

Management for Professionals

Benny B. Briesemeister
Werner Klaus Selmer *Editors*

Neuromarketing in Business

Identifying Implicit Purchase Drivers
and Leveraging them for Sales

 Springer

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ISSN 2192-8096

ISSN 2192-810X (electronic)

Management for Professionals

ISBN 978-3-658-35184-7

ISBN 978-3-658-35185-4 (eBook)

<https://doi.org/10.1007/978-3-658-35185-4>

Translation from the German language edition: Neuromarketing in der Praxis by Benny B. Briesemeister, and Werner Klaus Selmer, © Springer Fachmedien Wiesbaden GmbH 2020. Published by Gabler Verlag. All Rights Reserved.

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The registered company address is: Abraham-Lincoln-Str. 46, 65189 Wiesbaden, Germany

Preface: Neuromarketing Put to Practice

The Neuromarketing Science and Business Association (NMSBA), the world's largest umbrella organization for neuromarketing in science and practice, gathers the industry's most important minds in a large conference hall near the Thames. A kind of class reunion. There is a lot to discuss, new trends, new methods, new insights. New customers inform themselves; new industries are represented, courted by new providers.

You can tell that the industry is alive; it is growing and attracting new talent. Seven years after the NMSBA was founded, it is once again obvious that neuromarketing is more than just a buzzword. It is a flourishing business.

Definition Neuromarketing

Neuromarketing usually refers to the use of neuroscientifically based methods and findings for the purpose of marketing and marketing research. It is an application discipline. Consumer neuroscience, on the other hand, is a field of basic research that investigates how the brain functions in decision-making processes, including purchase decisions (see also Kenning 2014).

A few numbers to back this:

- The NMSBA has several thousand members at the time of this book's publication, located in over 100 different countries. It is therefore truly an international umbrella organization.
- About 100 neuromarketing providers are listed worldwide, primarily in the USA and in Spanish-speaking countries.
- According to Carla Nagel, Executive Director of the NMSBA, it is estimated that neuromarketing will be a two-billion dollar business by 2020.
- Already today no world-class market research company can afford to do without its own neuro-department. Nielsen, Ipsos, and Kantar - they are all represented at the Neuromarketing World Forum.
- Global players such as Coca-Cola, Ferrero, the Disney Group, and parts of the German automotive industry are demonstrably using neuroscientific methods to improve their products and their communication.

Neuromarketing seems to have arrived on the very big stage. And more than that, it is constantly evolving. Long gone is the time when people simply looked at how the brain reacts to brands and products in the hope of generating economically exploitable insights from the colorful images provided by a magnetic resonance tomograph.

But how should neuromarketing be seen in practical terms? How does a study run, what is possible, and what results can a commissioning company expect?

How can modern neuroscientific research be translated into recommendations for action relevant to business?

This book is an attempt to show how neuromarketing is put to practice and how companies are already using the methods and findings of neuroscience to arrive at better decisions. To this end, we have written to the leading neuromarketeers in the world and asked them to give us insights into their approaches, their models, and their methods.

As practical as possible and based on concrete examples.

The result is in your hands.

We hope you enjoy!

Berlin, Germany
Dresden, Germany
Rome, 2019

Benny B. Briesemeister
Werner Klaus Selmer

Reference

Kenning, P. (2014). *Consumer neuroscience*. Stuttgart: Kohlhammer.

