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Quantifying Intangible Preferences

FACIAL CODING

Sometimes the math is cruel. Consider, for instance, the reality that somewhere on the order of 90 percent of all new product introductions fail. Or that the time a consumer typically spends observing a new product on the grocery store shelf may be as little as 0.6 seconds. At other times, however, the math can, and should be, sweet. A case in point: the use of facial coding to quantify and, thereby defend, that a breakthrough product design has achieved the kind of emotional connection that will win consumers over and produce rewarding bottom-line results.

As anybody in design knows, consumers can't be relied on to consciously explain their innate preferences. They're innate, after all. Intuitive pleasure may not register because consumers won't admit to liking something new and "odd" or can't find the right words to explain a product's appeal. What's the solution? Heaven knows, it's not another focus group! Since people don't typically go shopping with 10 to 12 strangers, there's something inherently unnatural and disconcerting about the idea of opening up in such a setting.

It's far better to rely on what we all innately possess: a face. **The face provides a quick, spontaneous read of whether a "wow," disengaged or adverse reaction happens** because the face is the only place in the body where the muscles attach directly to the skin. Humans have more facial muscles than any other species on the planet. Charles Darwin was the first scientist to realize that even a person who is born blind emotes using facial muscles in the same way a sighted person does; that capacity has been hardwired into the brain through evolution.

Taking all these factors into consideration, facial coding is a wonderful tool that can help drive design toward that which will truly compel and emotionally satisfy the target audience. Facial coding is a reliable technique for exploring consumer responses to what's new and sensual in design.

For a decade now, Sensory Logic has been dedicated to the proposition of transforming conventional, rationally oriented research by using facial coding and eye tracking to supplement the traditional verbal input and ratings that have long dominated the field. By studying video files of consumers reacting to products, and doing it in real time down to granular one-thirtieth of a second intervals, the opportunity exists to capture and quantify the little glimpses of emotional reactions that can help preserve what's great in a particular design and enhance a design that has room for growth.

Color

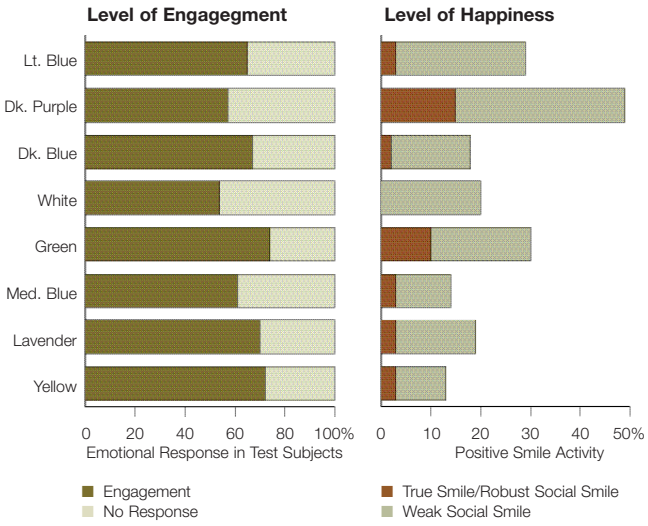
By way of example, let's look at a study we did involving color. Because people take in 11 million bytes of information a second—of which 10 million are visual—color is a great place to start. After all, **since consumers only consciously process 25-40 bytes per second, visual responses reside mostly on a subconscious, emotional realm, making facial coding the ideal tool by which to assess buy-in.**

We conducted a study for a household appliance maker that had achieved great success with an innovative product design but now wanted to push the envelope even farther—in part through a broader range of color options. The question we sought to answer was, which colors would

consumers go for, and which colors would meet with reluctance, if not outright resistance?

The answers came courtesy of facial coding. The data in the Level of Engagement chart (right) show what percentage of the research participants had at least one codeable emotional response to a given color choice. By that measure, green (74 percent) and yellow (72 percent) were the most promising colors because emotions trigger action. In other words, without an emotional-engagement response a product is less likely to attract sales.

Duet Fabric Care® System, white with metallic blue ring, courtesy of Whirlpool Corp.



Yet engagement is only half the picture. The Levels of Happiness chart demonstrates the degree to which each color choice generated the highest forms of happiness: a true smile or a robust social smile (the top-two desired responses) or a weak social smile (the lowest of the positive emotions). What's the difference between a true and a social smile? With a true smile the muscle around the eye relaxes, causing the twinkle in the eye that signals joy. In this case, dark purple was the best at generating the desired positive emotional responses (true smile or robust social smile), with green close behind. The other colors weren't even in competition when it comes to positive emotional appeal.

