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Sensory Science vs Sensory Marketing

Different sides of the same coin

Different Sides of The Same Coin



ABSTRACT

Sensory science helps us understand how people use their five senses to take in the world around them, while sensory marketing applies that scientific analysis to marketing theory, setting sensory expectations for consumers. In this report, we will examine the similarities and differences between sensory science and sensory marketing, as well as how companies can implement them together as a tool for creating more consumer-aligned products and engaging consumers on an elevated level. We will also explore how sensory science and sensory marketing specifically relate to each of the five senses, accentuating these similarities and differences. Then, we will evaluate how sensory marketing contributes to consumer expectations, both positively and negatively.

In conclusion, this report will demonstrate how to bridge the gap between sensory marketing and consumer testing, detailing how Curion's proprietary methodologies for quantifying the sensory characteristics of a product and connecting them to consumer expectations will help companies create better products.

INTRODUCTION

As humans, we experience everything through our senses. Sensory science helps us understand what is happening on a cellular level while we taste, smell, see, hear, and touch, empowering companies with the insights they need to create products that deliver repeatable delight. On the other side of the coin, sensory marketing leverages these insights to catalyze the first steps of the consumer purchase journey. Businesses can make an unforgettable first impression by using the senses to appeal to consumers, supplement the product journey, and increase purchase intent. However, if the expectations set by sensory marketing are not aligned with the product experience, the effect could be more harmful than anything else. Companies should only attempt to leverage sensory marketing with a foundation of intentionally designed sensory science research to support their goals and to ensure it’s client-aligned. Curion’s wide range of sensory science capabilities ensures world class sensory marketing direction.

SIMILARITIES AND DIFFERENCES BETWEEN SENSORY SCIENCE AND SENSORY MARKETING

Before any level of sensory marketing can become possible, carefully-designed and executed sensory science tests and studies must evoke, measure, analyze, and interpret consumers' responses to products through their five senses. Once sensory science highlights the alchemy between certain products and consumers' senses, companies can leverage this information to construct memorable, action-inspiring sensory marketing campaigns. While sensory marketing occurs throughout our daily lives – at the mall, walking on the street, entering a new hotel – sensory science is executed within the confines of a lab to ensure all variables are fixed with the exception of the sensory elements being tested. Well-executed sensory science testing can fuel comprehensive product and consumer understanding, delivering the insights needed to inform effective sensory marketing.

A field that blossomed in the 1940s alongside the expansion of agricultural productivity, processed foods and consumer product industries, sensory science provides practical tools for measuring human responses to products through their five senses (Lawless & Heymann). Sensory evaluation strategically isolates sensory properties for careful participant analysis, highlighting insights that drive product innovation, development, and optimization.

Though sensory science provides pivotal data that shapes product development, direction, and innovation, it lacks the real-life application to shape consumers' decision-making prior to purchase. Sensory science, when applied to a marketing framework around human behavior, transforms into insight that can be leveraged in the first step of the product journey: sensory marketing. A new branch of marketing that's been gaining steam for the last two decades, sensory marketing bridges the gap between sensory science and consumer experience, providing a vehicle through which sensory insights make a difference in the world and impact buying decisions.

When companies have a firm grasp on the sensory elements of their products that appeal the



most to consumers (using sensory science), they can translate these insights from the lab to the real world. If PROP and QDA research, two Curion product testing methodologies, determine that consumers favor a product because of its buttery, rich taste, there could be an opportunity for the company to attract consumers to further interact with the product by introducing the smell to consumers at earlier stages in the product journey, e.g., by introducing sensory words or cues into graphics, advertising, or even brand naming. Sensory marketing seeks to engage consumers through their senses to ultimately affect judgment and perception to inspire a certain behavior. If consumers smell these buttery flavors outside the store, they will, subconsciously, start to form a mental image of the source of those aromas, increasing desirability and foot traffic inside.

The link between satisfying product experiences and interaction with the senses has been long established by brands such as Hershey's Kisses, whose crinkling foil wrappers immediately elicit brand recognition, and Sharpie, with its sharp smell and squeaks. As sensory marketing gains steam and we begin to understand the importance of the senses in subconscious decision-making, many brands are creating more inventive, out-of-the-box ways to connect with consumers' senses. For example, Dunkin' Donuts in South Korea launched a campaign where each time their company jingle played on municipal buses, a diffuser would spray a coffee-scent into the bus. Unaware commuters were being sent subliminal messages to stop and grab a coffee on the way to their next stop, increasing visits to Dunkin' Donuts around bus stations by 16% and sales to these outlets by 29% ("The Science of Sensory Marketing").





SIMILARITIES AND DIFFERENCES BETWEEN SENSORY SCIENCE AND SENSORY MARKETING

Aradha Krishna, the foremost expert in the field of sensory marketing and director of the Sensory Marketing lab at University of Michigan, has spent the majority of her career researching and communicating how sensory stimuli affect purchasing decisions. Krishna believes that connecting with consumers with nonverbal sensory cues and atmospherics will pave the way to an elevated approach to consumer communications. "In the past, communications with customers were essentially monologues—companies just talked at consumers," Krishna states. "Then they evolved into dialogues, with customers providing feedback. Now they're becoming multidimensional conversations, with products finding their own voices and consumers responding viscerally and subconsciously to them" (Krishna et al.). Whether sparking brand recognition with characteristic product aromas (Sharpie) or environmental aromas (bakery scents), science-backed sensory marketing leveraged in tandem with a product that meets or exceeds consumers' expectations can facilitate unmatched repeatable delight.

