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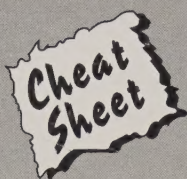
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- Recognize how consumers really think and make decisions
- Conduct neuromarketing studies that won't break your budget

Stephen J. Genco, PhD
Andrew P. Pohlmann
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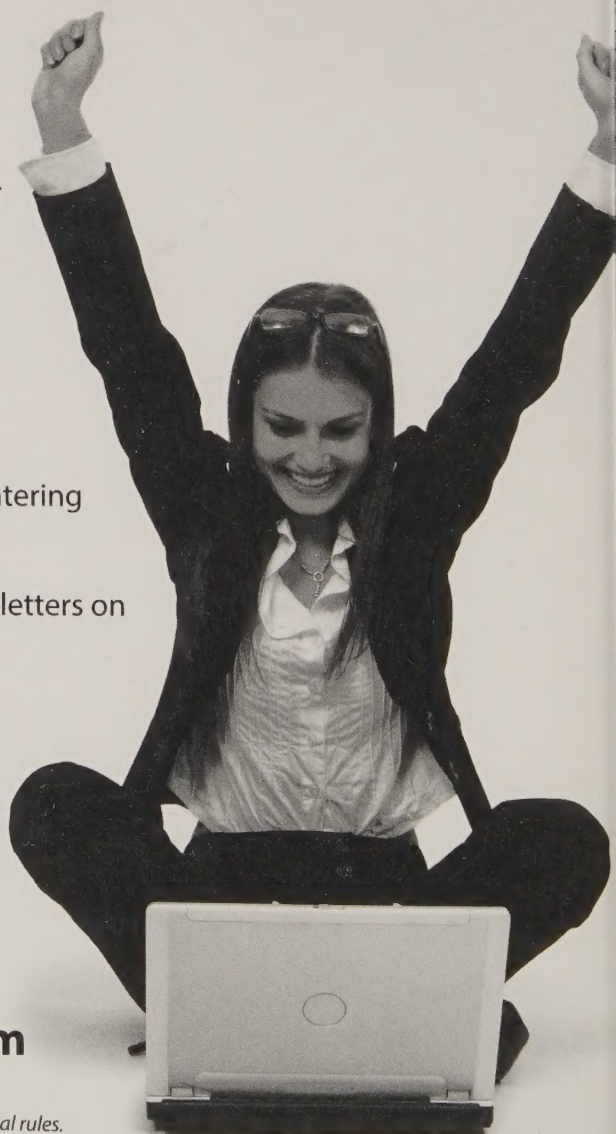
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**by Stephen J. Genco, PhD; Andrew P. Pohlmann;
and Peter Steidl, MBA, PhD**

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Introduction

Welcome to *Neuromarketing For Dummies*! Neuromarketing is one of those topics that a lot of people talk about, but few people really understand. It's a brand-new field that sits at the intersection of three existing fields: marketing, market research, and brain science. In this book, we look at all these dimensions of neuromarketing, and consider its ethical and public policy implications as well.

As you dig into this book, you see that neuromarketing isn't about magical buy buttons in the brain, or about creating zombie consumers who are powerless to resist the enticements of brain-tickling marketers. It's about some amazing new discoveries in the brain sciences that are fundamentally changing the way we think about thinking, and are inevitably impacting how we think about buying, selling, and experiencing products and services. That's the revolution — and the excitement — that neuromarketing represents, and it's what we try to capture in *Neuromarketing For Dummies*.

About This Book

Our approach follows the tried-and-true format of the *For Dummies* series. We cover our topic in a modular way so you can jump in at any point and not feel lost. You can read the chapters in whatever order you like, because each chapter is self-contained. If we mention something that we cover in another chapter, we tell you where you can find more information.

Sidebars (text in gray boxes) and anything marked with the Technical Stuff icon are skippable. Finally, we made some decisions regarding terminology that may hide some deep debates among scientists and researchers, but we did so to simplify our story and save you from a lot of philosophical arguing:

- ✓ We use the terms *brain* and *mind* interchangeably, even though some academics (and philosophers) would howl at such a simplification.
- ✓ We use the general term *brain sciences* to encompass the three major branches of science we include as foundations for neuromarketing: neuroscience, social psychology, and behavioral economics.

- ✓ We often use the term *consumers* to describe the people neuromarketing wants to understand; sometimes we just call them *people*.
- ✓ People who participate in studies or experiments we usually call *participants*, because we don't like the clinical term *subjects*, although we do use that term once in a while.

Within this book, you may note that some web addresses break across two lines of text. If you're reading this book in print and want to visit one of these web pages, simply key in the web address exactly as it's noted in the text, pretending as though the line break doesn't exist. If you're reading this as an e-book, you've got it easy — just click the web address to be taken directly to the web page.

Finally, in the grand tradition of the *For Dummies* series, we don't take our subject matter or ourselves too seriously — which is particularly important for the topic of neuromarketing, because some people treat this topic as something that's just too complicated for mere mortals to understand. Usually, when experts tell you something is too complicated for you to understand, it means you're about to be charged a lot of money or they don't want you to ask too many questions. We hope this book helps level the playing field between practitioners, consumers of neuromarketing services, and just plain consumers, so that everyone has a more grounded and realistic picture of what's involved and what's realistic to expect, in the brave new world of neuromarketing.

Foolish Assumptions

We wrote this book for anyone who has an interest in neuromarketing, so we made very few assumptions about you and what you need to know to get the most out of this book. Here are the assumptions we made:

- ✓ We assume you don't have a degree in psychology, economics, statistics, or neuroscience — but if you do, we don't think it'll hurt you too badly.
- ✓ We assume you're interested in how people think and why they act the way they do, even when they don't act very rationally.
- ✓ We assume you're interested in how people are influenced by marketing and advertising, but we don't assume you're an expert in these fields.

- ✓ We assume you're interested in neuromarketing because you think it can help you in your business or because you think it can hurt you as a consumer. We cover both these perspectives in depth.
- ✓ We assume you're willing to consider new ideas about your own brain that may seem completely counterintuitive when you first hear them.

Icons Used in This Book

Icons are the little images in the margins of this book. We use them throughout the book to draw your attention to certain kinds of information. Here's what each icon means:



The Tip icon marks any tidbit of information that you can use to help you apply neuromarketing principles in your business, design useful neuromarketing studies, or work successfully with a neuromarketing partner.



The most important points in each chapter are marked with the Remember icon. If you want to jump to the main points of each chapter quickly, just follow the Remember icons.



We use the Warning icon to point out things you need to look out for. These may be cautions about interpreting scientific concepts presented in the book, or advice to help you get the most out of working with neuromarketing partners.



Sometimes we can't resist sharing some technical details with you that you really don't need to know to understand the rest of a chapter. Often these are further details on scientific topics or particulars about how neuromarketing has been used in practice. We mark these with the Technical Stuff icon so you can skip over them if you want to. It's your choice.

Beyond the Book

In addition to the material in the print or e-book you're reading right now, this product also comes with some access-anywhere goodies on the web.

Check out the free Cheat Sheet at www.dummies.com/cheatsheet/neuromarketing for tips on how to apply neuromarketing to advertising and information on the intuitive consumer model and how it differs from the rational consumer model (used in traditional marketing).

Where to Go from Here

Although you can jump into this book at any point, we have some recommendations for where you may want to begin:

- ✓ For the basics, we recommend Chapters 1 and 2, because they provide an overview of the whole book and an introduction to the scientific foundations of neuromarketing.
- ✓ If you have a particular marketing area that interests you — like branding, product design, shopping, or entertainment — you can find the chapter that addresses that area in Part III.
- ✓ If you want to know how to get the most out of a neuromarketing study, check out Chapters 18 through 21.
- ✓ If you want to dive into the ethical and policy implications of neuromarketing, we suggest you start with Chapters 4 and 22.

