The Basis of Product Emotions

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ABSTRACT
This paper introduces a conceptual model for the process underlying emotional responses that result from the perception of consumer products. The model distinguishes different kinds of emotions on the basis of eliciting conditions. It is based on the presumption that all emotional reactions result from an appraisal process in which the individual appraises the product as favouring or harming one or several of his concerns. In this process of appraisal, the personal concern gives the stimulus emotional relevance.

The model describes the various ways in which products can act as emotional stimuli and the matching concerns that can either correspond or collide with these stimuli. Products can act as stimuli in three different ways: the product as such, the product (or designer) as an agent, and the products as a promise for future usage or ownership. The corresponding concerns that are addressed are respectively: attitudes, standards, and goals.

By revealing the cognitive basis of product emotions, the model can be used to explain the nature and, often, mixed character of product emotions. The paper illustrates a possible application of the model in a tool for designers.

INTRODUCTION
After being neglected for many years, a sudden interest in product affect has emerged. The affective side of product experience has become a ‘hot topic’, which is probably best illustrated by this conference and similar events over the past few years (e.g., Overbeeke & Hekkert, 1999). A difficulty of affective concepts such as pleasure and emotion is that they are probably as intangible as they are appealing. Although some interesting and promising studies have been reported, the research field is still short of conceptual clarity and therefore lacks consensus on what the actual subject of study should be. In fact, both the concepts of pleasure and emotion are somewhat undifferentiated, they are used as collective nouns for all kinds of affective phenomena. Design literature tends to refer to these when studying anything that is so-called intangible, non-functional, non-rational, or, for that matter, non-cognitive. Some of the reported studies involve ‘experiential needs’ (Holbrook, 1982), ‘affective responses’ (Derbaix & Pham, 1991), ‘emotional benefits’ (Desmet, Tax & Overbeeke, 2000), ‘customer delight’ (Burns, Barrett & Evans, 2000) and ‘pleasure’ (Jordan & Servaes, 1995). Naturally, it is inherent to any newly emerging research field that the emulsion has not even started to crystallise. On the other hand, an adequate definition of the subject of study would probably facilitate fruitful discussions between researchers.

In our view, a model of product emotions can help to get a grip on the concept of product pleasure and emotions. This paper introduces such a structured model that distinguishes different kinds of product emotions on the basis of their eliciting conditions. The model adheres to the cognitive (functional) view on emotions and finds its roots in a structure developed by Ortony, Clore and Collins (1988). A first step in developing the model is to
clarify the relationship between the concepts of pleasure and emotion.

PLEASURE AND EMOTIONS
The concept of affect refers to a large variety of psychological states such as emotions, feelings, moods, sentiments, and passions. Each of these affective states varies in duration, impact and eliciting conditions. Of these states, emotions are most relevant for product experience because only they imply a one-to-one relationship between the affective state and a particular object: one is afraid of something, angry at someone, happy about something, and so on (Frijda, 1986). The other affective states, such as feelings and moods, do not involve a specific object. For example, a moody person will find it difficult to pinpoint the exact cause of his mood. In the study of affective reactions to products, the object, i.e., the product, is the starting-point. Subsequently, the model of product affect presented in this paper focuses specifically on emotions.

The place of pleasure in emotions is debatable. Both the propositions that pleasure is an emotion, and that it is not, are defensible. On the one hand, pleasure is an emotion if it is merely used as an equivalent of ‘fun’ or ‘enjoyment’. In this connotation pleasure is included in many of the taxonomies of emotions found in literature (e.g., Russell & Lanius, 1984). On the other hand, this view on pleasure seems to be rather narrow for the current application. Design research literature refers to pleasure as a product benefit that exceeds just proper functioning. In other words, pleasure is an emotional benefit that supplements product functionality. In this sense, pleasure covers all pleasant emotional reactions, of which the experience of fun is just one example. Valence (a bipolar ranging from pleasant to unpleasant) is a dimension frequently discovered in scaling procedures of emotion terms. If pleasure is regarded as a dimension of emotions, it can be used to describe emotions, but it is not an emotion as such. This notion befits everyday experience: one never feels pleasant as such. One feels happy, cheerful, surprised, inspired, etc. Although each of these emotions might be pleasant, that does not make pleasantness an emotion. Therefore, in the light of this paper, pleasure is defined as any pleasant emotional response elicited by product design.

It might seem difficult, if not impossible, to find general relationships between product appearance and emotional responses because emotions are essentially personal. Nevertheless, although people differ in their emotional responses to products, general rules can be identified in the underlying process of emotion eliciting. A view that distinguishes such general rules is the cognitive view on emotions.

