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## **Visual experience of brand-specific automobile design: Studying appreciation, emotion and comprehension using the VPE framework**

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**Keywords:** *product design, automobile design, visual experience, questionnaire, VPE*

**Category:** Research paper

### **Abstract**

This paper presents a qualitative questionnaire study of brand-specific visual product design in the automotive sector. The purpose of the study was to explore the visual product experience of automobile design as perceived by the general public and to analyse those experiences using an emerging framework for visual product experience; VPE. In the study, respondents were asked to assess the design of two car models at an international car show in relation to brand perceptions and visually perceived attributes using, among other tools, visual analogue scales. Results from the study indicate that there is a correlation between experiential modes, in that respondents tended to rate attributes consistently high or low across modes. This implies that if the aesthetics are not perceived as favourable, neither is the expression of the car. Furthermore, respondents' assessments of aesthetic appeal and expression are on an average strikingly similar, suggesting that the level of aesthetic appeal correlates with the level of semantic understanding of the design. The general rating of emotional response follows a similar consistent pattern for the two studied cars.

### **Introduction**

It is widely recognised that the role of product design for creating product appeal is ever increasing, especially in saturated and mature market segments. Cornet and Krieger (2005) has shown that aesthetic and identity related factors such as 'exterior styling', 'interior styling', 'trendy' and 'makes me feel attractive' are among the ten most important purchasing criteria for mid-sized sedans in Japan, Germany and the US. Aspects such as aesthetic appeal, emotional response, brand impression and expression are heavily influenced by product appearance, and thus of main concern for automotive manufacturers today.

This paper proposes a method for the study of visual experience of product appearance using questionnaire studies. Questionnaire data was analysed using the VPE framework, a theoretical model for visual product experience. According to Hekkert (2006), the concept of experience can be defined as “the entire set of effects that is elicited by the interaction between a user and a product, including the degree to which all our senses are gratified (aesthetic experience), the meanings we attach to the product (experience of meaning), and the feelings and emotions that are elicited (emotional experience).” Building on the work of Hekkert, the experience is seen as being composed of a number of modes, including a sensory, a cognitive and an emotional experience. The VPE framework focuses on the visual experience; however the general framework is valid for any sensual experience considered. Furthermore, Vihma (1995) states that products are perceived in two ways; as presentations of themselves, and as representations of something else. This division is reflected in the VPE model as two dimensions of the visual experience; as such, the presentational and representational qualities of the visual product appearance can be seen as being ‘two sides of the same coin’. The dimension of presentation can thus be seen as the pleasurable part of the visual experience, while representation is the meaningful experience, explained through Peircian semiotics. The two dimensions are intimately intertwined and impossible to distinguish at a phenomenological level, however, they are fundamental for understanding the various aspects of product design that need to be considered when designing an appealing product.

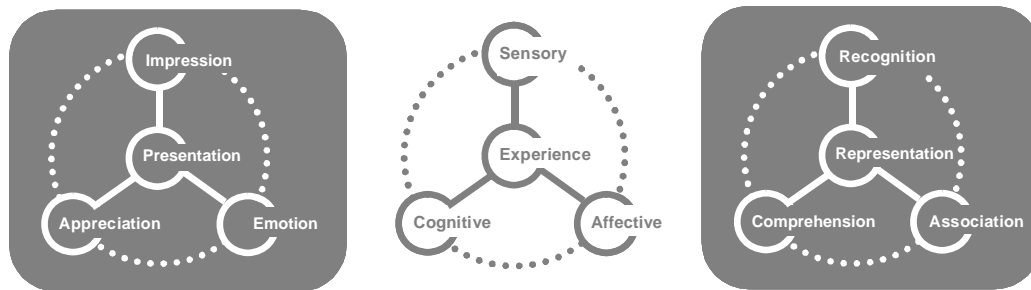


Figure 1. The Visual Product Experience (VPE) model, showing the core modes of sensory, cognitive and affective experiences (centre), and the two dimensions of presentation (left) and representation (right) with sub-modes.

VPE Mode	Description
<b>Impression</b>	Perceiving and distinguishing the product amongst other products through design elements or overall form and gestalt effects of product appearance
<b>Appreciation</b>	Approval of formal aesthetic values, acknowledgment of aesthetic appeal of design elements or product appearance
<b>Emotion</b>	Elicitation of abstract concepts through appraisal, referring to sets of feelings, based on the appearance of a product or visual elements
<b>Recognition</b>	Perceiving and identifying a product or design element previously seen through visual resemblance (similarity)
<b>Comprehension</b>	Grasping the nature, significance, or meaning, through visual references of a product or design element, of product specific characteristics such as properties, performance and mode-of-use
<b>Association</b>	Identification through the linking of values, notions or ideas, such as brand and cultural references, with a product or design element

Table I. Experiential modes of the VPE framework.