If you want to dig deeper into the brain sciences that provide the foundations for neuromarketing, we suggest two excellent introductions: *Neuroscience For Dummies*, by Frank Amthor, and *Behavioral Economics For Dummies*, by Morris Altman, PhD (both published by Wiley).

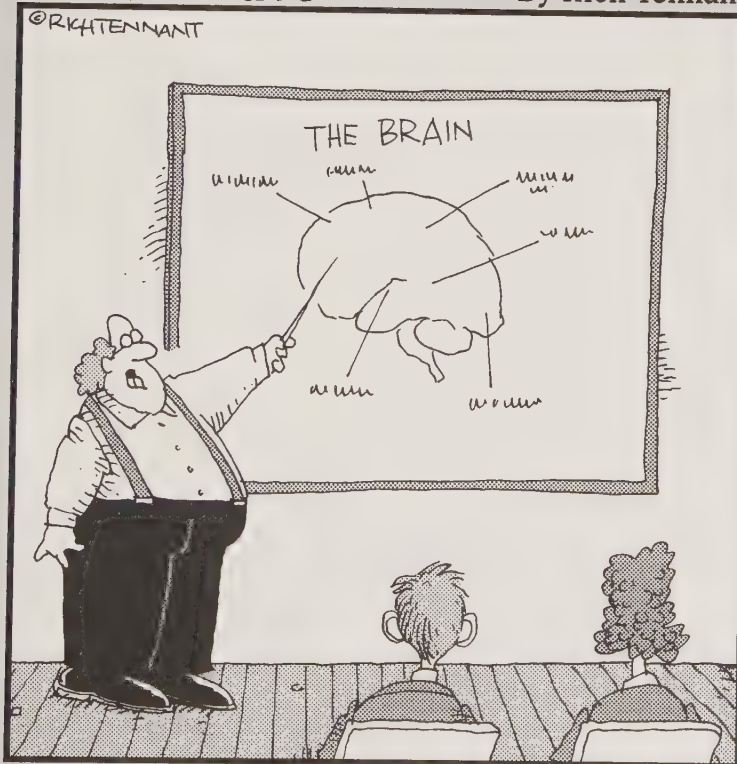
For more reading suggestions, references for all studies discussed in the book, updates and additions to book content, and pointers to training opportunities and upcoming speaking engagements, please visit the authors' website at www.intuitiveconsumer.com.

Part I

The Brave New World of Neuromarketing

The 5th Wave

By Rich Tennant



"Information is moved via neurotransmitters from neuron to neuron via the synapses into the brain where it is then retrieved by the memory via a slap on the back of the head."

In this part . . .

Here, we provide an overview of the new world of neuromarketing and the topics to be covered in more detail in the rest of the book. If you want a quick summary of what neuromarketing is and what this book is about, start here.

Neuromarketing has emerged in market research today because of some amazing new discoveries in neuroscience, social psychology, and behavioral economics that have changed our understanding of how the human brain experiences, interprets, decides, and acts in the world. Perhaps it was inevitable that these discoveries would be applied to advertising, marketing, and consumer behavior. But there is still a lot of confusion about this new field, and more than a few misunderstandings about what it can and can't do, and whether it's a good or bad thing. In this part, we clear up the confusion and give you a solid foundation for understanding neuromarketing, what it's good for, and how it's impacting market research and marketing.

Chapter 1

What Neuromarketing Is and Isn't

In This Chapter

- ▶ Getting a definition of neuromarketing
- ▶ Making sense of the science behind neuromarketing
- ▶ Seeing how neuromarketing is being used today
- ▶ Understanding the basics of neuromarketing measurement
- ▶ Succeeding with neuromarketing research

Neuromarketing is a new field that is rapidly emerging in the world of consumer research. For some observers, it's the "Holy Grail" of research technologies that will finally unlock the mysteries of consumer choice and behavior in the human brain. For others, it's the root of all evil that will finally give marketers and advertisers ultimate control over our minds and pocketbooks.

So, which is it: Holy Grail or root of all evil?

As with most exaggerations, the truth lies somewhere in the middle. Neuromarketing does bring some quite powerful insights and techniques into consumer research, and in this book we discuss those contributions in detail. But neuromarketing is not a technique for turning people into "zombie consumers," and we also discuss in detail why that's the case.

Neuromarketing is controversial, in many cases because it isn't well understood. It's also evolving and growing very rapidly, so it's a moving target. At this stage in its development, there isn't much consensus regarding what neuromarketing is, what it does, where it's going, or what we should do about it. So, it makes sense to start with some clear definitions.

Defining Neuromarketing



Because we want this book to be a reference for all aspects of neuromarketing, our definition of the field is quite broad. We define *neuromarketing* as any marketing or market research activity that uses the methods and techniques of brain science or is informed by the findings or insights of brain science. (For more on brain science, see the next section.)

Ultimately, neuromarketing is about solving exactly the same problems that all types of market research aim to solve: how a company should best spend its advertising and marketing budget to communicate its value to its customers, while generating revenues and profits for its shareholders. If neuromarketing is worth its salt, it has to help marketers solve these problems better than other types of research.

In this regard, there is nothing mysterious about neuromarketing. It's just another type of market research, subject to the same constraints of time, money, and usefulness as any other type of research that is performed every day.

Neuromarketing versus marketing

Some people believe that neuromarketing is a field devoted to influencing people to buy things — often things they don't really need — and that it's, therefore, a bad and dangerous thing to do.



Part of the blame for this misconception lies with the term itself.

Neuromarketing sounds suspiciously like a different (and nefarious) type of marketing, but it's not. Here's the distinction you need to keep in mind:

- ✓ **Marketing** is a field devoted to influencing people to like things, and ultimately to buy things, including things they may not need. Marketers are aware that people have brains. Marketing, therefore, is now and always has been devoted to influencing brains.
- ✓ **Neuromarketing** is a new way to measure *whether* and *how* marketing is working. Neuromarketers believe it's a better way to measure marketing because it's based on a more realistic understanding of how consumers' brains operate (we discuss the evidence for this claim in Chapter 2).

So, if you believe that influencing brains is a bad thing, then, in our opinion, your complaint is with marketing, not with neuromarketing.

What neuromarketing is good for

Taking this broad view of neuromarketing, there are three major ways that it can help us better understand marketing and consumer behavior:

- ✓ It can tell us what's going on in people's brains while they're experiencing a marketing *stimulus* (any marketing material presented in a controlled research test).
- ✓ It can tell us how brains react to marketing stimuli presented in different *situational contexts* (for example, alone or next to competing products, at different price points, in a store versus online, and so on).
- ✓ It can tell us how brains translate those reactions into *consumer decisions and behaviors* (such as buying a product or switching loyalty to a new brand).

Brain science and the foundations of neuromarketing

In this book, we use the term *brain science* to refer to all the scientific fields that underlie neuromarketing. We do this because we want to emphasize that the one obvious scientific source for neuromarketing — neuroscience — is not the only brain science that underlies neuromarketing. In fact, neuromarketing is built on top of at least three basic science fields, which, taken together, we refer to as the *brain sciences*, or simply *brain science*:

- ✓ **Neuroscience:** The study of the human nervous system, including the brain, its anatomy, functions, and the peripheral nervous system it controls. Neuroscience is most relevant to understanding the brain states and physiological reactions that accompany exposure to brands, products, and marketing materials.
- ✓ **Behavioral economics:** The study of how people make economic decisions in the real world. Behavioral economics is most relevant to understanding situational influences on consumer choice and behavior.
- ✓ **Social psychology:** The study of how people think and act in the (real or imagined) presence of other people. In recent years, social psychology has focused on the impact of nonconscious processes on human actions. It's most relevant to understanding how conscious and nonconscious brain processes work together in consumer choice and behavior.