THEORY OF EMOTION
The cognitive, functionalist position on emotions posits that emotions serve an adaptive purpose. In this view, emotions are considered the mechanisms that signal when events are favourable or harmful to one’s concerns. This implies that in each emotion-eliciting stimulus some concern can be identified. These concerns are more or less stable preferences for certain states of the world; they are our personal motives in life (Frijda, 1986). Examples of human concerns are concerns for respect, safety, and self-esteem. For instance, we all have the concern of being treated with the respect we believe we deserve. When a person receives a degrading comment from a colleague, he will probably find this event conflicting with this concern for respect. Consequently, this person will experience a negative emotion such as shame or anger.

The preceding example illustrates that the linking of the stimulus to the concern precedes the actual emotional response. This process of ‘signalling the emotional relevancy of an event’ is most commonly conceptualised as ‘a process of

appraisal’ (e.g., Arnold, 1960; Frijda, 1986). Appraisal theories assert that it is not events per se that determine emotional responses, but evaluations and interpretations of events. Because emotions are intentional and essentially involve concerns, they seem to require an explanation that invokes these concerns. Moreover, as this paper focuses on emotions specifically elicited by products, the explanation should also include eliciting conditions. A good starting point for a model of product emotions is the model developed by Ortony et al. (1988) because it particularly focuses on this relationship between different types of concerns and the eliciting conditions.

**MODEL OF PRODUCT EMOTIONS**

According to the cognitive model of Ortony et al. (1988) there are three major aspects of the world we can focus on: events, agents, or objects. We focus on events (e.g., a football match) for their consequences (e.g., loss of your favourite team), we focus on agents (e.g., a dog) for their actions (e.g., barking at you), and we focus on objects (e.g., a painting) because we are interested in certain properties of them as such (e.g., its composition). Central to Ortony et al.’s view is the position that emotions are valenced reactions to one of these perspectives on the world. Based on this division they developed a structure of emotion types that are logically related to one of these three aspects. In focusing on product emotions, at first side, it may seem tempting to restrict ourselves to the third class ‘products as objects’. Our major claim is however that all three perspectives are relevant when products are simply perceived with one of our senses, i.e., without requiring physical interaction with the product. What we will present here is an adjusted version of the original model in which those elements are adopted that cover emotions that may result from product perception. This adapted model is presented in Figure 1. Figures 2, 3, and 4 each show examples of one of the three classes of product emotions.

**Products as objects**

To start with the most obvious and simple branch of the structure in Figure 1, products are objects. Like all objects, products, or aspects of products, can be viewed as such in terms of their **appealingness**. Products are simply liked or disliked for their appearance, for the way they look. The emotional reactions are basically unstructured and comprise attraction emotions such as love, attracted-to, disgust, and boredom.

**Figure 1: Model of product emotions**

**Figure 2: Examples of products construed as objects**

As argued in the previous section, emotions arise because products touch upon our personal concerns. What concerns are addressed by a product as such? Ortony et al. (1988) call this type of concerns ‘attitudes’ or, as a special case, tastes. Some people have developed an attitude, a dispositional liking, for American cars, others simply have a taste for Italian design. When a product corresponds with such an attitude or aesthetic concern, it is appraised as appealing (see Figure 2, ‘shoehorn’).

In the previous examples, the appealingness concerns characteristics of the product itself such as its size, shape, or particular details. As a result, a dispositional liking for a certain type will be generalizable to most or all members of the product class. Sometimes, however, the dispositional (dis)liking is restricted to only one specific product. In those cases the liking results from previous usage or ownership of that particular exemplar. One can have a dispositional liking for a ring because it was a gift from someone special or for a particular backpack because one travelled with it to many different countries (see Figure 2, ‘astroman’). In these cases, the attitude is soaked with personal meaning due to the significant personal experience one had with the product. Such attitudes are not shared with others and are not applicable to other exemplars of the product class.

In some special cases, it is not the product itself that acts as the object of appraisal, but other ‘things’, such as a situation, institution or person, the product refers to through associations. A product can be associated with a particular user group, such as German cars, skateboards, and antimacassars, a sunshade often refers to a summer holiday, and ties can refer to the business world. In those cases it is often not the object as such that is (dis)liked, but rather the user group or institution it is associated with (see Figure 2, ‘striping’).

**Products as agents**

Agents are things that cause or contribute to events. Ortony et al. (1988) indicate that agents can also be inanimate objects such as products and they give the – to all of us familiar – example of a car that is blamed for its malfunctioning. Although this type of product construal is dependent on actual product use this class remains relevant to our focus on product perception.

First, products can be treated as agents with respect to the presumed impact they generally have or can have on people or society. One can for instance blame mobile telephones for the rumour they cause in public spaces such as train compartments (see Figure 3, ‘gun’). Secondly, products are often seen as the result of a design process in which case the designer or company is the construed agent. While looking at a product one can for example praise the originality of its design(er) or blame the designer for blatant copying (see Figure 3, ‘new Beetle’; ‘lemon squeezer’). Seen in both ways, the praiseworthiness (or blameworthiness) of the ‘actions’ of the product or the job of the designer – through the design of the product - is the basis of our evaluation. This can lead to attribution

emotions such as admiration, appreciation, contempt, and disappointment.

