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DESIGN, EMOTIONS, AND HOW PEOPLE THINK

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ABSTRACT:

While in the past design focused on products, our new challenge is to focus on people. An understanding of perceptions and the emotional connections people form with products and services is critical factors in advancing the practice of design.

This paper will begin by discussing our background at Smart Design in exploring design and perception. It will then discuss our current methods that help design teams visualize the perceptual connections people make, helping us understand emotional reactions and thought patterns that are elicited through design.

We have used this type of study, which we term Emotional Mapping, in the design of a wide range of products, ranging from disposable healthcare products to consumer electronics. Methods for quantifying and mapping emotions and perceptions, the principles of cognitive psychology being employed, and the statistical techniques that we use to dissect and more fully understand the interplay of design and emotions will be explained.

DISSECTING EMOTIONS:

Recently I attended a meeting with a newly formed “consumer insights” team in a major pharmaceuticals products company in the US. They called the meeting to address a challenge that has become very familiar. They stated they can no longer rely simply on technical aspects of their products to win over consumers. Offerings from competitors, even generic brands, are providing the same level of quality and performance as the highly recognized brands their company owns. Their opportunity to attract consumers needs to expand beyond the efficacy of their products. They need to understand how people think.

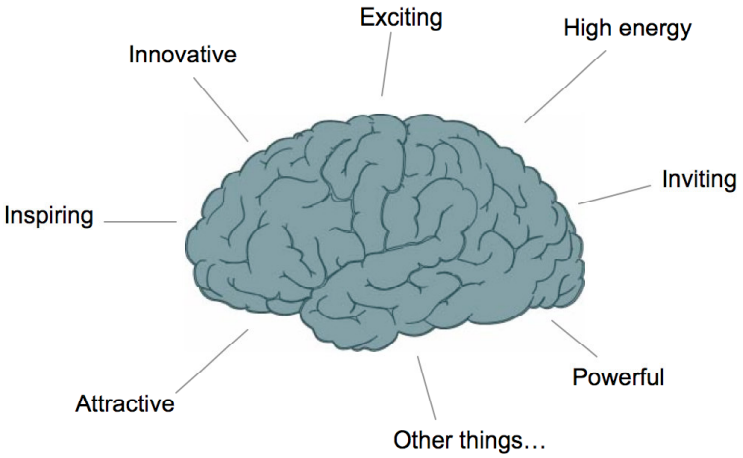

Figure 1:Designers’ current goal is to better understand how people think.

This company is not alone. Manufacturers in many fields, consumer electronics, housewares and medical products to name a few, are facing the same challenge. Products and new technologies are fairly well understood. “People issues” represent the new frontier. This is a growing trend throughout the 2000s, as more and more companies are coming to this realization. Pertinent to this, a consumer survey conducted by Smart Design found the following:

1. Consumers have reached their technology threshold — features are not benefits
2. Consumers are looking for “personal meaning”
3. Brand loyalty is not what it used to be
4. The word “design” is being strongly associated with “user experience” by consumers
5. Competitors have caught up

ERGONOMICS AND PERCEPTION, BACKGROUND

While virtually all designers are professing that emotional factors in design are crucial to success, few have set out to study emotions, perceptions and attitudes.

Smart Design has been exploring ergonomics and perception in consumer products since the early 1980s. Our philosophy has always been that design is about people, not things. To meet this philosophy our designers become directly involved in many types of user research. In our early efforts to understand people we learned that physical and psychological aspects of design must both be addressed. In practice, they are inseparable.

For instance, in biomechanics studies in product design we knew that in order to understand basic ergonomic issues, such as fit and comfort of a product, we needed to simultaneously explore physical aspects of design and user perceptions. In research conducted for the design of a line of eyewear, research that pertained to sunglasses and to protective glasses for specific sports activities, we needed to explore physical characteristics and perception concurrently. It was not enough to know the width of someone's head — we also needed to know what felt good. We wanted to know at what point would eyewear frames be perceived to feel too tight or too loose. We did this by combining an anthropometric study with techniques borrowed from the field of cognitive psychology. The results from the study were quantified and statistically analyzed. With this combination our design team produced size specifications for eyewear that accommodated the widest range of people possible. Importantly, the specifications were applicable to any style of eyewear frames. The combined understanding of physical considerations with perception greatly increased the number of people accommodated by the eyewear line, which in turn produced greater sales.