Terminology: Brain or mind? Nonconscious, unconscious, or subconscious?

Brain versus mind: The word *brain* tends to be used when people talk about anatomical structures or circuitry in the brain. The term *mind* tends to be used to refer to the subjective cognitive states a brain creates. For example, the *prefrontal cortex* is an anatomical part of the brain, but *attention* is a cognitive “state of mind” produced by activity in the brain. Generally, we use these terms interchangeably. We consider “nonconscious processes in the brain” to be equivalent to “the nonconscious mind.”

Unconscious, subconscious, preconscious, and nonconscious: There is a lot of intellectual baggage associated with all the terms that can be used to refer to the “not-conscious” processes

in the brain. *Unconscious* has some bad connotations, in terms of both the Freudian unconscious and the association with anesthetized states. *Subconscious*, in turn, carries a “secondary” or “subsidiary” connotation, as if it’s something below and, therefore, less than the conscious. A similar term is *preconscious*, which often would be perfectly appropriate, but it implies that *conscious* always follows *preconscious*, and this isn’t always true. Given all these issues, we use the more neutral term *nonconscious* in this book. Using this term has the benefit of referring neutrally to “everything other than conscious”; plus, it’s the term that’s becoming the standard in the academic literature.



Other important disciplines, such as neuroeconomics and cognitive psychology, underlie neuromarketing, too, but we don’t cover those fields in detail in this book. Also, each of the fields listed here is regularly spawning new subfields or merged fields, such as consumer neuroscience, consumer psychology, social neuroscience, and decision neuroscience, to name a few.

The point is that these are exciting times in the brain sciences, and neuromarketing is the beneficiary of all these fields.

Understanding the New Scientific Foundations of Neuromarketing

Neuromarketing is a distinctive approach to market research because it’s based on new knowledge and findings from the brain sciences. This rich and rapidly growing body of knowledge provides many new perspectives on understanding consumer behavior. We call this new view of the consumer

the *intuitive consumer model*, as opposed to the *rational consumer model* that underlies most traditional market research. (We discuss these two models in detail in Chapter 2.) In this section, we offer an overview of some of the key findings that underlie the intuitive consumer model and neuromarketing.

Brain science tells us that the typical consumer is not a slow and careful deliberator when it comes to buying preferences and decisions, but instead is a *cognitive miser*, equipped with a brain that is adapted by evolution to conserve energy and produce fast and efficient consumer decisions and actions, not deep and logical assessments of marketing messages and purchase opportunities. Our consumer brains are attracted to both the new and the familiar, and they prefer the simple to the complex. These propensities are built into the circuitry of the brain, and they most often impact us below the level of conscious awareness.

This new picture of the human brain changes our understanding of how people see and interpret the world around them. This understanding has many implications for market research, which we introduce in Chapter 2 and cover in detail in Chapter 5. The most important of these implications is that human beings actually have very little awareness of why they do the things they do. This means that when people are asked by researchers about what they like or what they'll buy in the future, their answers are often guesses about what they think or will do. These guesses have been shown to be no more reliable and accurate than the guesses people make every day about what *other* people are thinking or going to do. People aren't lying or trying to deceive researchers when they make these guesses; they're literally unaware of the real causes and reasons for their actions.

This finding sets the fundamental challenge for market research. It's also the reason that neuromarketing has emerged in market research, because neuromarketing techniques hold the promise of measuring consumer responses that occur below the level of conscious awareness.

Many additional insights flow from this new science-based picture of the intuitive consumer. We focus on three more aspects of this picture in Part II: how emotions impact consumer decisions and behavior, how nonconscious goals drive decisions and actions, and how consumers really make decisions.

Modern brain science has made great strides in understanding the role of emotions in consumer behavior. Emotions operate at both conscious and nonconscious levels. They deeply impact our perceptions, beliefs, and attitudes, even when we aren't aware of them. They heavily influence what we notice (by directing attention), as well as what we remember (by triggering memory). We cover this topic thoroughly in Chapter 6.

The way in which our brains direct us toward any kind of decision and action, including consumer decisions and actions, is through the activation, pursuit, and attainment of goals. This is the basis of the motivational system that drives us, a system that has evolved over millions of years.

What we've learned from brain science, mostly in the last decade, is that goals can operate nonconsciously, as well as consciously. Contrary to our conscious experience, we're constantly activating and pursuing goals that we may have no idea exist. This finding has huge implications for marketing and consumer behavior — for both marketers and consumers. We consider these implications in Chapter 7.

Our understanding of human decision making has been revolutionized in the last 40 years. We used to see decision making as a conscious, deliberative process that could be reconstructed simply by asking a person to recount how he or she came to a particular decision. Today we know that people use different systems in the brain to make different kinds of decisions and that many decisions occur automatically, below the threshold of conscious awareness.

Consumer decisions are also highly influenced by *situational factors*, such as how a product is presented in a store or what other products it sits next to. These situational effects have been studied extensively in the new field of behavioral economics. A large body of research shows that these effects also often occur without conscious awareness of their impact.

With so many nonconscious influences on consumer decision making being uncovered, we need to take a new look at the power of traditional persuasion in marketing and advertising. We find that persuasion is probably less important in successful marketing and advertising than it was previously believed to be. Chapter 9 looks at consumer decision making in detail.

Neuromarketing is built on these insights and many others derived from brain science. It borrows the tools and technologies developed in the brain sciences and applies them to the world of marketing and consumer behavior. The underlying science will continue to progress, and neuromarketing will continue to benefit from this vibrant scientific foundation.

Exploring Where Marketers Are Using Neuromarketing Today

Neuromarketing is being used today by marketers in many research areas. In Part III, we tell you how it's being used, what results are being achieved, and how it's likely to be used in the future, in six key marketing areas:

- ✓ **Brand:** Understanding brands and branding is an area in which neuromarketing is a natural fit. Brands are essentially ideas in the mind, and they draw their strength by making connections with other ideas in the mind. A strong brand is one that triggers deep associations with related ideas that keep that brand at “top of mind” for consumers. In Chapter 9, we show how strong connections in long-term memory make leading brands so hard to displace. We also show how neuromarketing techniques can be used to measure brand effects that consumers may not even know exist.
- ✓ **Product:** Product innovation and package design are two research areas in which neuromarketing is making significant inroads. Because people have a hard time predicting what they'll like or do in the future, neuromarketing provides alternative ways to observe when a new idea is resonating positively with consumers and when it's generating a gigantic “Huh?” We cover these and other uses of neuromarketing in product and package research in Chapter 10.
- ✓ **Advertising:** Advertising research is an active area for neuromarketing. How advertising works and what makes one ad more successful than another have always been a bit of a mystery. Neuromarketing offers new tools and techniques that illuminate, if not completely solve, this mystery. In particular, brain science leads us to the intriguing idea that ads may work best when they aren't paid attention to, and that the repetition of positive emotional connections, rather than persuasive messaging, may be more effective at reinforcing brands and boosting sales. We discuss these and other ideas about ads and the brain in Chapter 11.
- ✓ **Shopping:** Shopping and in-store marketing are research areas where neuromarketing has much to offer. Shoppers expend surprisingly little conscious thought in the shopping experience. They pick up a huge number of visual and other sensory cues as they navigate their shopping journey, but they usually aren't aware of most of them. Situational factors are highly influential in determining shopping outcomes, often at the expense of shoppers' conscious intentions. How neuromarketing can be used to test shopper reactions in both real and simulated shopping environments is covered in Chapter 12.
- ✓ **Online:** Closely related to in-store shopping experience is online shopping experience. But there are important differences. In the online world, advertising and buying can exist right next to each other, with no need for consumers to delay gratification until they make their next trip down to the mall. As a result, the activation, pursuit, and attainment (or frustration) of consumer goals is much more immediate and dynamic in online shopping. For more details on the implications of this unique situation and how the human brain has adapted to online experience, see Chapter 13.