Texture

While it doesn't involve the lion's share of those 11 million bytes of information per second, touch is still vital because of its sensory intimacy. **Tactile impressions get formed up close and stay with us more readily than our heavy dependence on visuals.** However, not all parts of the body are equal when it comes to sensitivity to touch. As often as we use them for grasping an object, our fingers and fingertips are not especially keen receptors. Instead, the shoulder is one among a host of better places by which to have your product leverage its textural attributes.

Given that reality, a project we did for a publisher that was creating a literacy kit for young children provided an especially poignant opportunity to make a product compelling through the tactile dimension. Much of the kit was fairly standard fare. But the mascot puppet, "Fox in the Box," accompanying the kit was meant to provide an emotional wow, a connection point for the kids—a means of building a relationship that would spark reading. Four versions of the fox puppet were created, each with a different type of material.

The target audience of children had wildly different emotional responses to the four fabric samples regarding *impact* and *appeal*, terms Sensory Logic uses to describe emotional data. Impact refers to the potency or strength of the reaction. Think of it as a continuum similar to a suspension bridge with high towers at either end holding up the cables. A strong positive response will have a strong impact, or oomph, to it. Likewise, a strong negative response will also have strong impact. What's left in the mushy middle is a tepid, neutral response with little oomph. Meanwhile, appeal refers to the valence or direction the emotional response takes. A true smile—joy—is a wow with a stronger, more positive valence, or preference factor, than a weak social smile. In most situations the desired emotional response is both a strong impact and strong appeal.

In this case, although the winning puppet was only slightly ahead of the other versions in terms of appeal, it came in far ahead in terms of impact. In other words, while its likeability wasn't exceptional, it had the advantage of decisively generating a livelier reaction from the children than any of the other fabrics under consideration.

Form

Finally, form must also be considered. Perhaps nothing more dramatically suits this aspect of design than the shapes that go into motor vehicles, particularly macho, in-your-face pick-up trucks. Several years ago, a Japanese automaker asked Sensory Logic to gauge the emotional responses of the target audience to a series of new truck designs. Again, facial coding formed the cornerstone of our research approach. In this case, however, the client wanted to play it safe by also carefully considering the consciously delivered verbal and written responses, or self-report ratings, the test subjects were asked to give about the six pick-up designs.

Four design variables were especially prominent in the study: the amount of aggressiveness in the front grill; how the wheel wells were treated; the degree of slope in the driver's window; and whether the angles used for the cab and the rear end were abruptly angled or more curved. Designs C and F were the most conventional; A and D were the most extreme and unique.

First, what were the rationally oriented outcomes? In the verbal self-report ratings the test subjects by far preferred the two conventional designs, C and F. Coming in second were the slightly less conventional, slightly more forward designs, B and E; the two extreme designs, A and D, finished last.

Emotionally, the facial coding results were very similar in terms of appeal: The conventional designs, C and F, came in first; followed by the slightly more forward designs, B and E; with the out-of-the-box designs, A and D, last. However, the impact results were strikingly at odds with the self-reported rational data. Here, the dangers of playing it safe with designs C and F became manifest. While these designs both received high self-report and facial-coding scores for appeal, they elicited a less-than-enthusiastic, low-key impact response from the facial coding. In fact, all the other designs received a higher facial-coding rating in terms of impact—peaking with design A, which registered more impact because it more strongly violated the orthodoxies of pick-up truck design. In the end, the design we encouraged our client to consider further was B, which scored high in appeal, even though its emotional impact score was lower.

Regrettably, despite the scientific facial-coding data, the client chose to go with one of the two conventional designs. Our warning that doing so would mean marketplace disappointment went unheeded. What were the results? Unlike most of the company's often wildly successful and always solid sales results, this design actually produced a slight dip in sales after its first year. Our concern was that a lack of impact would be harmful in a category with a high price tag and lots of innovation, so much so that a safe design would look even more vanilla by the time it hit the showroom floor.

How could we have been so certain of the outcome? The answer is the Facial Action Coding System, which is the basis for facial coding. It relies on the study of 43 facial muscles, which correspond, in turn, to 23 different core patterns of muscle activity known as action units. In other words, the activity on the face is behavior in microcosm. The emotional response activity on the face reveals, in miniature form, the kind of acceptance or rejection that will translate into marketplace results. How could it be otherwise given Groucho Marx's wonderful remark to Margaret Dumont in an old Marx Brothers' movie: "Who are you going to believe—me or your own eyes?"

The bottom line is to trust what you can see over what people say. Facial coding provides a great benefit to innovative designers by helping them know—even when the test subjects can't articulate it—whether they have gone too far (or not far enough) or have successfully pushed the envelope, for which they will be commercially rewarded. ■