In any research exploration the ability to visualize data is a great asset. Our ability to collect, quantify and analyze perceptual responses has led to many innovations and product successes. Now more than ever, for the five reasons listed above, this understanding has become critically important. We are continuing to explore methods to help understand emotions, establishing a competitive edge for a large number of companies we advise on this topic. Here are the five reasons listed above, discussed in more detail:

1. Consumers have reached their threshold — features are not benefits

Throughout the 1980s and 1990s, technology ruled. Technical advancements were coveted by consumers, who were deeply into technical specifications such as the number of dots per inch, processor speed and an ability to customize features. The thought, or hope, was that these technical improvements would be meaningful. And throughout these two decades, many of these improvements did, in fact, have an effect. In the 2000s however, technology has advanced beyond our willingness to accept it based on that technology alone. An overload of features simply made products, and sometimes our lives, more complicated. The expectations created by growing lists of features in products led to frustration, disappointment, or indifference, as many of those new features were never accessed.

Features are not benefits. This inevitably has led to the next point, a desire for personal meaning.

2. Consumers are looking for “personal meaning”

This point means that people are not only searching for products and services with truly meaningful benefits — they are willing to pay more money for them. In some cases the benefits may pertain to the product itself. For instance, the product may be easier or more pleasurable to use. In other cases the meaningful benefits may come from outside the product itself. A faster product, or something that runs automatically, may free time that can be spent elsewhere — with family, or friends, or pursuit of a personal hobby.

3. Brand loyalty is not what it used to be

A consumer’s need to depend on a brand is diminishing. There is an enormous amount of person-to-person, “word of mouth” discussion on products and services readily available. This information may be found on the internet, where people review or rate products based on their personal experience. This information may also come from special interest magazines, or from the numerous cable television channels airing shows that cover specific interests. There is therefore less need to rely on a brand for assurance, because other avenues are available. These alternate avenues broaden scope – consumers can become immediately aware of new or previously unheard of brands. Word can travel quickly.

The result is good for consumers, but a challenge for companies, who need to continually improve products to meet real user needs. Companies can no longer simply rely on their brand, or on past successes.

4. The word “design” is being strongly associated with “user experience” by consumers

The definition of “design” is changing. A survey conducted by Smart Design enlisting more than 700 consumers in the US found that the word “design” is more closely associated with the experience of using a product than with aesthetics. Good design doesn’t necessarily need to look good to qualify. The experience of using a product or service, or an emotional connection between person and product, can dominate opinions.

5. Competitors have caught up

This issue permeates many product categories. In consumer electronics, for instance, many competitive products perform on par with each other technically. The exact same technology, in many cases, is available to a wide range of manufacturers. In the United States even store brands, traditionally associated with lower quality products, are equaling or surpassing the quality of name brands.

EXPECTATIONS AND PERFORMANCE

Design teams often work from a list of goals for a product, characteristics they would like their new design to possess. In our experience the list will typically contain anywhere between five and twenty words or phrases that represent goals to be met. For example, a design team may set out to create a product that is high quality, durable, fast, efficient, fun, or a number of other things.

From past research we learned that people expect products and services to work. Meeting expectations of consumers is a minimum requirement. Simply meeting expectations, therefore, does not mean great design. For a design to be great it needs to exceed expectations. To be considered super-great, it needs to far exceed expectations. Expectations can be established by price — in cases where consumers believe “more expensive” equates with better performance. It can also be set by word-of-mouth — a personal recommendation from a friend, or a published review. In many cases consumers rely on appearance, first impressions, past experience with a similar product, or reputation. A designer’s goal is to set expectations high, then deliver even more than expected.

The Emotional Mapping technique we developed explores attributes that a product possesses or attributes that a design team wants to convey to the user. Our goal is to understand the specific

elements of design that will influence user attitudes. These will be based on initial perceptions (first sight), then again during the first few minutes using the product, and again after a period of extended use — assuming of course the consumer gets that far. In fact all three experiences are important. In gathering reactions from people, we want to understand their impressions on first exposure to the product — what are the initial impressions and what does the design communicate visually? We are next interested in reactions after their initial experience using the product — what impression is made during the “first date”? When possible in our studies, we will finally look for reactions after an extended period of use.