- ✓ **Entertainment:** The final marketing area we explore in Part III is entertainment. Although people are better able to identify when they're being entertained than when they're being persuaded, they have very little conscious access to why they find one TV program, movie, or video game more entertaining than another. Brain science provides some useful insights into what makes a story interesting and how interest is represented in the brain. This opens up the possibility of neuromarketing testing of entertainment programming. We look at this research in Chapter 14.

Explaining How Neuromarketing Measures Consumer Responses

In Part IV, we shift our focus from sources and applications of neuromarketing to the basics of neuromarketing testing — how neuromarketing measurement techniques differ from traditional market research and from each other — and how they've been adapted from the tools and technologies of brain science.

First, we emphasize that although neuromarketers criticize some assumptions underlying traditional market research, there remains an important place for these approaches among modern research methodologies. In Chapter 15, we review the three “workhorses” of market research — interviews, focus groups, and surveys — and discuss when they make sense, and when they present risks and limitations.

Looking at the new neuromarketing research tools and techniques, we see in Chapter 16 that they fall into two general categories: approaches that measure *responses of the body* to marketing, and approaches that measure *responses of the brain*. Each approach captures a different kind of signal, and each comes with a different set of pros and cons as a measurement technology. In Chapters 16 through 18, we review these methods in detail.

The most important *physiological* or *biometric* measures (based on body signals) used in neuromarketing include the following:

- ✓ **Facial expressions:** The human face registers a wide variety of emotional states. Facial expressions can be read at two levels: observable changes in expressions (for example, smiles or frowns) and unobservable micro-muscle changes (for example, contractions of muscles associated with positive and negative emotional reactions). Facial expression measures have been found to be robust indicators of positive or negative emotional responses (called emotional *valence*).

- ✓ **Eye tracking:** The measurement of eye movements and pupil dilation while viewing an object or scene. Eye tracking has many uses in neuromarketing, both as an independent tool and as a supplement to other measures. The speed and direction of changes in gaze patterns provide valuable indicators of attention, interest, and attraction.
- ✓ **Electrodermal activity:** A measure of perspiration on the skin, usually measured at the fingertips. The signal increases with increased emotional *arousal* (stimulation or excitation of the nervous system). A limitation of this measure is that it cannot distinguish between positive and negative emotional valence.
- ✓ **Respiration and heart rate:** These measures focus on the beating speed of the heart and how deep and fast a person is breathing. Heart rate has been found to slow down momentarily when attention increases. Fast and deep breathing is associated with excitement, while shallow breathing can indicate concentration, tense anticipation, or panic and fear.
- ✓ **Response time:** One way that nonconscious brain processes reveal themselves in behavior is by facilitating or interfering with the speed of response to word comparisons or visual choices. Response-time measures provide a simple and accessible way to test the strength of association between different concepts. They've been used successfully by neuromarketers in brand, product, and package testing.

Neurological or neurometric measures (based on brain signals) tend to be both more complex and more accurate than body measures. Sometimes the extra effort and cost associated with these technologies is worth it; other times not. It depends on the research question being asked. Three brain signal techniques are commonly talked about in discussions of neurological neuromarketing measures:

- ✓ **Functional magnetic resonance imaging (fMRI):** This technique is the favorite of academic researchers because it enables the precise imaging of activity anywhere in the brain. It does this by measuring blood flow. When parts of the brain become active, blood flows to them. Because blood contains iron, this flow can be traced by a massive magnet that surrounds the head of the person being studied. fMRI machines are very expensive but are available at most hospitals, universities, and independent imaging centers. They're indispensable for testing theories about how the brain works, but some neuromarketers consider fMRI — because of its cost, complexity, and artificial testing environment — to be overkill for market research testing.
- ✓ **Electroencephalography (EEG):** Probably the most popular neuromarketing technology because of its relatively low cost and manageable equipment requirements, EEG measures the strength at the scalp of very small electrical fields generated by brain activity. It's a well-established

technology that benefits from a massive academic literature. The biggest limitation of EEG is that it can't reliably measure changes in electrical activity deep in the brain.

- ✓ **Magnetoencephalography (MEG):** This technique measures minute changes in magnetic fields produced by the brain. It has many advantages but requires multi-million-dollar machinery that must be super-cooled to near absolute zero to operate. It's used in academic studies but hasn't caught on as a practical method for commercial neuromarketing.

All these techniques are discussed in detail in Chapter 16. Their pros and cons for different types of research are covered in Chapter 18. Also in Chapter 18, we discuss how some leading companies are integrating different types of research — both neuromarketing and traditional — within a unified organizational structure to provide a single integrated, multidimensional view of consumer interests and behaviors.

Chapter 17 is devoted to the topic of neuromarketing on a budget. We describe three strategies that can be used to inexpensively gain neuromarketing insights for your business:

- ✓ **Response-time studies:** Timing synchronization software can be used to measure response times in thousandths of a second. Whether carried out online or in a computer lab, response-time studies can provide inexpensive insights into brand associations, product “pop out” in shopping contexts, and responses to both static and dynamic advertising.
- ✓ **Online services (eye tracking and facial expression analysis):** Online studies can now incorporate both eye tracking and facial expression recognition through the use of webcams or built-in computer cameras. Combined with clever experimental designs, *gamification* (putting game elements into online experiments), and *crowdsourcing* (using virtual betting to predict marketplace outcomes), these capabilities provide opportunities to test thousands of online study participants cheaply and quickly.
- ✓ **Behavioral experiments:** Behavioral economics provides insights and principles about how people make decisions in real-world situations. We show how you can set up and run behavioral experiments in your store or on your website, testing the results of different configurations relatively quickly and easily.

Succeeding with Neuromarketing Studies

Part V is devoted to practical and ethical issues relating to neuromarketing research. In Chapter 19, we identify five practical aspects of neuromarketing

studies that you need to understand if you want to get the most out of working with a neuromarketing vendor. Because neuromarketing is a new field, you'll want to be sure your vendor has a solid foundation in each of these areas:

- ✓ **Experimental design:** Is your experiment designed to efficiently test hypotheses and control for external factors that could confound or blur study results?
- ✓ **Measurement validity and reliability:** The extent to which a vendor's metrics have been tested to answer two key questions: Do they measure what the vendor says they measure, and are they generalizable to new samples and future situations?
- ✓ **Safeguards against *reverse inference*:** This term refers to a common type of logical inference in neuromarketing studies: "If brain signal A is active, then mental state B must be active." But even if mental state B is always accompanied by brain signal A, it does not follow *logically* that "every time brain signal A is active, mental state B must also be active." Brain signal A can be occurring for other reasons. Your vendor needs to be able to explain if and how it handles this inference challenge.
- ✓ **Statistical significance:** Proper statistical tests need to be applied to determine the probability that a result is not produced by chance. Given the complexity of many neuromarketing designs, the proper tests are not always easy to identify.
- ✓ **Normative data (comparative benchmarks):** Can your vendor provide data that correlates its measures with behavioral measures of marketing success? For example, advertising research companies usually provide normative data comparing scores on their metrics to product sales or other performance measures in the weeks after tested ads are shown. What normative data does your neuromarketing vendor have to show the predictive value of its measures?