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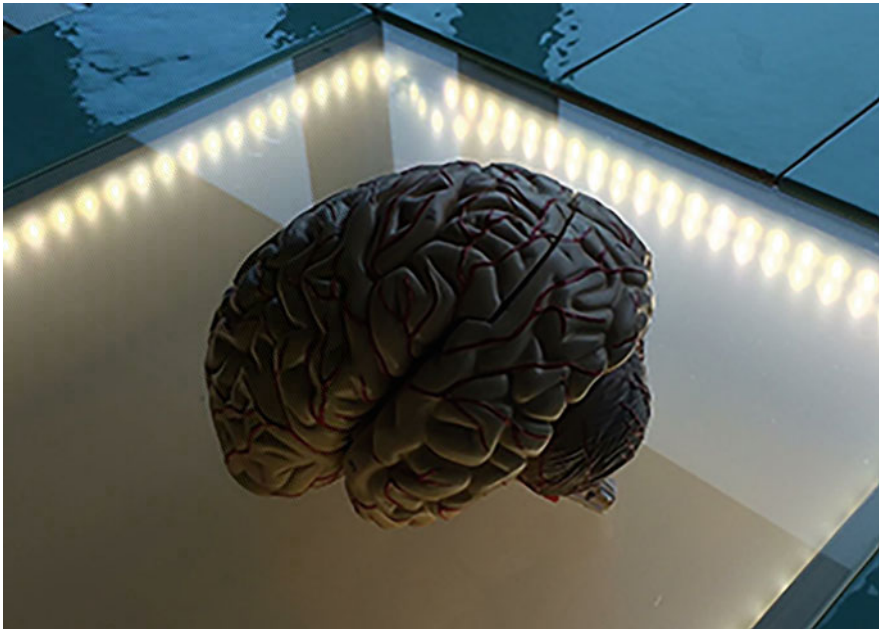
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Multisensory Experiences in Digital Media

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B. B. Briesemeister, W. K. Selmer (eds.), *Neuromarketing in Business*, Management
for Professionals, https://doi.org/10.1007/978-3-658-35185-4_1

1 Meaning of Multisensory Experiences

Our daily activities are facilitated by, e.g., smartphones, tablets, or Macs and ultimately help us to have the next experience. It doesn't matter whether we have the experience offline or online, because all these experiences have one thing in common – we experience them multisensory.

The digital age is all about listening and learning, connecting and experiencing, as well as sharing and helping to shape the future. Brands must arouse consumers' emotions and build long-term and deep relationships with them. After all, in an affluent society where basic physical needs, social connections, and security requirements are met, consumers focus their attention on finding experiences through emotional stimulation. Consumers demand inspiration, stimulation of all of their senses, and the resulting brand experiences.

Thus, multisensory and emotional stimulations gain in importance. By using multisensory marketing elements, brand communication can take place in a more diverse way. Brand perception can be increased by stimulating the senses, and as a result, an emotional relationship can be established. However, brand managers face a major challenge. In the real world, brands and products are physically available, but digital media are basically limited to the consumers' visual and auditory perception.

But with the help of our brain's psychological principles, multisensory experiences can already be generated today – specifically through mental concepts, semantic networks, and autobiographical experiences of the users. There are also initial attempts to address the sense of taste and smell by technical means (Musiolik 2021).

2 Experiences as Neural Networks

Every second, information is transmitted and recorded to people via the senses of sight, hearing, taste, smell, or touch. The incoming stimuli are coded and stored in the brain in form of an experienced impression. We store experiences as neural networks ("cell assemblies"). Such a network consists of many nerve cells (neurons) that are connected to each other. Such neuronal networks are also known as patterns or schemes, as complex, bundled knowledge. The Alpine schema/mountain world consists of fresh mountain air, the sounds of cow bells, the smell of the forest, the sense of touch when we pick a flower. The tropical scheme is connected with hot air, palm trees, white sand, the sound of waves, and the taste of coconut (Musiolik 2021).

Even when it comes to our brand, the multisensory network reacts with all sensory impressions through the following:

- Seeing: pictures, staging, etc.
- Listening: brand acoustic logo, music, sounds like the closing BMW door, speech
- Smelling: leather, flowers, food
- Touching: surfaces, floors, wind
- Tasting: hot, cold, hot, mild, spicy (Table 1)

Table 1 Information about absorb our senses

Optically	83.0%	Eyes
Acoustic	11.0%	Ears
Olfactory	3.5%	Nose
Haptic	1.5%	Skin/movement
Gustatory	1.0%	Tongue

The user can call up memories via mental models or schemata, for example, by seeing other people or objects. Seeing is also smelling, tasting, feeling, and hearing. The color of a website alone triggers different feelings: red stimulates, while blue calms.