The Emotional Mapping study can be implemented at different points along a project’s path. It can be conducted at the start of a project, in which case existing products can be evaluated. A study can also be conducted after initial concepts have been developed by the team. Later in the project, Emotional Mapping can be used to evaluate refined designs, models or prototypes. This allows the team to understand how well the new designs are performing in people’s minds, how various designs compare to each other, and how new designs compare with products already on the market. It does this in time for the team to react.

An important outcome of the analyses allows the team to understand differences in emotional or perceptual responses among different groups of people. Males and females often have much different priorities, eliciting significantly different reactions. Differences may also be discovered based on age, geographic location, job description, body size, or other categorizations of respondents.

VISUALIZING PERCEPTIONS AND EMOTIONS

Our team at Smart Design used Emotional Mapping to develop Microsoft’s package for their new Windows Vista operating system. The package is being used globally. The goal was to create an icon, something that would communicate all of the attributes embodied in the new operating system. Users’ first exposure to Vista would likely be online, and the package, whether viewed in person, in print or online, needed to communicate Vista’s attributes, establishing initial expectations for buyers.

In initiating this project we worked with a long list of attributes. We will use the Microsoft Vista package as an example in this paper to help illustrate Emotional Mapping and the benefits of understanding perceptions. This discussion is not intended to be a comprehensive case study on the project, and for ease of explanation of Emotional Mapping this example has been substantially modified and simplified.

An Emotional Mapping study can enlist anywhere between twelve and hundreds of respondents. Smaller numbers are used for in-person interviews. Online studies can easily include hundreds worldwide. Both in-person studies and online studies can be applied within the same project. Several hundred potential purchasers took part in the Vista perception studies, which were conducted at multiple points along the project's path.

Participants are recruited according to independent variables that may include geographic location, type of buyer, and gender. At different points in the project concepts are evaluated as the design team's theories are tested. In the study sessions, respondents rate different designs according to the various attributes, ranking them along a scale. The results are then statistically analyzed and mapped.

Our current, enhanced version of the software we developed for Emotional Mapping allows a designer to interact with the maps. The visualization shows the results from the study, enabling a designer to compare differences in perceptions and attitudes among different populations. For example, Figure 2 shows results for four different package designs, displayed according to how well they portray the attribute "Inspiring." In this example results are displayed for females in the United Kingdom. By next selecting "Males," the images of each design will migrate to their appropriate positions, visually showing the differences in perception between Males and Females. Similarly, different geographic locations, different user groups, or other variables can be selected.

Depending on the design of the study at hand, the results will display either first impressions, or users' opinions based on a design's actual performance after participants have had a chance to use the product.