We also propose that you review a simple but critical "pre-flight checklist" before committing to any neuromarketing study. The checklist consists of five questions:

- ✓ Are you testing the right hypothesis?
- ✓ Do you have the right experimental design?
- ✓ Are you testing the right materials?
- ✓ Are you sampling from the right population?
- ✓ Do you know how you'll use your results?

With the information covered in this book, we believe you'll be fully equipped to answer each of these questions and conduct a valid, reliable, and insightful neuromarketing study. We provide more details about each question in Chapter 20.

Two lessons remain in learning how to succeed with neuromarketing studies: how to pick the right partner to help you conduct neuromarketing research, and how to make sure any neuromarketing studies you do meet the highest ethical standards.

In Chapter 21, we look at how to pick the best neuromarketing partner for your needs. As the field matures, we're seeing the emergence of two types of partners you can consider:

- ✓ **Neuromarketing vendors:** These are firms that perform neuromarketing studies for you, using their methodologies of choice. Each vendor brings its own expertise and experience to your study, and vendors tend to work in relative isolation from each other.
- ✓ **Neuromarketing consultants:** These are a different breed of service providers that are beginning to appear on the neuromarketing scene. Neuromarketing consultants don't perform studies themselves; instead, they provide advice and counsel to companies and firms that want to conduct neuromarketing studies or a larger research program but want a partner to help them do many of the things covered in this book: Pick the right vendor(s), ask the right questions, oversee the project, and provide independent interpretation of the results. Neuromarketing consultants sometimes act as general contractors, assembling the research team, providing oversight of the project, and helping integrate the results into your business decision making.

Details about these two types of partners and the pros and cons of using each are discussed in detail in Chapter 21.

For some potential users of neuromarketing, the most important issues surrounding its adoption are ethical, not methodological or organizational. Due to the controversies that have followed neuromarketing over the years, many marketers want to know if neuromarketing has the same ethical foundations and standards that other market research disciplines have.

In Chapter 22, we outline a set of ethical safeguards and principles that we believe every neuromarketing vendor should adopt to ensure that every study is safe, accurately portrayed, and trustworthy. Many of these safeguards and principles have been introduced by others, including distinguished neuro-ethicists. We summarize them under three key principles:

- ✓ Protecting the rights of research participants, including confidentiality, full disclosure, and safety, in line with human subjects guidelines of the U.S. Health and Human Services Department and other regulatory agencies around the world
- ✓ Representing research and results fairly and accurately in all media and marketing communications
- ✓ Providing evidence for the validity and reliability of all neurometric and biometric measures to potential buyers of neuromarketing services

In addition, we discuss the emergence of industry standards for neuromarketing from research organizations such as ESOMAR (www.esomar.org) and the Advertising Research Foundation (ARF; www.thearf.org). We look in detail at the neuro-standards initiative for advertising research launched by the ARF and sponsored by some of the most respected advertisers in the world.

Finally, we revisit some important legal, social, and policy questions relating to neuromarketing. We argue, based on the evidence we've assembled in this book, that neuromarketing is a legitimate form of market research that will continue to increase in popularity and provide value to the marketing community. It isn't brainwashing or a conspiracy to make people over-buy or over-consume. It needs to be conducted ethically under the same standards as any other research methodology. We're optimistic about the future of neuromarketing and believe it can be a source of good for society. We close Part V by discussing three areas where neuromarketing can have a positive impact on public policy: in public service advertising, in public policy design and implementation, and in education.

Neuromarketing is a new way to think about marketing. It has emerged over the last decade because the brain sciences — especially the fields of neuroscience, behavioral economics, and social psychology — have provided us with a new and challenging picture of how human beings think, decide, and act in the real world. It was just a matter of time before this picture would be applied to consumer behavior. As we show in the next chapter, what it tells us is that much of what we thought was true about consumer thinking and behavior is actually wrong.

Chapter 2

What We Know Now That We Didn't Know Then

In This Chapter

- ✦ Understanding how consumer behavior has been viewed and tested for years
- ✦ Discovering how people perceive and interpret the world around them
- ✦ Thinking about people as intuitive consumers, not rational consumers

Understanding neuromarketing means accepting some radical new ideas that are very different from traditional ways of thinking about consumers, marketing, and advertising. Neuromarketing asks marketing professionals to look at what they do in a very different way.

In this chapter, we give you all the basics you need to know about the old way of thinking about thinking, and the new way that led to neuromarketing. We start by looking at advertising, because advertising research was the first type of marketing research to appear. We review how people have looked at advertising for years, so you have a sense of how this kind of research developed. We show that this research was based on a picture of how the consumer thought and made decisions, called the *rational consumer model*. Then we show you what brain science has discovered about how people actually perceive and interpret the world — because when you understand that, you know why neuromarketing has emerged hand-in-hand with the new science. Finally, we end the chapter by proposing a new way of thinking about the consumer, the *intuitive consumer model*.

How We Used to Think about Consumers

In the “good old days” — before brain science started making things more complicated — marketers tended to think of consumers as basically rational information processors, with a little bit of irrational emotion thrown in. This rational consumer model may remind you of a character from *Star Trek*, pointy-eared and super-logical Mr. Spock. In this section, we use Spock to explain the rational consumer model. Then we explain how early ideas about

advertising and marketing were designed around this model of the consumer. We delve into how the effectiveness of marketing and advertising was tested. And we point out the flaws of this old way of viewing consumers.

The rational consumer: Mr. Spock goes shopping

Mr. Spock aspires to be a purely rational and logical decision maker, often to the irritation of fellow crewman Dr. McCoy, the ship's physician, who relies more on emotions to make decisions. Although consumers actually act a lot more like Dr. McCoy than Mr. Spock, the rational consumer model was the gold standard for years. Consider the attributes that logical Mr. Spock would bring to the shopping experience:

- ✓ **Mr. Spock thinks in terms of information.** His brain seeks information, stores information, and retrieves information to make decisions. Emotions play no important role in these processes. Mr. Spock is aware of different brands and products because he's been collecting and remembering information about them throughout his lifetime.
- ✓ **Mr. Spock can retrieve this information, completely and accurately, at any point after he has encountered it.** His brain operates like a computer hard drive.
- ✓ **Mr. Spock rationally determines his preferences.** Among any set of alternatives, Mr. Spock's preferences are clear, unambiguous, and unchanging (as long as the attributes of the alternatives don't change).
- ✓ **Mr. Spock uses cost-benefit calculations to make a purchase decision at the point of purchase.** These calculations determine, for example, whether Mr. Spock will place brand A or brand B in his shopping cart.
- ✓ **Mr. Spock's preferences can be changed if, and only if, he is presented with new information that alters his beliefs about products.** Mr. Spock can be influenced to change his behavior, but only if he's persuaded that his previous beliefs were wrong.
- ✓ **Marketing and advertising communications are messages that present rational, logical arguments about brands and products.** These communications are designed to persuade Mr. Spock to choose product A over product B at the point of purchase.
- ✓ **The only way marketing and advertising communications can influence Mr. Spock is if he consciously recalls their persuasive arguments.** When he remembers them, he can apply them in his purchase decision cost-benefit calculation.

Modern neuroscience, social psychology, and behavioral economics have raised powerful objections to each of these assumptions. In the next section,

we show how these assumptions have impacted marketing and advertising research for over a century.

Rational models for rational marketing to rational consumers

Early pioneers of marketing and advertising research must have had something very similar to this rational consumer model in mind when they formulated the first “advertising effectiveness” theories at the start of the 20th century. These theories were derived from the best model of successful persuasion available at the time, the door-to-door salesman.

