DESIGNING EMOTIONS

PIETER DESMET

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The grimace of dislike, the body language of excitement – these are universal, readily elicited and understood across the world. Such is the universal nature of our basic emotions, something that has been known since Darwin's masterful study of The Expression of Emotion in Animals and Man (Darwin, 1872).

The emotional power of products has never been doubted. Emotions play a major role in marketing and advertising. Skilled designers understand the powerful appeal of emotions and have used their intuitions and artistic skills to exploit this appeal. But despite the strong intuitive appeal, emotions have played little formal role in the design profession. Moreover, within engineering and the disciplines of human-computer interaction and cognitive ergonomics, emotions are seldom mentioned. Considerable progress has been made in recent years, and we are beginning to converge upon some generally accepted standards, such as the facial coding scheme of Ekman, Frijda's classifications, and the widely used Ortony, Clore and Collins (OCC) model for the cognitive analysis of emotions (Ekman and Rosenberg, 1997; Frijda, 1986; Lewis and Haviland-Jones, 2000; Ortony, Clore and Collins, 1988). Within the design discipline, new books on *Funology* and *Pleasure* (Blythe, Overbeeke, Monk and Wright, 2003; Jordan, 2000) the formation of the emotion and design society and, of course, this journal, all promise to change this.

Pieter Desmet has taken a powerful move forward with his thesis, *Designing Emotions* (Desmet, 2002). First, he devises a clever, non-verbal measurement tool. Second he uses the tool to study the emotions elicited by different products on different people across languages and cultures.

And finally, he discusses how the tool can be used both to assess the emotional impact of products and also as a design tool to ensure that new products meet the desired requirements.

The tool itself is worthy of considerable discussion. This is a very important contribution. Practical tools for the design community are especially problematical. One of the most popular assessment tools is the Semantic Differential (see for example Hofmeester, Kemp and Blankendaal, 1996). This is a verbal tool, developed by the psychologist Charles Osgood as a means of assessing language. It uses printed questions and language terms that require the participant to read and then mark the appropriate choice. It is, however, language and culture specific. Other tools such as physiological recording methods are fine for scientific research, but are cumbersome for use during design or product evaluation. So even as our understanding of emotion has progressed, measurement tools have lagged behind.

This is the state of the art faced by Pieter Desmet in his work *Designing Emotions* (Desmet, 2002). Here, Desmet provides a thorough overview of the science and practice of emotions, of the existing tools and best of all, a new tool, one that does not require language and that he has already validated across a number of language groups and cultures

(the Netherlands, Japan, Finland and the USA). The challenges are enormous, for he is working in a design arena that is still poorly defined and understood.

Desmet's solution is particularly clever. Basically, he built upon the vast body of research that indicates that facial expression and body language were universal. This observation alone, however, doesn't suffice, as the numerous attempts to use photographs and drawings of facial expressions have shown. Rather, Desmet uses animations, cartoon diagrams of emotional expression combining face, hands and body, and sound in short, one-second, movies. Each animation conveyed one dimension to be measured. After considerable study and numerous iterations, Desmet settled upon fourteen animations, seven expressing positive feelings and seven negative, for his tool, called 'PrEmo', for Product Emotions (alas, a name as difficult to type as it is to remember). The way it works is that each participant evaluates the product, then systematically clicks on all fourteen animations, and after viewing each, assigning it a value on a three-point rating scale: 'I do feel the emotion expressed by this animation'; 'To some extent I feel the emotion expressed by this emotion'; or 'I do not feel the emotion expressed by this animation'.

Here are the 14 items Desmet settled upon. Unpleasant: Indignation, Contempt, Disgust, Unpleasant surprise, Dissatisfaction, Disappointment, Boredom. Pleasant: Desire, Pleasant surprise, Inspiration, Amusement, Admiration, Satisfaction, Fascination. Although 14 ratings sounds like a lot, in my informal tests I found the tool remarkably easy to use, in part because each animation so naturally depicts the emotional dimension, in part because the use of a three-point scale dramatically simplifies the judgment. As a result, all fourteen ratings can be done in approximately one minute.

Even if Desmet had only developed this animated rating procedure, the accomplishment would have been impressive, but the work does not stop there. Rather, he validated the tool by studies in the Netherlands, Finland, Japan and the United states, and also did a more detailed study of automobiles in both the Netherlands and Japan. Finally, Desmet also developed a methodology for aiding designers in reaching a desired product.

Using emotions is tricky. As Desmet points out, 'there is no one-to-one relationship between the design of a product and the emotion it elicits. An emotion is not elicited by a product as such, but by the appraised significance of this product for our concerns' (p124: underline in the original). The basic fact is well-known, for many products induce strong, but contradictory emotions in different people – some loving it, some intensely disliking it. This means that different products will satisfy different classes of people, or different setting and usages. A colourfully decorated lunch pail would work just as well for children as for distinguished business executives, but the executives might very well judge the pail to be emotionally pleasing and fun for the children while simultaneously viewing it with contempt for themselves. Here, the same product receives different emotional assessment even by the same person when the intended role of the product is changed.

The work is still in its early stages. Although it holds great promise, it still needs refinement and standardization, both of which will require adoption by a greater number of users. Moreover, some new theories of emotion are emerging that cut across the particular emotions measured by PrEmo, and if these theories stand the test of time, they would imply some revisions to the measurement tool. In particular, in my own work, I have identified three different levels – visceral, behavioural, and reflective – each of which has a different impact upon product design and reception, but

which are somewhat confounded in Desmet's tool (Norman, 2004; Ortony, Norman and Revelle, In progress). But these are problems anticipated in the thesis and for which eventual solutions can be found.

A more serious problem for applied work is the time and effort required to collect and analyse the fourteen ratings. Even though each animation and rating is short and simple, the logistics of doing the tests on large numbers of people are a bit daunting. And fourteen dimensions is a bit much, perhaps necessary for the theory, but when I put my designer's hat on too much data can be as confusing as not enough.

But this work is a breakthrough. The use of short animations is insightful, for the motion, the use of cartoons, the depiction of the entire body, and the incorporation of sound makes these powerful descriptions of the depicted state. This can be a powerful tool for the future.

No measurement tool can solve the problem of demographic and role differentiation: tools are necessary part of the designer's armament, but in the end, the challenge of meeting behavioural and emotional needs will still be a challenge. But challenges are welcome: that is one of the reasons the world of product design can be so rich and rewarding. But as our tools get better, so too will our results improve. Desmet's work has set the stage for future enhancements in our ability to understand and enhance the emotional appeal of products.

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