



CHEMICAL REACTION **BY STEVE HERMAN**

Synesthesia

Understanding the relation among the senses allows the creation of a product with a consistent message.

There are
 perfumes as
 fresh as a
 child's skin,
 Sweet like an
 oboe, green
 like a prairie,
 And others,
 exultant, yet
 rich with sin.
 —Boudelaire,
Correspondances

PERSONAL CARE PRODUCTS have a diversity of characteristics that contribute to overall consumer acceptance; color, packaging and odor typically are important. We consciously tend to separate sensory reactions, depending on the nature of the stimuli, but in fact, two or more of them frequently are used simultaneously to evaluate a product. Common sense dictates that an apple-scented product is red and a banana aroma is yellow, but the sensory connections can be much broader and extend to far less obvious relationships.

The senses are closely linked in the phenomena of synesthesia. We all know some words derived from the Greek. "Syn" means "together"—synchrony means at the same time, synthesis implies different ideas joined

into one, synopsis is to see all together. Synesthesia is a far less common word, incorporating aesthesis, "sensation," representing a combination of the senses that are usually experienced independently.

Synesthesia can be divided into two degrees of intensity: one is a profound medical condition limited to a small number of people; the other affects everyone and is more psychological in nature. On rare occasions, synesthesia hits the popular media, but most information resides in the technical literature.¹ The medical condition has received increasing attention over the past decade, due in part to books like the modern classic *The Man Who Tasted Shapes*.² (One cannot too strongly urge the reader to consider this book essential.)

The extreme form of synesthesia only affects perhaps ten individuals in a million. There is no doubt that synesthesia is a product of the brain's function rather than a product of the imagination. Referring to it as "extreme" does not imply anything life threatening or even abnormal about it, only that it is manifested in a highly unusual way. The well-known composers Scriabin and Messiaen "saw" music in color. Some other famous synesthetes were novelist Vladimir Nabokov and physicist Richard Feynman.

Synesthesia only works one way—sounds creating colors for an individual will not result in colors creating sounds. Five senses with one-way relationships create many possibilities for synesthesia, but some are far more common than others. Figure 1 shows the nature and number of occurrences in a sample of 175 cases of synesthesia cataloged by Sean Day.³ The most common is to see different letters of the alphabet in distinct colors. There is no consistency between individuals, so one may see "A" in blue, while to another it is red. Nabokov saw "t" as pistachio green. A slight feeling for this phenomenon might be obtained by considering the average person's reaction to red,

FIGURE 1. TYPES AND FREQUENCY OF SYNESTHESIA

Types and frequency of synesthesia (after Day), based on 175 cases.

| Relationship | Cases | % |
|------------------------------------|-------|-----|
| Numbers and letters evoking colors | 121 | 69 |
| Units of time triggering colors | 42 | 24 |
| Spoken sounds calling up colors | 24 | 14 |
| Musical sounds calling up colors | 21 | 12 |
| Smells triggering colors | 5 | 3 |
| Tastes evoking colors | 5 | 3 |
| Sound evoking taste | 3 | 2 |
| Vision evoking taste | 3 | 2 |
| Touch evoking taste | 2 | 1 |
| Sound evoking smell | 1 | 0.6 |
| Touch evoking smell | 1 | 0.6 |

blue and green, a mismatching of words and colors that disorients preconditioned brain wiring.

The psychological form of synesthesia has become a valuable tool in creating consistent products and marketing campaigns. Several authors have considered the interesting connection between fragrance and color. Gilbert tested a group of individuals for their identification of a number of aromatic chemicals with a selection of colors presented as Munsell color chips.⁴ The test colors and results for one chemical are shown in Figure 2. Amyl cinnamic aldehyde has the characteristic smell of "Red Hots" and has a cinnamon characteristic used in many toothpaste and chewing gum flavors. The responses of the panel for amyl cinnamic aldehyde showed an overwhelming identification with the red color chip. This is basically an identification chosen by Americans. Foreign individuals will frequently associate the odor with the brown color, the hue of natural cinnamon stick. Identifications are thus dependent on cultural backgrounds.