Understanding the differences and similarities between sensory science and sensory marketing is easier when we apply both disciplines to each of the five senses. A common theme weaves together each sensory science and sensory marketing section: our knowledge of a sense within the context of sensory science informs how we use this sense to draw consumers to certain products.

Sight

SENSORY SCIENCE

Vision forms the foundation of our ability to experience the world around us. Our sense of sight guides us from one point to another – and plays a major role in helping us decide what we want to experience. Based on vision alone, we form perceptions and expectations. Our sense of sight is such a primary way of considering our surroundings that expressions such as "don't judge a book by its cover" exist to remind us to move past appearances and utilize our other senses to understand our experience on another level. Another way to state this inherent quality? Our sense of ***sight is foundational to our ability to create first impressions***.

Because vision is often the first sense through which we experience a product before using it, it's the sense that forms our initial product expectations. When we see something for the first time, such as a new product, our brains, excellent at pattern matching, search our prior experiences for a similar visual cue. Then, this is integrated with the environment to create expectation – we are imagining how a product might taste, feel on our skin, or smell based on this information. After the consumer encounters the product, they form a new memory that layers their initial judgment with reality. The expectations we carry into our experiences are so strong they can affect our perception, and notably so with vision. The brain processes olfactory (taste and smell) cues almost ten times slower than it processes cues from sight, resulting in our sense of sight playing a predominant role in how we experience products (Pomeroy).

In Brochet's famous demonstration at Amorim Academy's yearly competition honoring the greatest contribution in the field of wine, he tricked 54 oenology students by giving them white wine dyed red and proved how much vision affects perceived taste (Pomeroy). Brochet gave each student two glasses of wine, one white and another white wine dyed red. Each student described the white wine using words such as "honey," "floral," and "peach," and the red wine (which was actually the same white wine) with terms like "cedar," "cherry," "chicory," and "raspberry."



SENSORY MARKETING



Companies and especially advertisers have known for decades that winning over people's attention with captivating images and videos is effective. If you leave your house or interact with any digital media, you're familiar with the ever-present fast-food advertisement featuring a version of a salad, sandwich, or dessert that somehow, no matter how full or what your preferences are, makes you want it. The shot may introduce the concept of "quality ingredients'' and then zoom in on delicious-looking and vibrant vegetables with tiny drops of dew forming on their shiny sides to emphasize freshness. Marketers who leverage the sense of sight to attract consumers to products are masters of presentation and perspective. Such applications are not just limited to the marketing of food products. The cosmetic industry, for instance, appeals to the sense of vision by marketing products such as 'velvety' or 'suede' lipsticks, whereby the product not only promises rich pigments, but also a luxurious and indulgent experience via its appearance.

Aradha Krishna and her contemporaries Luca Cian and Tatiana Sokolova document the influence of vision and imagery on consumers' impression of products. Krishna begins by acknowledging the widespread effectiveness of images in advertising and marketing, then breaks down the most important elements of appealing to consumers' sense of sight and inspiring action. Orientation, or how the product is placed within an advertisement, influences to what degree the viewer imagines using it. According to Kirshna's research, right-handed participants showed a much higher level of engagement with images that had spoons on the right side of the soup bowl. A match between handedness and product orientation enables mental simulation of interacting with the product. Prompting a consumer to imagine themselves using the product increases purchase intentions, solidifying it as an incredibly effective method of sensory marketing (Krishna et al.).

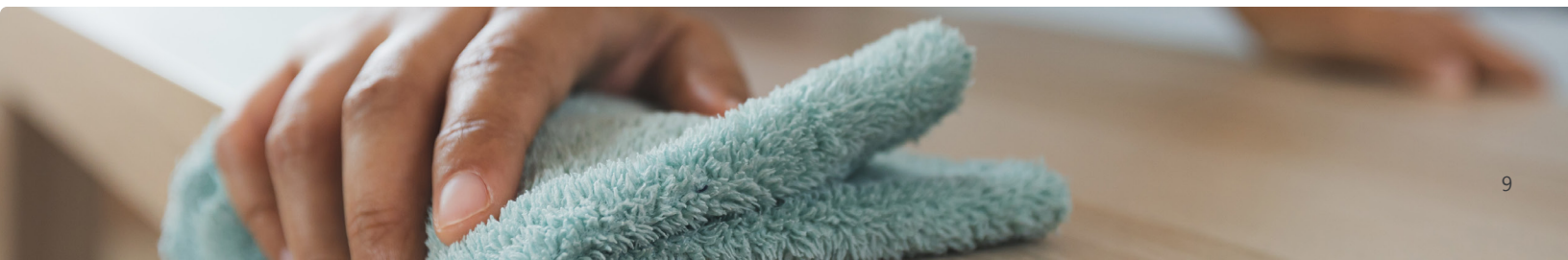
Not only does how the product is oriented within the image play a pivotal role in its ability to evoke a response from the viewer, the composition of the image itself is a key factor in effective sensory marketing. Similar to great pieces of art that draw the eye across the work and elicit a dynamic sense of movement, images in advertisements that evoke perceived movement connect on a more intimate level with viewers. The same effect is created when a viewer admires well-designed logos and pictures in advertisements – dynamic imagery allows for images within the imagination to continue for longer, resulting in longer mental stimulation and higher engagement. In one study, Krishna, Cian, and Elder designed two ads with just one difference: the level of perceived movement in the image. The trio used an eye tracker to measure the variance of engagement by testing for gaze duration and number of fixations – then viewers spent far more time looking at the dynamic images. The higher engagement, the greater the chances of purchase.