We now know that the use of images, videos, and sounds in multisensory marketing has proven its worth, for example, in digital storytelling, because these stimuli leave a lasting impression on the consumer and thus create brand loyalty. Eighty-three percent of our perception is visual, and this is what shapes our first impression of a brand most strongly. This explains the increased use of images in digital media. Pictures are quickly noticed and activate and trigger associations within the consumer after only a short period of time.

This effect can be explained by the memory models of Hubert Zimmer (Zimmer 1986) and Johannes Engelkamp (Engelkamp 1991). According to this memory model, the brain has “modality-specific input systems” at its disposal.

3 The Multisensory Memory

Gottfried, Smith, Rugg, and Dolan were able to prove the concept of modality-specific subsystems presented by Engelkamp (Gottfried et al. 2004) in the context of their 2004 study on the multisensory imprinting of episodic memories. In their experimental, they presented participants with a combination of pleasant scents and symbols. During the presentation, participants were asked to make up a story or associations to the shown odor-image pairings. Subsequently, they showed the participants the previously presented symbols, some of which were already combined with a scent in the initial presentation and others were unknown to the participants. They could see that whenever a symbol was recognized as previously combined with a scent, the posterior piriform cortex (representing scents) lit up in the fMRI. The amazing thing for the researchers was that at this stage of the experiment, no smell was presented at all. With the help of the investigation, they came to the conclusion that the brain does not store the episodic memories individually, but rather as a complete package in the respective modality-specific areas of the brain. When information is retrieved, the incoming stimuli are perceived through the different input systems but are given access to a common conceptual system consisting of schemas.

In addition to the modality-specific systems, Magda Blondiau Arnold describes another independent memory system, which she calls affective memory in her 1984 publication (Arnold 1984). Experiences do not only consist of sensory

characteristics but are always linked to emotions. For example, episodic nodes of a scheme can be activated, which remind the memory of a kiss under the palm tree and are connected with the feeling of joy.

The incoming stimuli activate the respective modality-specific subsystems such as the visual or acoustic system. At the same time, regardless of the respective modalities, the response leads to the activation of the affective system and the associated reward or punishment system. The multisensory response leads either to a multiple affective response or to the activation of different affects associated with the respective sensory modality. In parallel, the incoming stimulus activates through the respective modality also the nodes contained in the conceptual system and all other nodes of the scheme (Musiolik 2021).

3.1 Example

When we look at an apple, we know what it tastes like, how it smells, and what it feels like, and we know the sound it makes when we bite into it. When someone falls, we also feel pain for some seconds because our brain activates the pain center as if we were experiencing the fall ourselves. When someone laughs, we have fun even before they even start telling the joke. The brain uses the visual signals and processes them to create an image of our reality. Through so-called mirror neurons, we feel what we are observing. This means that the neural networks in the brain are also active when we do not carry out an activity ourselves but simply observe someone performing the action. The mirror neurons simulate to the body that it does the observed thing itself. We feel and experience what another person experiences.

If we address all five senses with our digital brand, this has a much stronger effect than the sum of the individual senses – our brain reacts much more strongly to a stimulus that is simultaneously seen, heard, felt, smelled, and tasted than to the respective stimuli alone. Important: if our brand appeals to all five senses, the effect is increased tenfold. Experts call this “multisensory enhancement” or “brain orgasm.” (Musiolik 2021)

But how can we communicate our promise of experience and activate the multisensory processes in the consumer’s brain?

4 Digital Brand Codes: The Four Emotional Signals of the Brand

The uniquely clear and attractive image of our brand is the result of all contacts between our brand and the user. The more often the user has contact and the more intensive the experience, the better he learns. More important than frequent repetitions are strong feelings associated with the brand. Brain researcher Professor Spitzer puts it in a nutshell: “Feelings are a learning turbo” (Spitzer 2002).