Morrot tested 54 individuals on their analysis of wines.⁵ White wine colored red was universally found to have the odor character of red wine. Because of the visual information, the tasters discounted olfactory information. The researchers attributed some of this to the weak link between language and smell discrimination, leading to a dependence

FIGURE 2A. COLOR OF SMELLS

Gilbert tested a group of individuals for their identification of a number of aromatic chemicals with a selection of colors presented as Munsell color chips.

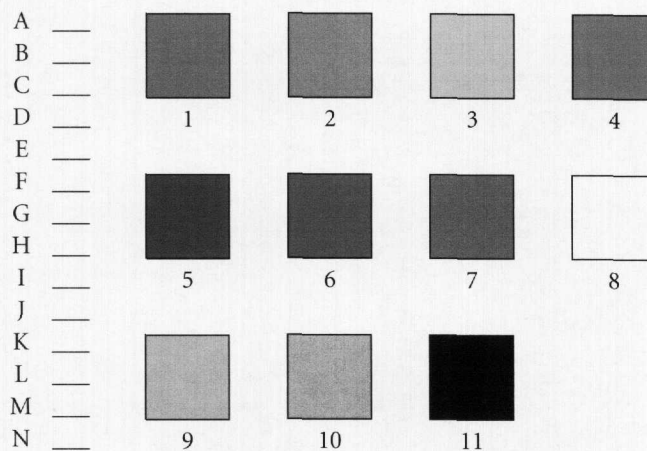
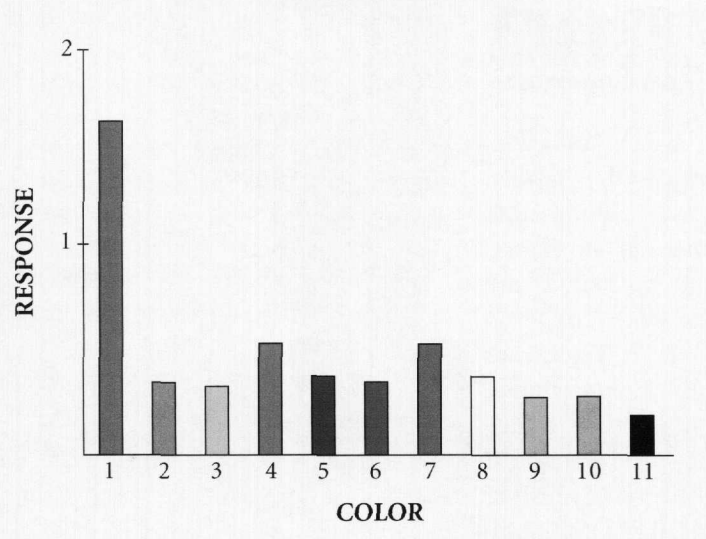


FIGURE 2B. CINNAMIC ALDEHYDE RESPONSES

The result of Gilbert's test using cinnamic aldehyde.



on information from the other senses.

A pair of related articles, the first by Svedmyr⁶ and the second by Sponbergs and Hard,⁷ also explored the fragrance/color connection. They found that while much

effort is made to match a fragrance to a target consumer, far less attention is given to matching the fragrance to the color of the product and packaging. Their study indicated the importance of the color/fragrance connection, with the

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additional value of including positive emotional memories. Not only can colors be picked for fragrances, but the reverse is also possible: creating a fragrance to match a desired color.

Recent work reported by Barbara Busch from

Analysis—The Scent Company suggests that words have a smell and pictures have a smell, which implies that fragrance ads have characteristic odors.⁸ (*Editor's Note*: Busch will contribute an article on this topic in the June issue of *GCI*®). The

imagined smell of a fragrance ad leads to concrete expectations, and the fragrance reality must at least meet these expectations if the product is to be successful. The goal of fragrance marketing is to create ads that make consumers want to try the fragrance, and a functional reality that consumers love virtually to the level of an addiction.

Understanding the relation of the senses allows the creation of a product with a consistent message. It gives importance to every physical and psychological aspect: color, texture, odor, package design and performance. Advertising must help create the desired image, but success only occurs when consumer expectations are met or exceeded. On a grander scale, it is a portal to the understanding of the brain and the way information from the external world is translated into our most profound thoughts and feelings—the raw materials of our fundamental humanity. ■ **GCI**

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