Touch

SENSORY SCIENCE

Touch plays two different roles in sensory science – externally with your hands and skin and internally within your mouth. Both external and internal touch are critical factors in how we experience products. Texture evaluation involves experiencing products by manipulating their material or surface area using our fingers (Lawless & Heymann). Texture properties are described by researchers through mechanical characteristics (stiffness, resilience, force to compress), geometrical features (gritty, rough, or smooth), moisture level (oily, moist, wet, humid), and thermal characteristics like warm or cold. Our sense of tactile touch helps us gather more information about objects to understand whether it aligns with the expectations set by our sense of sight.

Tactile texture is one of the aspects of ***touch that helps us make decisions relating to quality***. If we are going through our sibling's closet looking for clothes to borrow, we're first going to identify what we like through what we see. When we find a shirt that's appealing, we will likely use our sense of touch to explore the option more thoroughly to determine whether we like it enough to try it on. Maybe the shirt looks soft and comfortable, but it's actually rough and stiff. Regardless of how much we admire the way it looks on the hanger, we're unlikely to wear it. Similarly, if we are at home in the kitchen and trying to decide what avocado to use for guacamole, we'd use our sense of sight to help avoid avocados that are obviously too green or ones that are bruised and brown. We'd then likely pick up and hold the best-looking avocados to help us gauge its ripeness. Because of our previous experience and expectations linked to the texture of an avocado, we are able to predict how the avocado will taste based on how it feels in our hand.





or peanut butter not because of its flavor but because of how it feels in their mouths. Internal touch (creaminess associated with dairy products, spiciness in chili sauce, or cooling agents inside toothpastes) create physical sensations that create either positive or negative experiences. Spicy foods in particular can trigger endorphins, pleasure chemicals, creating a direct chemical relationship between consumption and pleasure.

SENSORY MARKETING

Although all senses are important in marketing, touch has an especially incredible power over consumers as a result of its innate and intimate connection to the body. Our sense of touch is so influential, it can transform the way we feel towards a product. Researchers Peck and Shu found that when customers touched the objects they were thinking about purchasing, they felt a sense of perceived ownership over the product (Krishna et al.). This sense of ownership gives way to consumers placing a higher sense of value on the product they are considering, increasing probability of purchase. In other cases, the sense of touch can be actively leveraged to convey a message about the perceived value of a product. Consider the case of metal credit cards. Many premium credit cards requiring hefty annual fees are constructed with metal and are noticeably heavier than cards made of plastic. In this case the heavier weight of a credit card conveys a sense of luxury, prestige, and signals exclusivity.

When combined with other senses such as vision, touch has even more impact on consumer choices. Researchers Peck and Childers conducted a study observing the impact of visual attention on consumer impulse purchasing. The researchers found that if a product is visually appealing, a consumer is more likely to touch it, and if the consumer touches a product, they're more likely to buy it. Factor in written cues such as "feel the freshness" or "experience the softness" increase the chance of an impulse purchase. If advertising in a store draws attention to the softness of the material, consumers' minds are primed to notice a texture's smooth and supple qualities.

Verbal and written marketing can also become more persuasive when a touch element is incorporated. A study conducted at the Midwestern Children's Museum experimented with elements of touch in an attempt to solicit new memberships. In 50% of their membership brochures, the museum included a soft touch element, and in the other 50%, they did not. The

research revealed that some people who experienced the touch element had a more positive reaction towards the brochure and, as a result, were more likely to pay for museum membership.

Using touch in sensory marketing unfortunately isn't always possible. Take TV, radio, or internet marketing, for example; we simply cannot incorporate touch into this type of advertising, at least not in a traditional way. To mitigate the impossibility of incorporating touch into remote advertising, Peck, Barger, and Webb explored if, and how, imaginative touch – or haptic imagery – could work in place of real touch. This explorative study revealed that people could, in fact, experience the same sense of touch-ownership through haptic imagery and imagination. Although this technique requires more research and support, it is undoubtedly a step in the right direction for sensory marketing (Krishna et al.)

Smell

SENSORY SCIENCE

Olfaction, or sense of smell, is a way our bodies react to chemical stimuli, providing valuable information about our surroundings (Walsh). Humans are able to detect more than one trillion different smells, and our sense of smell is always adapting to ensure we're perceiving and learning from the world around us. Every few weeks, our body creates new scent neurons to align with our current environments (Torgan). Perhaps our oldest and most evolved sense, our sense of smell has the most direct connection to the centers of our brain responsible for processing memories and emotions: the limbic system. For this reason, smell is one of our most potent senses capable of invoking a wide range of emotions, such as excitement, affection, nostalgia, and even fear or anger. The sensory cells in our noses are able to convert chemical signals into electrical messages to our brains, which translates these messages on a spectrum from pleasurable to undesirable. These interpretations then become ***enmeshed in emotion and memory*** and weave themselves into how we understand the world around us ("Olfaction: The Sense of Smell").