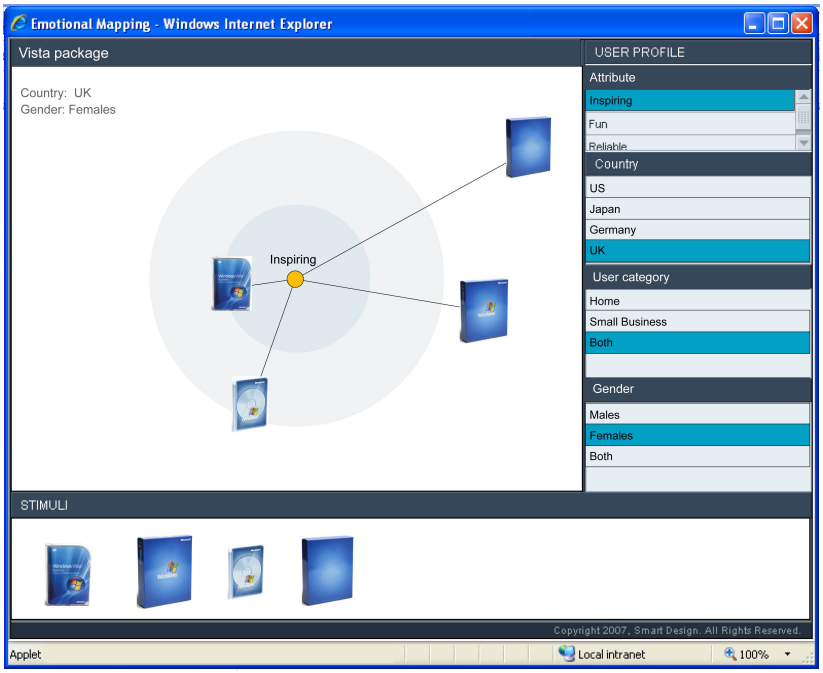

Figure 2: Emotional Mapping. The software developed for Emotional Mapping analyses allows a designer to understand how well each design performs. Images and words will rearrange according to selected designs, attributes or population groups.

Importantly, an Emotional Mapping study is not intended to select a "winning" design. Rather, the study helps design teams understand how people think. The results feed the creative process, directing efforts and sparking new, meaningful ideas.

Another way to view the results is the creation of a "Personality Profile" for each design. Figure 3 shows the personality profile of software in a traditional cardboard box on the left, and an early version of a new package design on the right. Ideally the positive attributes shown would be as close as possible to the design's image in the center. Unfortunately, in the case of the cardboard box, most attributes are completely outside the outer circle, indicating that consumers felt that this design communicates the opposite of the attribute desired by the design team. For instance, "High energy" for the cardboard box is located outside the outer circle, indicating that consumers actually are seeing the opposite trait — "Low energy".

By comparison, the new design (shown on the right) elicited much better responses, more strongly conveying the attributes desired by the design team.

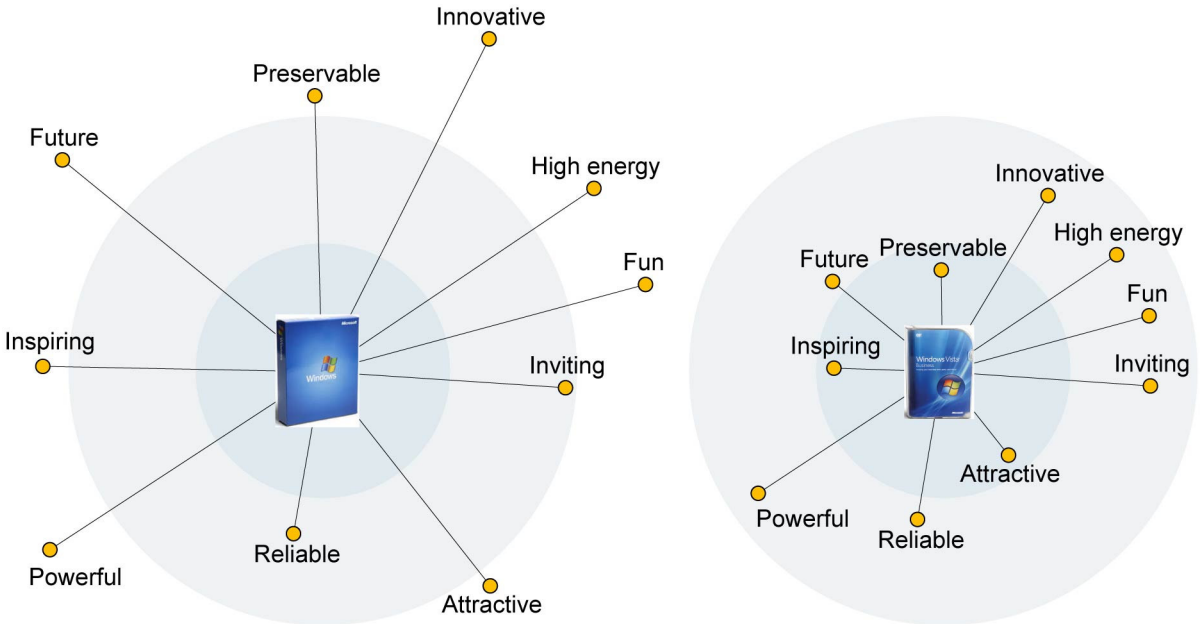

Figure 3: Personality profiles. Based on participants' responses, each design concept, including this original cardboard box, produced a "personality profile." A word closer to the center represents an attribute more strongly communicated by that design. A word outside the outer circle indicates that the opposite of that attribute is being communicated. For the goals of this project, a cardboard box was not doing well.