Each of these dimensions in turn consist of three modes, acknowledging and reflecting a visual experience based on sensory, cognitive and affective modes of

perception. The modes are briefly described in Table I. Thus, the impression and recognition modes map against the sensory part of the experience; in the same manner, appreciation – comprehension and emotion – association map against the cognitive and affective experiential modes, respectively. Furthermore, the VPE model acknowledges the highly complex interaction and the temporal ambiguity between all modes. Together, this multi-modal approach provides a complete picture of all possible types of experiences based on the visually perceived aspects of product design.

## **Method**

The study was designed to explore appealingness and identify general trends of the survey group with respect to their experienced of visual product appearance. The study was carried out during two days at an international automotive exhibition in Paris<sup>1</sup>. Two selected cars, the Saab Aero-X concept car, and the Volvo C30, were studied through a qualitative questionnaire study with attending exhibition audience. The questionnaire employed a mix of different types of questions, including categorical multi choice questions, open ended questions and a combination of these, as well as visual analogue scales (VAS). Respondents were approached at each respective stand and asked to answer the questions of the questionnaire in the presence of the selected cars. If required, respondents were guided through the questionnaire by the interviewer. The average time per respondent was around 15 minutes. In all, eighteen respondents were interviewed; ten at the Saab stand, and eight at the Volvo stand. The questionnaire was divided into five sections according to the following:

*Part 1* covered questions related to the respondent and their relation to cars in general, such as respondent's interest and knowledge about cars, age, country of origin, and car purchase decision making. Answers were given as multi choice tick-box replies with the opportunity to provide open-ended qualitative responses where applicable. *Part 2* covered questions relating to the specific brand of car studied, such as brand impression, distinctiveness and typicality of the car for the brand and in relation to other brands, brand-specific features, and desirability for driving or owning. Answers were given through a combination of multi choice tick-box replies and/or as open-ended qualitative responses. *Part 3* assessed a number of experience categories related to respondents' appreciation of the 'design aesthetics' of the product, i.e., how it appealed to the visual sense. Visual analogue scales (VAS), featuring a line 100 mm in length, were used for respondents to answer the question 'What do you think about the car's looks?'. The left VAS endpoint was labelled 'Not at all', while the right endpoint was labelled 'To a great extent'. Respondents indicated their assessment by marking on the VAS line the degree to which they appreciated a range of nine visual formal attributes describing the appearance. *Part 4* focused on emotional response evoked by the studied model. Using visual analogue scales, respondents answered the question 'How does this car make you feel?'. Using five sets of diametrically opposed emotional states, each VAS featured a neutral mid-point indicated with a '0', and one emotional state at each endpoint. *Part 5* studied expressions elicited from the visual appearance of the car. In the questionnaire, respondents were given a set of eight expressive adjective terms and asked to respond to the question 'How is this car to you?'. Respondents indicated on visual analogue scales, ranging from 'Not at all' at

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<sup>1</sup> The 2006 Mondial de L'Automobile, September 30 – October 15, 2006.

the left endpoint to ‘To a great extent’ at the right endpoint, how much of each expression they perceived the design to infer. The expressive terms were taken from official marketing material such as brochures and web sites for the studied cars and were further defined by descriptors intended to focus the interpretation of the terms.

## Findings

The results are in the following presented according to the structure of the study questionnaire.

### Part 1: Respondent details

The respondent groups for the two brands exhibit similar characteristics with respect to their relation to cars, although the ten surveyed Saab subjects indicated a slightly higher interest in cars than the Volvo group (an average of 4.2<sup>2</sup> and 3.6 of a maximum of 5, respectively). The perceived importance of the choice of car was rated equally high at 4.8<sup>3</sup>.

### Part 2: Brand associations and aspirations

Respondents’ general appreciation of the two brands showed some interesting findings. When asked how distinctive/clear each brand is, respondents rated the two brands very similarly at 3.8<sup>4</sup> for Saab and 3.9 for Volvo. When asked to qualify responses, comments for Saab as a brand included that the “design is easily recognizable” and that it is a “high level brand”. For Volvo, comments included “immediately characteristic”, “big”, “used to be square”, and “coherence”. However, one respondent commented that Volvo as a brand “doesn’t surprise anymore”. Shifting focus to the specific models surveyed, respondents were asked how typical they found the Saab Aero X and the Volvo C30 for each respective brand.