Around 75% of the emotions we experience daily are linked to our sense of smell. When we experience positive emotional feedback attached to a certain smell, we often associate these feelings with its chemical stimuli and are likely to feel them again when we are exposed to the same scent. Research shows that participants demonstrate a 40% increase in mood after experiencing a smell they perceive as pleasurable or positive (Warrenburg). When we are exposed to a smell, it



often is attached to a memory. You've likely experienced the sensation. One moment you're sitting in the kitchen looking at your taxes. Then, your 5-year-old walks in wearing Coppertone sunscreen and suddenly you find yourself transported through time and space into your grandmother's beach house. Smell and memory are so intertwined, so co-dependent, this universal human experience has a name: The Proust Effect (Ernst).

We also use our sense of smell to understand and accurately predict how foods will taste. Before we actually have food in our mouths, smells tantalize our taste buds, priming our expectations for what our food will taste like. Perhaps the lesser-known but more impactful effect smell has on our culinary experiences is its ability to add color and vibrancy to our sense of taste. In fact, most of what we know about flavor can be traced back to our sense of smell rather than taste. When we chew our food, aroma molecules make their way through the back of our mouths and noses to our olfactory receptors, introducing another layer of depth, intensity, and complexity to the foods we are enjoying. While taste alone is a rather primitive sense, our sense of smell provides an immersive, sophisticated palette. You can test this theory by pinching your nose when you eat a jelly bean – all you will taste is sweetness but no characteristic flavor.

One unfortunate but relevant example of this truth: COVID-19 and its effect on smell and taste. People around the world reported that their sense of smell had disappeared – and in tandem, their sense of taste. Folks weren't just unable to smell their cake baking in the oven and gauge the amount of perfume they'd applied – they were also unable to fully enjoy food (MacMillan). The inextricable tie between smell and taste became a topic of conversation perhaps more than ever before. Without their ability to smell throughout each stage of eating, their experience became a shadow of what it once was. Smell and taste are inextricable, and COVID-19 served as a reminder of how delicate the balance is of each of our senses in conjunction with one another.

SENSORY MARKETING

Most sensory marketing research on smell focuses on how it affects emotions and memories. Memories and nostalgia are incredibly powerful tools for marketing, playing on consumers' past experiences and feelings. Smell can elicit different types of memories, from recalling the smell itself to remembering how the smell impacted another experience or situation. When consumers attach meaning to smells and brands, there is a lot at stake.

Depending on the scent experienced, our sense of smell can release an abundance of endorphins, communicate we are in danger, disgust us and alter our decisions accordingly, evoke nostalgia, and make us feel vulnerable, festive, uneasy, frustrated, and every other emotion known to the human experience. As psychological reactions to scent vary drastically from person to person, sensory science and consumer research is necessary to understand the emotions, memories, and reactions elicited by the aromas our products emit. Product research allows us to understand and direct these experiences in a way that creates heightened consumer enjoyment.

If executed correctly, brands can leverage fragrances to create cohesive, meaningful experiences throughout the consumer purchase journey. Consumers are over 100 times more likely to recall something they smell over something they hear, taste, or see (Keenan). Companies who are able to understand their consumers and create fragrances that evoke positive emotions and brand recognition will enjoy sizable advantages compared to their competition. For example, most Nike brand sneakers possess the same type of sports-inspired, grounding and robust fragrance. Influenced by the scent of soccer cleats mixed with fresh-cut grass and dirt, Nike's signature smell was curated to elicit emotion from the inner-athlete buried in everyone (Walsh).

Brand-recognition and smell-based sensory marketing are more powerful when imagery and olfactory stimuli are combined. Olfactory imagery, or imagery related to and depicting smell, can help consumers remember and enjoy a smell without the smell being present. For example, a study examining olfactory imagery showed a group of individuals pictures of chocolate chip cookies, asking only some of them to imagine the smell of the cookie. The participants who were specifically asked to imagine the cookie salivated more than those who did not; a true, physical response to olfactory imagery. Pictures and visual support can strengthen the olfactory-imagery response, but simply asking consumers to imagine smells of certain products can lead to an increased desire for that product. Consumers are able to attach memories of smell to the brand itself, leading to higher levels of brand recognition and association (Krishna, et al.).

We have all seen the "free smells" sign in bakeries and other eateries. The simple yet powerful advertisement understands the innate connection of our taste and smell and the motivating power of an intoxicating aroma. More often than not, the product's smell and our resulting psychological response form the driving force behind these types of purchase decisions. Imagine purchasing a new deodorant without removing the cap to give it a whiff or buying a scented candle without removing the lid to breathe in the captivating aroma? Unless you were previously aware of the aroma, you probably wouldn't buy it.

Ambient smell and product smell are two other avenues of consumer psychology and sensory marketing that can be leveraged by advertisers. Krishna et al. (2010) have discovered that, upon smelling a specific scent, consumers can recall other attributes about the product, including taste or related memories. They've also discovered that scent can actually enhance memory, allowing consumers to discover longer-term memories that may otherwise be difficult to recall without the related scent.

One of the best examples of this? You're fourteen and at the mall with friends. On the way from the food court, you pass by a Great American Cookie and breathe in happily as your friends start to recount the day's homeroom drama. Then, you pass by an Abercombie and Fitch. The bright lights and faded images of shirtless guys draw you in. Suddenly, you're immersed in a world of young, athletic, and preppy Americana, hemmed in by their sharp yet calculatingly-rugged signature scent. While you're probably cringing at the outdated commercial appeal, chances are you are viscerally imagining this.

