficient overlapping data streams are being acquired to allow for artifact removal, and still have more than enough brainwave data to conduct accurate analysis.

To put this into perspective, the importance of full-brain testing is reflected in the fact that NeuroFocus ***discards*** *as artifact as much data as some other EEG-BASED neuromarketing companies collect in their* ***full set of data.***

We combine this full-brain EEG testing methodology with sophisticated eye-tracking equipment that records exactly where a person is looking while experiencing a stimulus. This combination allows us to correlate, with precision, exactly how that person’s brain is responding to a certain stimulus in terms of our three primary NeuroMetrics of Attention, Emotional Engagement, and Memory Retention,