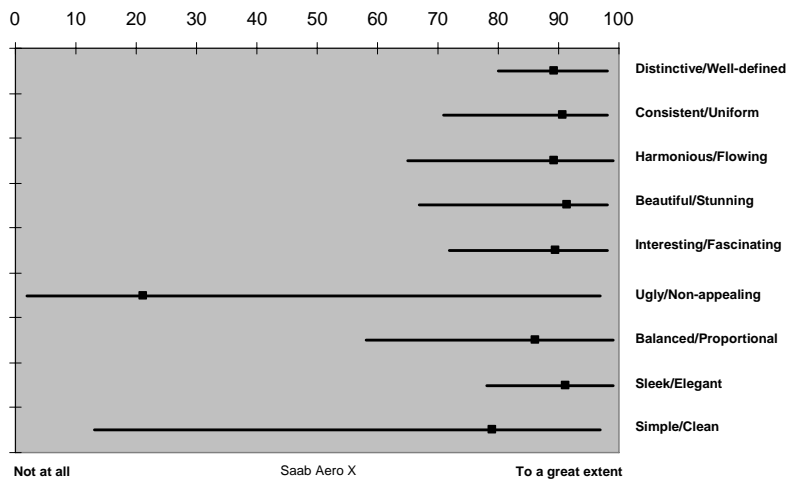


Figure 2. Assessment of aesthetic appeal for Saab Aero X, according to nine attributes. The top scale corresponds to assessments from the visual analogue scales<sup>5</sup> used in questionnaires. Square markers indicate mean values, while right and left endpoints indicate highest and lowest assessments, respectively.

<sup>2</sup> Based on answers from 9 of 10 respondents

<sup>3</sup> Based on answers from 9 of 10 Saab respondents

<sup>4</sup> Based on answers from 8 of 10 respondents

<sup>5</sup> In the questionnaires, the visual analogue scales used did not feature any value indications. Respondents were asked to qualitatively assess each attribute on an unmarked line with a length of 100 mm.

Interestingly, the rating was identical for the two cars; 4.1<sup>6</sup>. When asked how typical the two cars were in relation to other brands, the Saab Aero X was perceived as more typically Saab at 3.7<sup>7</sup>, while Volvo C30 at 3.0 was seen as a car that could come from any other brand. When enquired how strongly they would like to see themselves driving or owning the selected cars, the rating for the Saab Aero X was 4.2<sup>8</sup>, compared to 3.8 for the Volvo C30.

### Part 3: Aesthetic appeal

The assessments of the studied cars are presented in Figures 2 and 3. The Saab Aero X was overall given very high positive ratings (Figure 2). The ranges for most attributes are fairly focused, with the mean consistently towards the top end. The assessments of the formal attributes ‘Balanced/Proportional’ and ‘Simple/Clean’ show a greater spread. The attribute ‘Ugly/Non-appealing’, which at first may be regarded as the opposite of ‘Beautiful/Stunning’, is clearly assessed in its own right, yielding a significantly greater spread than any other attribute. The assessments for Volvo C30 (Figure 3) follow a similar pattern. However, ratings are not as positive as for the Saab Aero X and the range is overall greater. In contrast to Saab Aero X, the ratings for ‘Ugly/Non-appealing’ exhibits the smallest range, indicating a more consistent experience of this attribute.

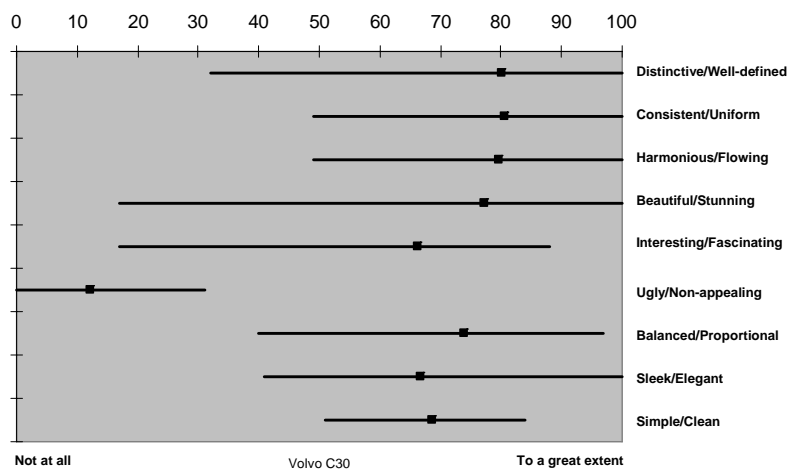


Figure 3. Assessment of aesthetic appeal for Volvo C30, according to nine categories.