In 1903, advertising was famously defined as “salesmanship in print.” Most advertising in those early days was designed to simulate the door-to-door salesman — rapidly conveying a persuasive message for the purpose of converting a prospect into a buyer. Selling through advertising was viewed as a rational, information-based process with no place for emotional appeals or what we now call “creative” in advertising. Like a good door-to-door salesman, a good ad delivered as much information as required, made a persuasive argument for the product, and then explained how to buy the product. That was how it worked.



The AIDA model was one of the first translations of sales strategy into advertising strategy. It's usually attributed to E. St. Elmo Lewis, who formulated it in various writings over the first decade of the 20th century. Lewis's insight was that advertising worked through a *hierarchy of effects* that had to be achieved in a fixed order to produce positive results. The acronym for this model was AIDA, derived from each of the four steps:

1. **Attention:** First, make your customer aware of your product.
2. **Interest:** Next, pique your customer's interest by demonstrating the advantages and benefits of your product.
3. **Desire:** When interest is established, convince your customer that he or she wants or desires your product to satisfy his or her needs.
4. **Action:** Finally, lead your customer to take the actions required to purchase your product.

Several other models were developed over the following decades by both academics and practitioners that presented different kinds of hierarchy of effects models, all of which were variations of the original AIDA model. For example, in 1961 Roger Colley wrote that “advertising moves people from unawareness, to awareness, to comprehension, to conviction, to desire, to action.”

All these formulas for advertising success viewed the consumer as a rational, information-processing Mr. Spock. Information triggered attention, generated interest, drove desire, and motivated action. The trick of advertising (and later, marketing) was to send messages to the consumer that would guide this journey from unawareness to purchase. The trick of advertising and marketing research, in turn, was to measure whether these effects were occurring.

Measuring effectiveness the old-fashioned way

Over the last century, researchers developed and refined various tools and methodologies to test marketing and advertising effectiveness based on the principles covered in the previous sections. Because researchers believed that the rational consumer was engaged in conscious, rational calculations, the natural way for them to learn about those calculations was to ask consumers what they were thinking.



Three methodological traditions form the bedrock of traditional market research techniques used to gather information about what consumers think about messages, products, and brands:

- ✓ **Interviews:** Interviewing techniques include a wide variety of methods, from quick mall intercepts to intensive “depth interviews” that probe the deep sources of consumer desires and needs. All are characterized by a face-to-face interaction between a subject (the person being interviewed) and an interviewer (the person asking the questions).
- ✓ **Focus groups:** Focus groups are a natural extension of interviewing. Instead of interviewing one consumer at a time, focus groups bring a group of consumers together under the direction of a moderator who guides a group discussion of the topic under consideration (such as candidate ads, a new product idea, or a comparison of product brands in a particular category). The idea is that the interactive nature of the discussion will uncover additional insights that interviewing consumers in isolation would miss.
- ✓ **Consumer surveys:** Consumer surveys are structured questionnaires designed and administered to elicit answers to questions in a controlled and generalizable way. Properly executed, surveys can accurately estimate the opinions of millions of people from a sample of hundreds. From door-to-door surveys, to telephone surveys, to online surveys, this technique has been the mainstay technique of market research since the 1940s.

All these methods share two important attributes: They rely on people’s *verbal self-reports* (what people say) to identify their attitudes, preferences,

and behaviors, and they depend on people's memories to accurately recall what they've done or thought in the past.

When rational models fail

Everybody in the market research business knows that self-reporting measures — whether derived from interviews, focus groups, or surveys — often produce misleading results, send researchers in the wrong direction, and result in ads that don't have any impact or in products that linger on the shelves.

Traditional market researchers tend to see these problems as fixable with better techniques and controls — for example, more clever question wording in surveys, or larger, more representative samples of consumers being surveyed. These improvements are worthwhile, and they continue to have a positive impact on the quality and usefulness of these methodologies.

Neuromarketing researchers take a more radical view and see things somewhat differently. They recognize a number of flaws in the self-reporting model that can't be fixed with incremental improvements. These flaws revolve around the concept of *accessibility*.

Self-report measures assume — following the rational consumer model — that people have *conscious accessibility* to their mental states (that is, they know what they know). A vast amount of research shows conclusively that people don't actually know what they know. In fact, people often don't know the real reasons why they do things, or have certain attitudes or opinions. Their mental processes involving perception, evaluation, and motivation may never reach the level of conscious awareness.

This is the fundamental dilemma of market research that neuromarketing addresses. By bringing the insights of brain science to the world of consumer attitudes and behaviors, neuromarketing is building a portfolio of research techniques and methodologies that are grounded in more realistic assumptions than the models that underlie traditional market research tools.

How People Really See and Interpret the World

In contrast to earlier models, modern neuroscience, social psychology, and behavioral economics give us a much more realistic, but also more complex, understanding of how people think, decide, and act in the real world.

In this section, we present a simplified version of this new model. It doesn't contain every nuance that academic researchers dwell upon, but it does show how neuroscience and related disciplines provide a more realistic foundation for looking at consumer thinking and behavior. Our model has four key steps (see Figure 2-1):

1. **Forming impressions:** As we interact with the world around us, our brains form impressions from input we receive through our senses.
2. **Determining meaning and value:** We determine the meaning and value of the impressions we've formed by making rapid mental connections to other things we have stored in memory.
3. **Deliberating and analyzing:** We deliberate and analyze by engaging in internal "mental conversations" with ourselves.
4. **Speaking and acting:** We express ourselves by speaking and acting — that is, we engage in actual behavior.

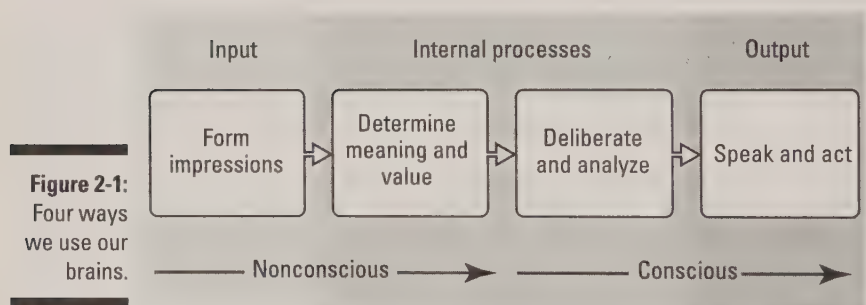


Illustration by Wiley, Composition Services Graphics

This model helps us understand the roles played by conscious and nonconscious brain processes, and how they interact:

- ✓ **Our perceptual systems produce impressions in a completely non-conscious way.** We have no conscious access to how our brains take in visual, auditory, or other sensory information and turn them into perceived sights, sounds, smells, and so on.
- ✓ **Similarly, how we determine meaning and value by connecting our impressions to other concepts and ideas in our long-term memory occurs outside our awareness.**
- ✓ **Deliberating and analyzing are usually conscious processes.** They include a wide variety of thinking activities we're directly aware of, such as memorizing and remembering, calculating, and planning.
- ✓ **Speaking and acting are usually conscious.** Expressions are behaviors that are observable by others, through hearing and seeing us.

This simple model has some interesting variations. For instance, it's possible to get from determining meaning and value to speaking and acting without intervening deliberation or analysis. This is what people normally mean by "doing something without thinking about it." Examples include learned skills like driving or riding a bicycle.

Forming impressions: How we take in the world around us

"Common sense" tells the average non-scientist that our eyes and ears act like video recorders, creating an accurate recording of the world around us that we then access through memory when and where we need to. The feeling we all have in our conscious minds is that we pretty accurately perceive everything in the world around us, directly and objectively.