The power of smell is inarguably effective in retail, hospitality, and in any B2C industry willing to unearth the correct sensory science to fuel truly powerful sensory insights (Roschk). Two studies by Rutgers University set out to prove if ambient scent could improve consumers' memory of branded products. In the first phases of both studies, subjects were asked to recall and recognize brands visually, assessing images on a screen. Subjects were then exposed to ambient scent through a diffuser inside of an experiment room, then asked to recall and recognize brands again. Results from both studies highlighted the same truth: the presence of smell does, in fact, improve brand recall and recognition (Morrin, Ratneshwar). Another older but still relevant study demonstrated that 84% of customers were more likely to buy shoes in a scented environment versus a non-scented environment (Girard).

Sound

SENSORY SCIENCE

Sound's impact on how we experience the world around us, including foods, is actually much more complex than most people realize. When we eat food, a large part of what we perceive is actually rooted in the sounds we hear while chewing. For example, crispy versus crunchy is sound and texture-based. Crispy foods are associated with high levels of air-conducted, high-frequency sounds (at around 5 kHz), while crunchy foods are characterized by low-frequency, low-level of peak air conduction sounds (around 1.25-2 kHz). Meanwhile, crackly foods combine low-pitch sounds with high levels of bone conduction (Lawless & Heymann). Because many of the lower-frequency sounds we experience while eating are conducted through the bones and skull to the ear, it is difficult to tell how crunchy a food is while listening to someone else eat. However, when you are experiencing the crunchiness firsthand while you chew, the sound can be so overwhelming that you have issues hearing the person speaking next to you. How we experience the texture of the food we eat is almost primarily dictated by sound.



One scientist launched an experiment that proved this to be true on a much broader scale than we previously realized. He took crispy products and placed a microphone right in front of the consumer's mouth and ran the sound through a sound processor. The scientist then changed the frequency from high to low and pumped it into the consumers ear through headphones. The consumer's perception of the crispiness changed based simply on adjusted frequency.

In a similar study, researchers working with Unilever discovered the importance of sound in the experience of consumers of Magnum ice cream (Spence). After receiving complaints that the chocolate coating on the ice cream fell off too easily, product developers sought to reformulate the chocolate to stick to the ice cream better. However, after changing the chocolate formulation, the Magnum bars lost their characteristic chocolate coating "crack," leaving consumers dissatisfied still.

Sounds, or auditory texture, might also play a negative role in how consumers perceive food products. For example, cooked and creamed spinach can develop a gritty texture if not cooked properly. The gritty sound associated with this creamed spinach — like chewing sand — can turn people off of the food, creating a negative experience and association with the product. Both the Magnum and spinach examples highlight an important conclusion about sensory marketing: sound has a massive impact on consumer experience.

SENSORY MARKETING

Much of the sensory marketing research about hearing relates to music and the influence of music on mood and context. Music is a marketing tactic that, unlike touch and taste, can transcend space, reaching consumers from anywhere in the world, and can have a great impact on purchasing. Using familiar or unfamiliar music can also elicit a specific response from consumers and listeners. Ward, Goodman, and Irwin, while researching consumer preference for familiar or unfamiliar music in advertising, found that consumers actually prefer listening to unfamiliar songs. However, the power of familiar songs that unite consumers should not be overlooked. Consumers tend to better remember and recognize songs that they listen to frequently. The integration of music in

advertising is an extremely powerful tool for marketers. Leveraging music correctly can truly place brands in both the heads and the hearts of consumers (Krishna, et al.).

Sound has the ability to send cues to the consumer that something is working (or not), is pleasant to use, or is strong and powerful. In an age where attention is the real currency, social media marketers leverage sound exceptionally well to not only grab consumers attention but also convey positive messaging about product performance. Consider the case of Chirp Wheel, a back roller that promises to stretch the muscles around your spine to relieve upper back pain. Their ads typically feature a person rolling on the Chirp wheel to stretch their back and the visual is coupled with the very satisfying sounds of a 'back cracking' leading to a look of relief on the consumer's face. In other cases, the understanding of sonic marketing has been used to innovate products. Dyson, an expert in small, powerful motors, optimizes the sound of its hair dryer to create the sense of power but also tunes its noise to be enjoyable for the consumer. Small motors can create anxiety inducing high pitched sounds. By deliberately tuning the sound to be lower pitched, they are able to remove low levels of anxiety from their consumers' product experiences. Ford, famously, uses electronic revving engine noises characteristic of internal combustion engines in its electric Mustang cars after finding their consumers craved the perception of power the noise provided, even though it has nothing to do with the engine. To their targeted consumer, the sound of the engine, produced by gasoline being more authentic.

In 2009, consumers rejected a new, more environmentally friendly bag for Frito Lay Sun Chips because it created more crinkling noises when opening and manipulating it, despite the fact that it had numerous environmental benefits. The additional noisiness likely increased snackers' feeling. In the latter instance, the sound and the belief it brought extra attention to the snacker likely increased feelings of guilt associated with consumption, even though the actual product had not changed ("Frito-Lay Pulling Compostable Snack Bags over Noise"). In a more cautionary tale, Bose, a speaker and headphone manufacturer, over-relied on the importance of sound and failed to acknowledge that there's more to it than one sense. The company focused on sound quality so heavily, they never considered more holistic consumer features such as Bluetooth and color options compared to Sony and others. What's the lesson from all of these stories? The holistic product experience, measured through all senses, both matters and can be a key blocker or unlocker of your product market.