### Part 4: Evoked emotions

In this part of the study, subjects were asked to respond to the question ‘How does this car make you feel?’. As seen in Figure 4, mean values of Saab Aero X show a clear positive trend. The ranges of the assessments are quite limited, especially for the emotions ‘Delighted’ and ‘Attracted’. The emotion ‘Surprised’ exhibits the greatest spread. The assessments of Volvo C30 indicate a more mixed response (Figure 5). Ratings are on the positive side for all emotions except for a negative tendency for ‘Bored’. Spreads are quite large for all emotions, especially for the pair ‘Disappointed-Satisfied’, which exhibits the full range of assessments.

<sup>6</sup> Based on answers from 9 of 10 Saab respondents

<sup>7</sup> Based on answers from 7 of 10 respondents

<sup>8</sup> Based on answers from 9 of 10 respondents

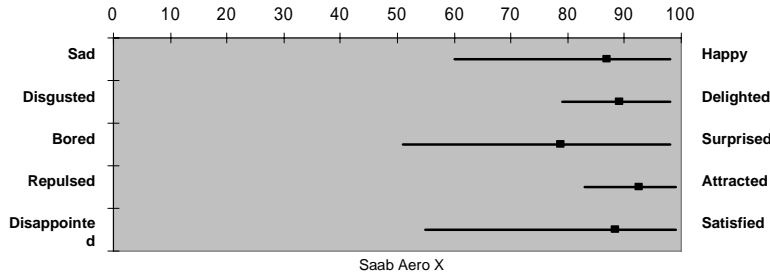


Figure 4. Assessment of evoked emotions for Saab Aero X, against five sets of opposed emotional pairs.

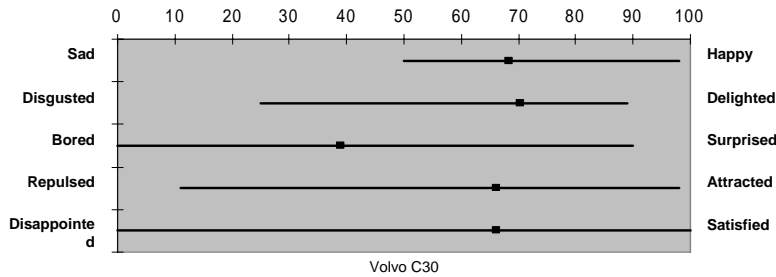


Figure 5. Assessment of evoked emotions for Volvo C30, against five sets of opposed emotional pairs.

*Part 5: Elicited expressions*

Subjects were asked to assess expressions elicited from the visual appearance of the studied cars, in response to the question “How is this car to you?”. Figure 6 shows the assessments against specific expressions, taken from Saab Aero X promotional material. Overall, expressions are perceived as quite strong, thus indicating a correlation between desired (from the brand standpoint) and perceived expressions. Only one expression, ‘Discreet’ is assessed significantly lower. Ranges are most confined for the expression ‘Different’, and most distributed for ‘Discreet’ and ‘Progressive’.

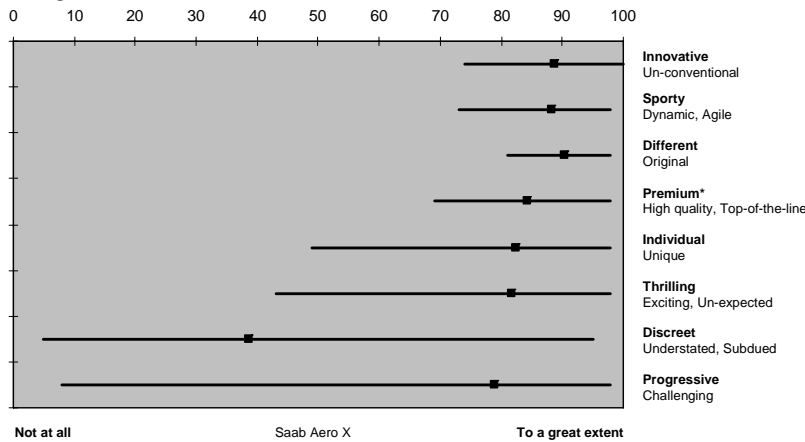


Figure 6. Assessment of elicited expressions for Saab Aero X, according to eight brand-specific adjectives. \*Rating for ‘Premium’ is based on 9 responses.

Similarly, the assessment of expressions of Volvo C30 is based on a set of eight Volvo specific adjectives, taken from C30 marketing material. All assessments indicate a positive correlation between desired and perceived expressions, the

strongest expression being ‘Stylish’ and the weakest ‘Extreme’, although differences in mean values are small (Figure 7). All expressions show a significant spread; the expression ‘Exciting’ exhibiting the greatest and ‘Premium’ the smallest spread.