But modern brain science tells a different story: People's impressions of the world are largely created by processes they aren't aware of, and are very different from the physical signals that enter their sensory organs. For example, the visual images that hit the back of the human eye are actually upside down, but our brains automatically turn them right side up so we can see the world in the most advantageous orientation. Experimenters have put upside-down glasses on people to test this capability, and sure enough, after a couple hours, the brain flips the visual image back to right side up. And when the glasses are taken off, it flips the image back again.



Our nonconscious perceptual processes not only intervene in the formation of impressions, but also fill in a lot of details that we don't actually perceive directly. For example, your eyes are able to focus on only a very small area, about the size of a thumbnail if you extend your arm out in front of you. But your impression is that your full field of vision is clear and in focus. You create this impression by constantly, automatically, and extremely rapidly moving your focus around the full visual field. Your brain then assembles all these micro impressions into a single, stable picture that you see as a full, clear image. And even that impression includes a lot of automatic "filling in," because you don't have time to scan the whole field as fast as the field can change.



Impression formation is extremely important to neuromarketing. If our impressions of the world are largely created in our brains, and marketers want to build impressions that attract and influence our brains, then marketers naturally want to know what factors influence that creation process. When we look at print ads in a magazine or billboards along the highway, what do we actually see? What draws our attention, and what are we likely to remember? New neuromarketing technologies and tools can answer these questions in new ways, without asking people directly.

Determining meaning and value: Creating connections in our minds

When we bind impressions with meanings and value, we create *concepts* or *conceptualizations* of those impressions. This process of conceptualizing is so fast and automatic that we barely realize it's happening. But it's incredibly important to how we interpret and respond to the world.

Early psychologists used to think of conceptualization as just another part of a perception or impression. They assumed that when a person saw a dog, recognizing it as a dog was just a part of seeing it.

What modern brain science tells us is that the process of forming concepts is quite complicated and far from obvious. It involves the rapid and automatic association of a network of category and attribute memories to an impression. The result is that people usually feel that they “know” what they’re looking at instantaneously. Only when our brains encounter impressions at the edge of our implicit categorization models do we become aware of the mental processing involved.

For example, you can usually distinguish a man from a woman without mental effort. But we’ve all been in situations where we’ve seen someone and not been sure if the person was male or female. (*Saturday Night Live* created a skit about this, with the character Pat.) When you meet a person whose gender isn’t obvious right off the bat, you find yourself searching for attribute cues — body shape, depth of the voice, and so on.



Conceptualization (the process of forming and strengthening concepts) is a learning process. It’s important to marketers because it helps us understand how brands work, which is a key element of marketing and advertising. A brand is essentially a carefully cultivated concept in a mental network of connections including products, companies, attitudes, meanings, aspirations, and other associations. Companies spend billions of dollars every year trying to strengthen positive connections to their brands. But because the process of forming concepts largely occurs outside conscious awareness, consumers can’t easily articulate either the existence of those connections or their relative strength or durability.



Neuromarketing gives us new tools for exploring and mapping the conceptual networks surrounding brands and products in the minds of consumers. Here are two brain processes that help us do this:

- ✓ **Facilitation:** When we bring an idea to conscious awareness, our brains automatically “facilitate” concepts that are related to that idea in memory. These related concepts are not brought to conscious awareness directly, but they are, in effect, prepared for conscious activation if needed.

- ✓ **Natural assessment:** This refers to the brain's ability to automatically and nonconsciously attach many attributes or characteristics to perceived objects. Some of these are physical properties like size, distance, and loudness, but others are more abstract and can have a big impact on consumer attitudes and behavior, such as similarity, causal tendencies, novelty, emotional assessment (liking and disliking), and mood.

Facilitation produces distinct signals in the brain, and these signals can be used to determine the strength of association between concepts as they're being activated. This provides the basis for new measures of brand and product associations in the consumer's brain, and new tools for monitoring the impact of marketing and advertising on brand concepts over time.

Natural assessment of liking and disliking is an especially important process that people perform innumerable times per day to assign value to the things and situations they experience. Experiments have shown that human beings can translate a positive or negative emotional response into an approach or avoidance physical reaction (for example, leaning forward or away) in less than a quarter of a second — all without being consciously aware that they're doing it.

The formation of meanings and values involves critical brain processes that neuromarketing methods and tools allow us to observe and measure directly for the first time. Peering into these nonconscious processes creates the potential for a much deeper understanding of the conscious processes we discuss in the next two sections: deliberating, analyzing, speaking, and acting.

Deliberating and analyzing: What we say when we talk to ourselves

Before the discovery of the nonconscious, people believed they had full access to their thoughts and feelings, or at least access enough to be able to express accurate observations about their internal mental states. In the process of *deliberation*, people simply query their own minds to determine what they're thinking or feeling about something. Market researchers used to believe that this process was accurate enough to provide good guidance for predicting future consumer attitudes and actions. And so the multi-billion-dollar survey research industry was born.

Modern brain science has demolished this hopeful assumption. People are able to retrieve some things with good accuracy, such as a relatively recent physical action like "Did I take out the garbage yesterday?" But we're notoriously bad at identifying the causes of our behavior through deliberation. This isn't because we're forgetful, but because those causes are literally outside

our conscious awareness. We haven't forgotten them — we just never knew what they were in the first place.

People still use deliberation pretty much every moment of every day. They engage in a constant internal dialog, activating a spectrum of mental activities like:

- ✓ **Retrieving memories:** "There's Marge and her husband. I think his name is Bill."
- ✓ **Interpreting the past:** "I wonder what she meant by that."
- ✓ **Anticipating the future:** "What should I make for dinner tonight?"
- ✓ **Planning:** "If I'm going to make spaghetti, I need to pick up some tomato sauce on the way home from work."
- ✓ **Forming intentions:** "I'll pick up some ice cream, too. I usually get vanilla, but today I feel adventurous, so I'll get chocolate!"
- ✓ **Evaluating/judging:** "That clerk in the grocery store sure was rude."
- ✓ **Simulating:** "Maybe I would've reacted the same way if someone spilled orange juice all over me."
- ✓ **Calculating:** "Six times \$2.49 for each bottle of orange juice is. . . ."
- ✓ **Reasoning:** "If I complain to the clerk, he'll call his boss. If he calls his boss, I'll have to admit I dropped the orange juice bottle. If I admit that, his boss will. . . ."
- ✓ **Rationalizing:** "I must've been in a bad mood at dinner tonight because of that upsetting incident at the grocery store."



One mistake the rational consumer model makes is assuming that most evaluations and judgments are generated by conscious deliberation, so they can be captured later by replaying those thought processes in a verbal self-report. But lots of research now shows that deliberation is much more likely to be devoted to *justifying* an evaluation rather than creating it. As with impressions, our evaluations and judgments are largely generated nonconsciously and then rationalized (via deliberation) and explained (via speaking and acting) after the fact.

Sometimes people seem to jump directly from concepts to actions, with very little deliberation in between. There are two main circumstances in which this happens:

- ✓ **When our actions are derived from acquired skills:** *Acquired skills* are capabilities we've learned through practice that become automatic over time. Examples are skills like riding a bicycle or driving a car. Through repetitive learning, these activities convert from conscious, deliberate actions to automatic actions. Acquired skills don't play much of a role in consumer behavior.

- ✓ **When our actions are derived from habits:** Habits, in contrast, play a huge role in consumer behavior. *Habits* are formed through use and experience. If you've been using the same brand of toothpaste for years, and you have no reason to be dissatisfied with it, you'll probably completely ignore all the other toothpastes on the shelf — despite their bright packaging, promotional displays, and price discounts — and just grab your usual brand.