Taste

SENSORY SCIENCE

Taste to a sensory scientist is a more specific than when we refer to the taste of food in a colloquial sense. Taste refers to general aesthetic sensibility outside of the sensory science. When specifically referring to food, though, taste is differentiated by receptors that send signals to your brain, where they're received to then help you interpret the chemical properties of food items. Traditionally, sweet, sour, salty, bitter, and umami are the five "basic" tastes and provide information to our brains about the safety and nutrient content of foods. Sugar and salt are required nutrients for life, umami indicates protein sources, and bitter and acid are historically signals for danger or poison. Because we are an evolved species, we have the luxury of interpreting the safety and nutrition signals in mostly aesthetic sense, allowing us to take the nutrient and safety signals present in our foods and design them to deliver pleasure.

In many kinds of food, combinations or interactions of ingredients are the key determinants of the taste or flavor the consumer will experience. For example, if someone is having a glass of wine, and they take a sip after having a bite of vanilla birthday cake, the wine will taste too sour due to the sweet flavors cancelling out. If they take a sip of the same wine after having a salad with a vinegar-based dressing, the wine will taste too sweet. These effects are called mixture suppression, a scientific phenomenon that is the basis for all flavor pairings.

All of these effects play an important role in informing the most effective sensory marketing. Scientific research helps us understand how we perceive flavors and what settings and/or combinations of tastes prime a consumer to experience a heightened level of pleasure in the taste of a product.

SENSORY MARKETING

Taste is possibly the most unique of the five senses, because it rarely acts alone, combining and mixing multiple sensory inputs; feeling from the tongue, smell from the olfactory system, and, of course, tastes of sweet, sour, salty, bitter, and umami. There are even studies showing that ad copy that draws upon multiple senses can greatly enhance the experience of tasting a product. And further demonstrating the undeniable connection that taste has to all other senses, there have been brain imaging studies that have identified "multi-modal neural activity in brain regions such as the orbitofrontal cortex," which has "led to the interesting speculation that sniffing a sweet odor might evoke the entire experience of a taste/odor pairing (i.e., a flavor) that has been encoded in memory" (Lawless; Heymann). Because of its complex nature and relationships with other senses, taste can be leveraged in endless and creative marketing strategies throughout the entirety of the product experience.

Taste-based marketing can take many different forms. For example, think about the samples handed out at Costco. Playing on customers' sense of taste while they're shopping helps to elicit a positive shopping experience, and possibly even encourage the purchase of the product that the customer tried. Some companies have even gone so far as to center an entire brand identity around taste because of its impact on consumers. Ikea, famous for its furniture first, and Swedish meatballs second, has brought taste to the forefront of their strategy. According to Forbes, Ikea revealed that 30% of their shoppers come to Ikea just to eat!

Another study, seeking to confirm that ad copy leveraging multiple senses enhances the flavor or taste of a product for consumers, tested two different slogans for a brand of gum: "Stimulate your senses" and "Long-lasting flavor." After tasting the gum, participants wrote down their thoughts about the product and then gave an overall rating for the taste. It was overwhelmingly found that the slogan "Stimulate your senses" had the consumer feeling far more positive sensory thoughts and higher taste perception than the slogan simply drawing on flavor alone (Krishna et al.).

The psychology and complexity of taste as a comprehensive sensory experience opens up many creative ways for brands to leverage the sense of taste in their marketing, tapping into acute emotions of pleasure, creating new moments for consumers or rekindling old ones. After all, it's often said that ***taste is the sense that merges all the senses together***. Another example of a brand using taste-based sensory marketing is Amazon. To promote and advertise for one of their popular TV shows, "The Marvelous Mrs. Maisel," Amazon unveiled a branded food truck in New York City, serving up delicious food that's often seen served and eaten in the TV show. It gave viewers of the show a tangible (and tasty!) connection to the world of "The Marvelous Mrs. Maisel," while also drawing memorable attention to the popular series for people who hadn't seen it or heard of it ("How Our Senses Sell Us").

HOW SENSORY MARKETING ESTABLISHES CONSUMERS' EXPECTATIONS

Now that the consumer has become aware of the product's existence, consumer decision-making (conscious or subconscious) comes into play in the second and third stages of the product journey. During the consideration stage, potential consumers will ask questions to justify the necessity or desire for this product in their life. This justification of purchase brings about practical concerns regarding the price point and the steps required for obtaining the product. In the fourth and final stage, the consumer will bring the product home, use it, and judge the product experience against prior expectations. If these expectations are met or exceeded, the customer may decide to be brand loyal in future purchases.

The foremost objective in sensory marketing is identifying and exploiting the sensory stimuli that build the framework of positive and accurate expectation, which in turn, acts as the measuring stick for product experience and overall satisfaction. More specifically, what stimuli or atmospherics are shaping consumers' expectations about what the product should be? What contextual cues are motivating the consumer to ultimately make the purchase? Sensory marketing seeks to ask and answer questions like these to elicit a sensory-rich and personal response vital to the product journey.



Expectations are created through advertising messages that impart sensory-stimulating imagery. Seeing someone enjoying a cup of yogurt overlooking a beautiful landscape at dawn relays the message that the product is the start to a beautiful day. The simple words Snickers Satisfies may remind you of a barbecue in which you were happily full and surrounded by loved ones. In these instances, the advertisement is creating an emotional response and expectation surrounding the product's taste. The objective here is to associate the product itself with the pleasant surroundings

and fond memories that are spurred by sensory-invoking messaging. Of course, most out-of-store advertisements cannot relay the taste, touch, or smell of their products – so the visual and auditory senses must elicit positive cognitive responses to manifest the desired or actual expectation for the product.