In all online and offline contacts, the brand communicates what it stands for, what it does, and with which uniquely attractive experience it rewards the customer. The

signals with which we communicate our promise of experience and create strong experiences are the brand codes. We learned them early on, and they have a strong emotional impact and differ according to culture (Herbst and Musiolik 2015).

Codes are being decoded and stored by our brain in three ways:

1. *What does it look like?* Our brain processes sensory impressions, i.e., those that we receive through our senses. Here we store what things look like, for example, that Deutsche Bank is blue or Telekom is magenta. This processing is very superficial and does not yet take into account the meaning of the signals.
2. *What does it mean?* We store semantic impressions, i.e., what the signs and signals stand for, like language and a company logo. The meaning is much more important than the appearance: “So what does the Mercedes star stand for?” A logo that triggers no or only a weak association has little effect.
3. *When and where did I see it?* Who was I with? Our brain stores episodic impressions, i.e., brand stories on an open house presentation or memories of product use. Here the brain stores temporal patterns and references.

So our brain does not store memories as a complete package, but it encodes signals in three ways and also stores them in different places. Brain research therefore distinguishes between three types of memory: sensory, semantic, and episodic memory. Four codes, i.e., signals, are therefore available to eCommerce and digital brand management: senses, symbols, language, and episodes.

- *Senses.* Reference groups can see the company and its products; they can hear, taste, smell, and touch them.
- *Symbols.* Symbols are signs that represent something, such as a logo or a key image (Nike’s swoosh, Apple’s apple, O2’s oxygen bubbles).
- *Language.* When using language, on the one hand the content is relevant and, on the other hand, its form. Language should convey messages to the recipient quickly, simply, and concisely. The following should be checked when using language: word meanings, foreign words, names, word sounds, and sentences.
- *Stories.* Stories are particularly effective in bringing a brand to the target groups – success stories, stories from the CV, stories about the work and performance of the company, and stories about enthusiastic customers.

Digital brand codes can trigger strong experiences because they are culturally learned and charged with strong emotions, as the examples of the Wild West romanticism of Marlboro and the adventure-romanticism of Beck’s beer show. Such brand codes are also used in digital media and can even have the same multisensory effect there.

See and hear on the Internet: Yes! But also smell, taste, and touch? Of course! Thanks to the way our brain works and technological innovations!

5 Technically Generated Multisensor Technology

Imagine you could put the newspaper out of your hand now and travel around the world from home: tasting the freshly brewed coffee in Italy, shopping in every store in the world, enjoying the sunset in Venice with your sweetheart, and finally jumping naked into the sea in the Maldives, all from home, right now.

From today's point of view, a multisensory brand experience could only be created with the help of digital media if the end devices can actually emit odors in addition to sound and images, convey taste, and uniquely reflect the brand haptically. Yes, that is now possible too! Together with my colleagues Prof. Dr. Adrian David Cheok, Director of the Imagineering Institute (Malaysia), I am researching future technologies for multisensory experience design in digital media (Musiolik et al. 2019).

Some time ago, we developed "Scentee," a small device that you can attach to your smartphone and, for example, be notified by scent when you receive an email or send a scented message to your friends (see Fig. 1).

Scentee consists of a base unit that is connected to the smartphone or tablet via the headphone port. It has a built-in LED ring that lights up in different colors when notifications are received. The odor is provided by a fragrance cartridge which is inserted into the base unit. At launch, it already had five scents: rose, strawberry, coffee, lavender, and rosemary. The aim of the research is to create odors without the use of chemicals, something that has never been done before. In the longer term, Scentee opens up entirely new possibilities for creating complete experiences in digital media and experiencing them with the sense of smell. So it is only a matter of time before we are able to visit Regents Park in London from the living room and smell the roses. In the virtual reality (VR) area, we are already one step further toward the future. Driven by the gaming industry and the high expectations of gaming fans for ever new gadgets and features, the manufacturers are constantly



Fig. 1 Scentee (Source: Imagineering Institute (no S/o. J))