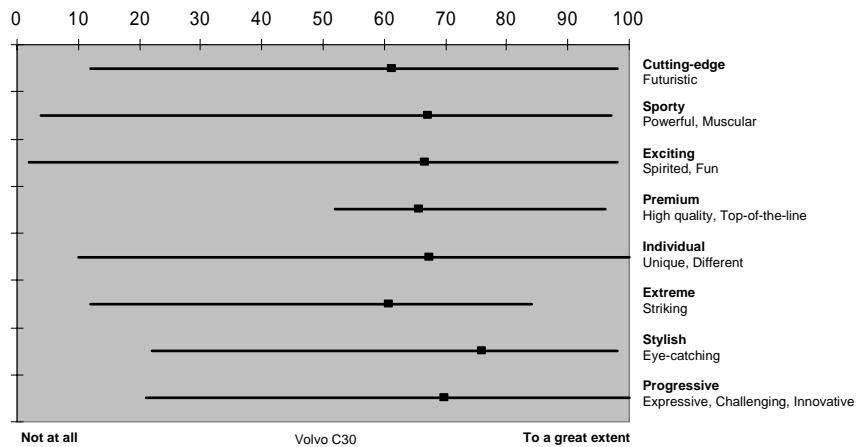


Figure 7. Assessment of elicited expressions for Volvo C30, according to eight brand-specific adjectives.

## Discussion

In line with the aim of the study, the sample size for the two questionnaires (ten for Saab, eight for Volvo) allowed only for the exploration of general trends. In the following, the findings will be discussed in relation to the VPE framework (Figure 1).

With respect to brand impression, previous research (Fjellner and Stridsman-Dahlstrom, 2006; Warell et al., 2006) has proposed that the associative mode (including notions of brand core values) has a dominating role over comprehension and recognition for product identity. This study suggests a correlation between the different modes with respect to how respondents rate their visual experience. In both study groups, respondents tended to give either low or high average ratings with respect to the appreciation (aesthetic appeal), emotion and comprehension (expression) modes. There was no evident connection to brand awareness though; in fact, for the Saab study, two of the respondents giving some of the highest and lowest ratings with respect to these modes claimed they did “not know the Saab brand”. It would be interesting to study whether knowledge of the brand would correlate to higher ratings in these modes, which, if so, would support the findings of previous research.

Furthermore, for both cars, respondents’ assessments of formal aesthetics and elicited expressions show a striking similarity in terms of average ratings. For Saab Aero X, averages are 80.6 and 79.0; for Volvo C30, 67.1 and 66.6, respectively. The general rating of emotional response follows a similar consistent pattern for the two studied cars. Although only indicative, this observation is interesting as it raises the question whether a high level of aesthetic appeal correlates with a high level of semantics (in this case, in the form of elicited expressions). According to the VPE framework, these attributes relate to the appreciation and comprehension modes, respectively, which both are cognitively based experiences. A fascinating theoretical proposition stemming from this observation is that good product semantics cannot be achieved without a high level of aesthetic resolution, e.g. through order and clarity.

Moreover, Warell et al. (2006) suggested that the comprehension mode is essential for brand identification through the use of visual references that support a coherent interpretation of typical brand characteristics and core values. In relation to the current study, this suggests that brand-specific communication is supported by aesthetic appeal and expression – provided visual references employed are perceived as genuine (coherent with brand values) and authentic for the brand (recognisable). Future studies will need to further investigate these issues, as well as the issue whether the presentational (the ‘pleasurable’, aesthetically related part) or representative dimensions (the ‘meaningful’, identity related part) of the visual appreciation are generally more highly assessed or significant.

## **Conclusions**

The paper contributes to design research in several ways. Firstly, the utilised framework for visual product experience presents a holistic view of the possible modes of visual product design experience – aesthetically as well as meaning-related, whether based on sensory, cognitive or affective experiential modes. Secondly, the method used in the study recognises, distinguishes between, and addresses the various possible experiential modes. By avoiding ‘fuzziness’, it contributes to a high degree of clarity to the respondent, as well as a high level of transparency in analysing and interpreting results. For design practice, the approach taken is seen as having a significant potential for operative as well as strategic design management and tasks related to branding, marketing and identity development, due to the fact that multi-modal perceptions are clarified and distinguished.

## **Acknowledgement**

The author would like to acknowledge the work done by Diana Wang and Johanna Pahlstorp in collating and editing the responses from the questionnaire study.

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