Each design embodies a unique personality. While only two designs are shown in the example in Figure 3 a greater number of designs is typical. In this project nine uniquely different designs were evaluated early in the project. By comparing the results, team members discovered patterns in consumer thinking, created new hypotheses and tested those new hypotheses by creating new design concepts. Armed with this knowledge the design evolved rapidly.

CORRELATIONS: VIRTUAL PROTOTYPES

A third type of analysis, this one delving deeper than the previous examples, identifies the attributes that are most influential in people's desires to own or use the product or service. In effect, this third type of analysis creates a "Virtual Prototype". It will verbally describe an ideal design, even if one does not exist yet.

A key attribute is chosen and positioned at the center of the circle (we often use a rating labeled "For Me," because it represents a personal preference for a design). All other attributes arrange themselves accordingly, based on the associations people have made with the center attribute. In Figure 4, "High energy" is closely associated with a product being "For me," meaning "High energy" is a good thing. It is up to the design team to develop ideas on what constitutes "High energy". However, by looking at the Personality Profiles for each design described above, the team can already get a sense of which designs were perceived to be more "High energy" than others.

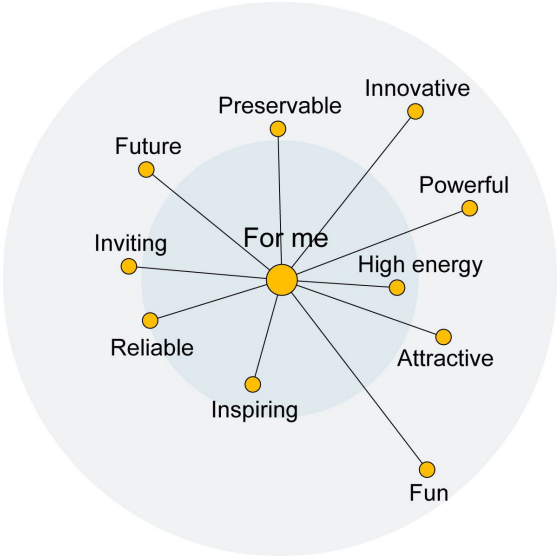

Figure 4:Correlations: A deeper level of statistical analysis displays the attributes most meaningful to consumers. This sets a priority of attributes for the design team. In this diagram attributes shown closer to the center more strongly affect consumer's decisions. helping focus design efforts.

Attributes near center are strongly influential. An attribute appearing near the edge of the outer circle, "Fun" in Figure 4 for instance, shows it has little effect. This will indicate one of two things. Either that attribute has no influence on "For Me", or all designs elicited equivalent results, indicating that among the designs shown, this attribute does not establish a "competitive advantage".

UNDERSTANDING PERCEPTIONS, EMOTIONS AND PRODUCT PERFORMANCE

Science is an extremely creative field, and the ability to visualize information has enhanced all forms of scientific study. Visualizing people's perceptual and emotional responses, according to different variables, allows design teams to discover similarities, differences and opportunities for design. Design is about people, and perceptions and emotions play a major role in product success. While the Microsoft Vista package example used in this paper is largely about visual impressions, I should reiterate that Emotional Mapping methods are designed to evaluate product performance, not just visual qualities of design. We have used this procedure for many different types of products, and it was developed initially to help quantify physical properties of fit and comfort of products.

The methods used in Emotional Mapping are borrowed from methods used in cognitive psychology. In practice, this method has the ability to discover what people are experiencing, in ways they may not be able to communicate verbally. In that regard Emotional Mapping has become an indispensable tool in many of our design projects — greatly influencing a design teams' progression.

The ability to understand otherwise intangible responses from consumers provides us with new insights about the product at hand. It also adds to our overall knowledge base. In practice this ability has allowed our design teams to venture into more innovative solutions. We were able to do this 1) because we became more knowledgeable about how people think, 2) because this knowledge led to new and innovative ideas, and 3) because the design team had more confidence, clout, proof and strength of opinions to enable more radical or atypical designs to evolve.

The ultimate result of Emotional Mapping is innovation through design, producing products and services that enhance the quality of people's lives.