Habits depend on highly developed conceptual connections that immediately trigger expressions (buying behavior). Because they bypass conscious deliberation, they're very hard for marketers to overcome. Why? Because deliberation is where counterarguments are formed and where conscious intentions are made. Habits provide huge advantages to established, well-known brands, and they often represent the biggest obstacle to new brands and products trying to lure buyers away from established leaders.

Speaking and acting: Finally, we act! (Or maybe just talk about it)

Two kinds of expressions are critical to marketing and market research:

- ✓ **Verbal expression:** Self-reporting of opinions, attitudes, preferences, and predictions of future behavior
- ✓ **Consumer behavior:** Shopping, buying, and using products and services

Market researchers used to think that these two kinds of expressions were closely connected. The rational consumer model assumes that all our decisions and actions are based on conscious deliberative reasoning, which naturally leads to the idea that we can accurately access and verbally express our true reasons for acting one way or another. Much of traditional market research is built on this assumption — if you want to know whether people will buy your product, just ask them.

Alas, this is another hopeful belief that modern brain science has demolished. What the most recent research tells us is that “doing” and “thinking about doing” are only weakly connected. Neuroscience today is busy mapping the paths of these processes through the brain, and social psychology and behavioral economics are busy determining the implications of these differences for individual and collective behavior. The results to date paint a very different picture from the one depicted in the rational consumer model.

Self reporting: “Say it ain’t so”

Verbal expressions, scientists have found, are, in fact, very poor reflections of actual internal mental states. This is hard to accept if you embrace the

rational consumer model, but it's completely understandable if you take into account recent discoveries about nonconscious processes.

The mismatch between verbal expressions and actual mental processes has been known among psychologists for some time. It was first documented by Richard Nisbett and Timothy Wilson in 1977. The gist of what Nisbett and Wilson said is that, when asked what we think, we guess in exactly the same way we guess when trying to figure out what other people are thinking.

Perhaps the fact that we don't have access to our nonconscious brain processes wouldn't be so bad for market research if people recognized that they didn't have access to their nonconscious brain processes and showed some humility in talking about those processes to market researchers. But what Nisbett and Wilson documented way back in the era of disco, and what mountains of later research has confirmed, is this: Not only do we make up plausible explanations of our mental states — what we remember, what we like, why we like it, what we'll do in the future, and so on —but we vastly overestimate the accuracy of our own reports.

So, not only do we make up stories, but we firmly believe the stories we make up. And we tell those stories to market researchers with the utmost sincerity. And those market researchers take us at our word and produce products that we sincerely told them we would buy. Then everybody scratches their heads when those products sit on the shelf because people didn't really want them after all.



Scientists have come up with a great word for this process of making stuff up and then believing it's true. They call it *confabulation* (the replacement of a gap in our memories with a falsification that we truly believe to be true). Confabulation may be public enemy number one for marketers and market researchers. It costs companies billions of dollars a year. Countering confabulation is probably the most important justification for the development and adoption of neuromarketing research techniques.

Consumer behavior: The gold standard of market research data

In contrast to verbal expressions, actual consumer behavior is the real deal of market research. This is data that all marketers ultimately care about — where consumers shop, how they shop, what they buy, how much they pay, how often they buy, what they tell their friends about what they buy, and so on.

Large research companies collect huge amounts of direct consumer behavior data detailed down to the level of individual point-of-sale (POS) purchases by store and by time of day. That data gets crunched through complex algorithms to identify patterns in the fluctuating relationship between how much gets spent on marketing and advertising and how products perform in the marketplace.

A lot of research on consumer behavior — often called *market mix modeling* in the trade — looks for correlations or causal relationships between marketing expenditures and marketplace performance. In effect, this research “cuts out the middle man” in the process — that is, it cuts out the mental processes in the minds of the millions of consumers who are exposed to the marketing messaging and then spend the money that produces the marketplace performance. It assumes, for the purposes of the analysis, that all those mental processes average out to a “zero effect” over the full dataset of millions of individual instances of consumer behavior.

What we see when we look at this purely input-output behavioral model of marketing is instructive. Gerard Tellis is a researcher who has studied this problem for decades. What Tellis has found is that, when you take the mind of the consumer out of the equation, advertising spending has very little impact on sales.

Tellis has tracked a metric called *elasticity of advertising*, which measures the percentage impact on sales of a 1 percent change in the level of advertising. In other words, the metric answers the question, “If I increase my spending on advertising by 1 percent, by what percent will my revenues increase?”

The results are rather startling. In his latest calculation of this measure (in 2010), Tellis and his co-authors found that, on average, a 1 percent increase in advertising generates a 0.12 percent increase in short-term sales. This number, calculated in 2010, is over 20 times less than the elasticity of price discounts (calculated in 2005), which showed that a decrease of 1 percent in price resulted — on average — in an increase of 2.62 percent in sales.

With the billions of dollars spent on advertising every year, the net short-term return is minimal. Clearly, we still have much to learn about how to produce more effective advertising.

Although this average figure is rather disappointing, it has a large *variance* (range of values), because it's made up of some fabulously successful advertising campaigns, some real dogs, and a lot of campaigns that had no effect on sales whatsoever. What this type of research doesn't show is *why* some ad campaigns perform well above average and others perform well below average. From the perspective of marketers and marketing researchers, this is the important question. They don't want their advertising to be average; they want it to be wildly above average.

In order to separate the winners from the losers, we have to reintroduce the key missing variable in the equation — the mind of the consumer. But as we've seen, the mind of the consumer is not well represented by just asking the consumer what he or she was thinking. We need to look for other ways to probe these sources of consumer behavior, and that means going beyond self-reports to understand the nonconscious sources of consumer decisions and behaviors.

Daniel Kahneman's System 1 and System 2

Daniel Kahneman and his colleague Amos Tversky began a research program in the 1970s to determine how people really made decisions, as opposed to how they were assumed to make decisions. They and their collaborators produced a string of studies that showed that real people are not rational "Mr. Spock-like" decision makers, but instead, employ a kind of limited rationality, using a number of judgmental biases and shortcuts to make decisions. This work was a milestone in thinking about thinking, and Kahneman was awarded the Nobel Memorial Prize in Economic Sciences in 2002 for his and Tversky's contributions. (Tversky died in 1996 so, unfortunately, didn't live to share in the achievement.)

Kahneman describes his model of how the brain produces decisions by talking about two distinctive systems, which he called System 1 and System 2. Here are the key characteristics of System 1 and System 2, as outlined by Kahneman in 2003:

<i>System 1</i>	<i>System 2</i>
Fast	Slow
Parallel (able to handle many tasks simultaneously)	Serial (able to handle only one task at a time)
Automatic	Controlled
Effortless	Effortful
Associative	Rule governed
Slow learning (governed by habit)	Flexible
Emotional	Neutral

Source: Daniel Kahneman, "Maps of Bounded Rationality: Psychology for Behavioral Economics," The American Economic Review, December 2003.

System 1 is our intuitive decision-making system. This is the system we use when we make snap decisions based on gut reactions. Most important, it isn't accessible to conscious awareness. System 1 is in charge during the impression-building and meaning-creation phases of thinking. It goes about its business for the most part unmonitored by the conscious mind. It's the system we use when we effortlessly remember a new face and then instantly recognize that face ten years later.

System 2 is our deliberative decision-making system. It's the system we use when we're weighing alternatives or balancing pros and cons. System 2 is in charge during deliberation and analysis. It's the system we use when we're exercising that little voice in our head, such as when we're trying to add $267 + 1,334$.