In the case of Garrett's Popcorn on Michigan Avenue in Chicago, the store's business model heavily relies on sensory marketing to passersby. Garrett's owners know that customers typically are not driving to the store and parking their cars for their popcorn. Instead, Garrett's uses sensory marketing by wafting aromas of their fresh-popped specialty popcorn into the street creating allure among the heavy foot traffic. These sensory cues make consumers aware of the product and create an expectation based on the smell. Within seconds of passing the store, people have subconsciously begun the processes of decision making that will ultimately lead to more purchases.

It is important to note that to maximize the benefits of sensory marketing, sensory cues should closely align with the actual product experience. Sometimes sensory cues may inaccurately depict the product experience, thus creating an adverse effect on customers' satisfaction. Sensory cues are integral in forming expectations, which are then used as the standard by which consumers will judge the product experience. Considering the interconnected nature of sensory applications in the product journey, accuracy, and consistency throughout are vital… Most of the time.

Because the relationship between the accuracy of sensory cues and consumer satisfaction is quite nuanced, there is hardly a rule of thumb. Harvard Business Review's article "When Sensory Marketing Works and When it Backfires," provides case studies that explore why sensory marketing sometimes succeeds, and other times, leaves brand perceptions worse off than prior to the campaign. In other situations, the brand's perception was the driving force shaping consumers' response to sensory cues. One study found that consistent sensory information (i.e., the product's packaging accurately representing the product) was preferred for sincere brands like Ford and Coca-Cola. Conversely, consumers preferred packaging that looked and felt differently than the product for exciting brands like Mountain Dew and BMW. Another study found that tactile quality of packaging that exceeded expectations for the brand resulted in a negative consumer response (Sundar; Noseworthy). Consumers' reaction to sensory cues are multifactorial and largely contingent on their conception of the brand. Of course, research on these concepts is in its infancy and may not apply in many situations. Regardless, pre-purchase sensory experience was seen to have a direct effect (good, bad, or neutral) on product expectations in each case.



SENSORY SCIENCE AND MARKETING + CONSUMER TESTING

Sufficient sensory and marketing research (or lack thereof) can make or break the success of a product. Many companies have neglected their due diligence on the sensory end creating unforeseen product issues that are hard for consumers to look past. Thorough research allows these brands to understand consumers' sensory reaction to their product which can be just as detrimental as beneficial. Not only do these companies miss the opportunity to connect with people, but they also risk angering and alienating consumers. For example, in 2009, Frito-Lay launched a biodegradable chip bag that had the auditory appeal of nails on a chalkboard. The new bag design was incredibly noisy and crinkled to a near-humorous degree every time it was touched. Despite the product's new eco-friendly aspect, consumers found that the obnoxious sensory experience trumped their desire to reduce pollution. Consumer outrage stifled sales, and the failed launch cost the company millions.

Of course, every company would like to avoid becoming the subject of a cautionary tale like Frito-Lay's. Fortunately, this is a problem that consumer sensory testing can almost always solve. Marketing sparks imagination and expectation of consumers to motivate them to experience the product. But this only happens if the expectations created by marketing are delivered by the product.

Many times, companies do not connect sensory science with their marketing goals, causing consumers to create unrealistic expectations. Marketing aims to ideate and create appealing expectations, but accuracy is key because no one likes to be lied to. What sets effective marketing apart from the rest is accurate product representation as well as the research and testing that determines what consumers want through empirical data. Even more effective is the marketing that delivers expectations of positive sensory experiences that the product can fulfill. However, expectations are often distorted and inaccurate because the message may be extremely appealing but not at all representative of the true product experience. Exceptional marketing comes from the marriage of consumer appeal with the fidelity of sensory expectation.

Here is where Curion can bridge the gap to perfectly unite marketing efforts. Studies enacted at Curion help clients who have a definitive line between marketing and sensory science. Further, we can find a solution to combine sensory marketing needs with science and development. The end goal of Curion's services is to quantify sensory science in a way that meets consumer and client expectations.