Agents, or in our adapted model, products or designers, are appraised as praiseworthy in terms of standards. Standards are our beliefs, norms, or conventions of how we think things ought to be. Some people might have a norm that one must be able to read quietly in a public room. Others can adhere to the norm that designers or industries should always strive for original product solutions. We approve of things that comply with such standards and disapprove of things that conflict with them.

**Products as events**

The third branch of the emotion model seems the least relevant to product emotions. In the model of Ortony et al., the aspect of the world we are focusing on here is the consequence of an event. Products are not events, but we nevertheless believe that an important class of product emotions falls into this category. These emotions result from the inclination of people to anticipate on the future use or possession of a product once they see one. The (foreseen) use or possession has become the event and the predicted consequences cause the emotion.

When we see a Ferrari, we can for example think of the status owning and driving it will provide us and this fantasy might elicit an emotion like desire (see Figure 4, ‘boot’; ‘kangaroo ball’). The judged desirability (or undesirability) of the anticipated result of owning or using a product is the main criterion for our evaluation in this category.

This branch also has a distinction in that we can anticipate on the consequence of product use/possession for ourselves and for others. In the first case, consequences can lead to anticipated-event-based emotions such as desire and aversion. The latter (and relatively rare) case could play a role when we are looking for a gift for someone or when we see a product as the possession of someone else. Emotions, such as happy-for, jealousy, and Schadenfreude, can be the result (see Figure 4, ‘lamp’).

The relevant concerns for this type of emotions are goals. Goals are things we want to see happen. One of our goals can be to acquire status that could be attained by impressing other people with an expensive car. When someone else drives by with an even more expensive car, this goal is not reached. We appraise products as desirable when we anticipate that they will facilitate our goals, they are undesirable when they interfere with our goals.

**IMPLICATIONS OF THE MODEL**

The presented model of product emotions has some important implications for our understanding of the relationship between products and emotions. First, the model reveals that it is possible that a product elicits several emotions simultaneously. Not only do we have the various concerns, i.e., goals, standards, and attitudes, at the same time, we also have a multitude of each one of them. As a result, one single product can be desired because we expect it to be able to facilitate one of our goals, admired for the designer’s achievement, raise contempt for its bad impact on the environment, and loved for its beautiful design. You might recognise the mixed emotions you have towards a

![Figure 4: Examples of products construed as events](image-url)
particular car in this description. In measuring the emotional response to products, this possible co-occurrence of several different emotions must be acknowledged (see Desmet, Hekkert & Jacobs, 1999).

Second, the model shows that there is often not a one-to-one relationship between the appearance of a product and the emotional responses it elicits. Emotions are not elicited by product characteristics as such but by construals based on these characteristics. By definition, these construals are highly personal. Therefore, searching for general rules in a stimulus-response manner is a fruitless approach. The model of product emotions cannot support the designer with general rules concerning the relationship between product appearance and emotional responses. Nevertheless, on the level of eliciting conditions the model does reveal some general patterns. In our view, comprehending these patterns can be of great value to designers.

Based on this notion, we are currently developing a tool—the Emotion Navigator—to assist designers in grasping the emotional potency of their designs.

EMOTION NAVIGATOR
The [product & emotion] navigator is an anecdotal database of some 250 photos of products that elicit emotions (note that the photos in Figure 2, 3, and 4 are drawn from this database). These photos are made by 28 subjects who—for each photo—noted in a logbook which emotion was elicited and why it was elicited. The [p&e] navigator is structured in accordance with the model of product emotions and visualised in an open-ended manner that aims to be inviting and alluring. The interface (see figure 5) shows photos, elicited emotions, addressed concerns, and eliciting conditions recited by the subjects.

One can browse through the database by clicking on any of these four elements. For example, if an emotion adjective is clicked, the Navigator will display examples of products that elicit this particular emotion. A second possibility is to click on a concern to see products that elicit an emotion because they touched on this specific concern. If a product photo is clicked, the [p&e] navigator will display the -sometimes conflicting- emotional responses of other subjects to this specific product and their particular construals. Note that these are only a few of the browsing possibilities we are currently exploring in the development of the Navigator. A working prototype is planned to be released in autumn 2001.

The goal of the [p&e] navigator is to not to be prescriptive but to offer food for thought and inspiration. In our view, the visualisation in a multitude of real life examples supports this goal by making the general patterns of emotions more tangible for designers. Browsing through the database can help a designer to get a grip on the different fashions in which products elicit emotions. In this sense, the [p&e] navigator can be a tool to support designers in developing a personal design vision that incorporates the users’ emotional concerns.

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