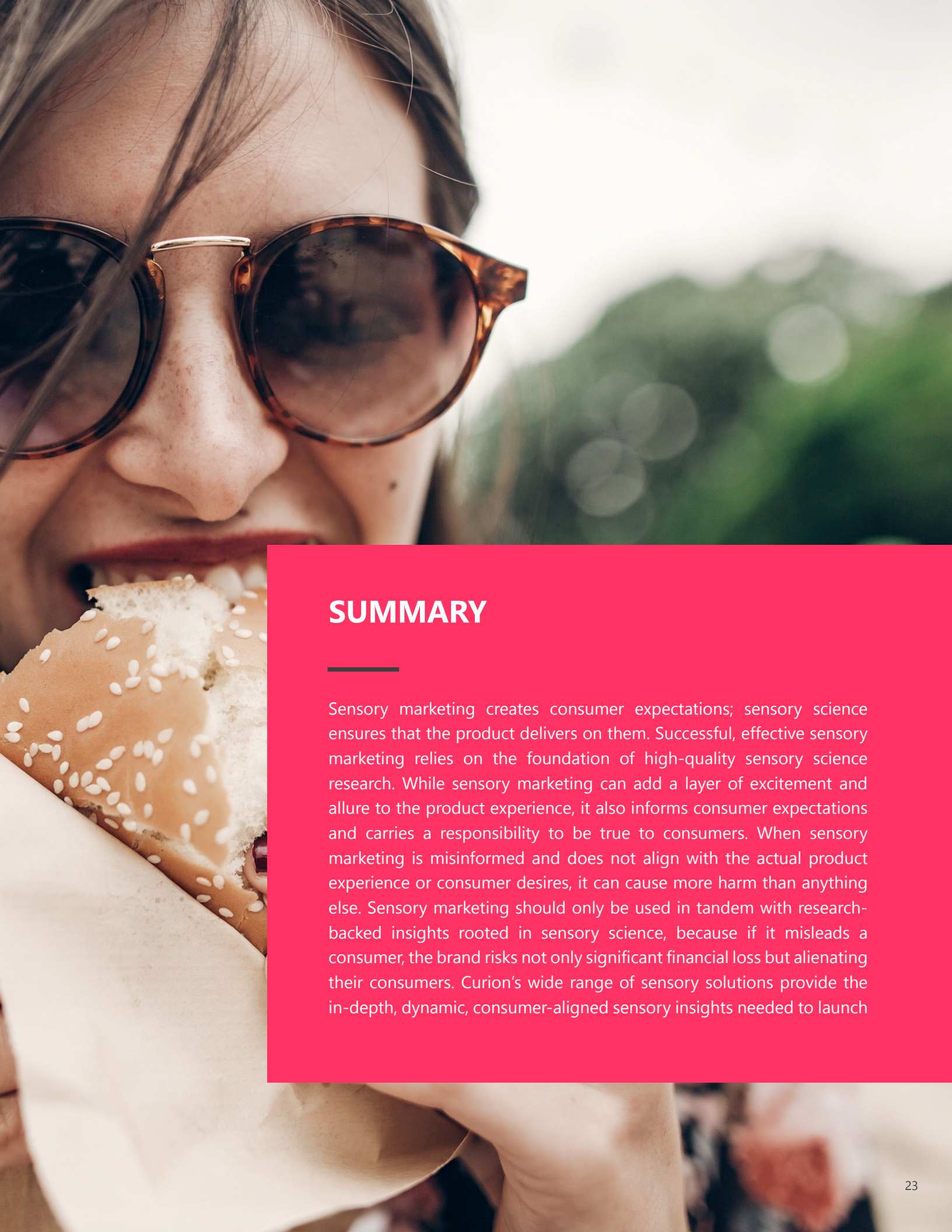
Let's say the product does not deliver. It is common for organizations to spend six to twelve months developing ideas, passing it to R&D with a 3-month timeline to execute it without any information about what the product should even taste like. Millions are spent and innumerable hours are wasted, resulting in an underselling product. This is our opportunity to bridge that gap; we help our clients to avoid a similar fate.

Effective sensory science studies and applications can fuel powerful sensory marketing campaigns. This is how Curion uses sensory science to capture authentic insights that create expectations that can then be delivered on. Different methodologies in sensory science are used to quantify sensory data in a controlled lab setting. Extracting results and determining the reasons behind them, Curion's methods set it apart from competitors.

One of Curion's sensory science methodologies, Quantitative Descriptive Analysis (QDA®), helps brands connect sensory science and marketing directly. QDA helps to break down the enigmatic nature of sensory science by having consumers assign consumer terminology and language to each of the flavors, textures, and other sensory attributes of products. Our moderators are trained to help consumers think about each of the unique flavors, textures and colors of the products and create a descriptive lexicon unique to the category. Using classic sensory measurement techniques we then quantify the perception of each of the consumer terms analytically. Consumers who participate in QDA® are screened for sensitivity to ensure that participants are discerning enough to note even the slightest differences in taste, smell, or mouth feel. This methodology helps marketers and product testers better explain the "why" behind choices, rather than simply stating one product is "better" than another without understanding why.

Curion's original sensory science methodology, PROP or Product Optimization Testing, leverages the insights found in QDA® to reveal which sensory attributes drive consumer desire. After consumers panelists have completed the QDA® process and identified language and terms to describe the intensity of different sensory sensations found in each product, a different set of untrained consumers rate how much they liked or didn't like the various products. The consumer liking data and sensory profiles then are combined to uncover those sensory attributes that drive consumers liking, and disliking, of products. With products organized based on preference, scientists can understand which attributes are driving consumer desire by identifying what sensory elements the most-liked products have in common. The connection between QDA® (sensory attributes captured through language) and consumer data (consumers' product preferences) creates a powerful roadmap of the sensory experiences consumers crave and empowers well-informed, disruptive innovation and R&D. PROP helps to identify areas of product improvement (including sensory and chemical optimizations) and provides insight into consumers' ideal product to fuel future innovation and product development.





SUMMARY

Sensory marketing creates consumer expectations; sensory science ensures that the product delivers on them. Successful, effective sensory marketing relies on the foundation of high-quality sensory science research. While sensory marketing can add a layer of excitement and allure to the product experience, it also informs consumer expectations and carries a responsibility to be true to consumers. When sensory marketing is misinformed and does not align with the actual product experience or consumer desires, it can cause more harm than anything else. Sensory marketing should only be used in tandem with research-backed insights rooted in sensory science, because if it misleads a consumer, the brand risks not only significant financial loss but alienating their consumers. Curion's wide range of sensory solutions provide the in-depth, dynamic, consumer-aligned sensory insights needed to launch

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