How does car seat appearance influence perceived comfort

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Abstract Automotive seat comfort has become a major aspect in differentiation and customisation amongst competitors in a highly saturated automotive market. Unlike discomfort, the concept of comfort is regarded a highly subjective and multi-faceted phenomenon. This paper describes an experimental study to explore the differences in the perception of comfort brought about by the mere manipulation of the visual appearance in otherwise two identical automotive seats. In particular it will investigate the hypothesised underlying mechanisms related to the concepts of product personality and affective responses, thereby proposing a theoretical model. In addition, as hypothesised the results showed significant gender effect where by female participants were found to be considerably more sensitive to the impact of visual appearance on comfort. The results are discussed in the context of potential underlying mechanisms relating visual appearance to aesthetics, emotion, and product personality and user image. Suggestions for future studies are provided with regards to visual design parameters and their effect on the perception of automotive seat comfort.

Keywords *Automotive seat, Comfort experience, Product appearance, Product personality, Self-congruence*

Introduction

The car seat is the largest significant point of interaction (Zenk et al., 2008), which plays an important role in the overall impression and appeal of a vehicle (Pinkelman, 2006). In terms of automobile seat comfort and design, the consumer's expectations are getting higher and more demanding (Kolich & Taboun, 2004; Millet & Pignède, 2001; Zenk, Mergl, Hartung, Sabbah, & Bubb, 2006). As successful seats mean returning consumers (Youngs, 2012), most research has focussed on the elimination of discomfort by ergonomic design of the seat (Zenk et al.,2006). The aim of the research presented here, however, is to focus on comfort instead for reasons that will be explored in more detail below. Discomfort is strongly related to posture and has been attributed to factors such as vibration, pressure distribution, and thermal conditions (Vink,2005). Over time, these factors can lead to discomfort symptoms such as pain and fatigue (see Table 1) (Helander & Zhang, 1997; Millet & Pignède, 2001). Based on empirical evidence, Helander (2003) argued that users of chairs had a better understanding and agreement of discomfort factors compared to comfort factors. Following these findings, he suggested that comfort had to be defined independently of discomfort and measured on a different scale rather than treating "*Comfort*" and "*Discomfort*" as bipolar end-points of a scale (Helander, 2003). Vink (2005) has also indicated that absence of discomfort does not necessarily mean direct sensation of comfort and further argued that in order to notice comfort, more should be experienced. Zhang, Helander, & Drury(1996) identified that, "*Comfort*" related to aesthetics, a sense of relaxation and well-being (see Table 1).

Helander (2003) further argued that, these "comfort" factors; (also synonymously defined as "chair user satisfaction" factors), produced significant differences between chairs for users. Indicating analogies with Maslow's theory of job satisfaction and seat comfort, Helander (2003) suggested that these "satisfaction factors" regarding the users had clearer design implications. In a similar understanding, Quality Function Deployment (QFD) methods are well established in defining satisfying attributes in products (Franceschini,2001). Specifically in this context, the Kano's model suggests that attributes which "attract" and "delight" the customer lead to a higher level of satisfaction and contribute to differentiation of a particular product. In the automotive context, the styling; look and feel of automotive seats are regarded as differentiating attributes (Kolich,2008). These attributes of seats have been reported to have a significant effect on driver's seat comfort in surveys such as the JD power and associates APEAL (Pinkelman,2006). Supportive of these arguments, Mergl, Furlinger, & Bubb, (2008) empirically found that within automotive seats that

Table 1. Factors asscoiated with Comfort & Discomfort during sitting.

Discomfort	Comfort
Fatigue	Impression (Luxury, plush etc.)
Pain/Biomechanics	Safety
Posture	Relief/ Energy
Stiffness/Strains	Well-Being
Heavy legs/Circulation	Relaxation

Source: (P. Vink, 2005; Vink, P.,Brauer, Klaus., 2011; Zhang et al., 1996)

Figure 1. Experimental seats employed: drape concealed seat (left), the Black seat (middle) and Grey seat (right).

provide optimal support in an experiment, the effect size of the visual effect was larger than the physically distinguishable differences. In other words, visual appearance had a bigger effect on the perception of comfort than physical changes to the design. Furthermore, previous studies into automotive seat evaluations displayed that, females tended to be more sensitive to the visual appearance of seats than males, although it was not clear whether this also affected the perception of comfort as this was not assessed (Zenk et al., 2008). Moss(2009) stated that visual and tactile information affect emotional outcome and preference in product experience. Literature on product design affords to indicate that gender affects people's choices and influence the experience with products which may influence comfort feelings (Kalviainen,2002).

This paper investigates the effects of the appearance on seated comfort. In line with findings by Mergl et al.(2008), we previously have demonstrated that changes in the visual appearance of otherwise identical seats can have a significant effect on the perception of comfort (Erol, Diels, Shippen, Richards, & Johnson (2014). Here we try to better understand the underlying mechanisms by considering a range of seating comfort descriptors previously identified to be related to seating comfort in both automotive and non-automotive environments (Helander & Zhang, 1997; Sohlman & Staaf, 2006). The elicited emotional effects of visual design on seat comfort are of interest. We hypothesise that emotional response associated with an automotive seat in terms of comfort encompasses medium levels of pleasantness and slight arousal (Kamp, 2012; Zenk et al., 2008;Knoll,2006). In return we also propose that the posi tive emotional effect will affect the perception of comfort, leading to higher overall comfort ratings (Knoll, 2006). We also hypothesise that, in terms of the response to the seat appearance, gender differences will have an effect on the overall comfort and relevant descriptors ratings (Kalviainen, 2002).

Self-congruity theory, suggests that consumers compare their self-concept with the product-user image of a product (Sirgy, 1982). As an extension of this theory Govers (2004), proposed that products conveying a personality similar to that of the individual (i.e. high level of product personality congruence) tend to be evaluated more favourable (Govers & Schoormans, 2005; Govers,2004; Sirgy & Johar,1999).We subsequently also hypothesize that the "product evaluation", is affected by product personality congruence and user-image congruence (Govers, 2004). Product evaluation has been based on items such as a product being beautiful, a product being perceived as a good, being attractive and on willingness to have the particular product (Govers & Schoormans, 2005). We therefore hypothesise in similar perspective that product-personality congruence and user image congruence have a positive effect on the "product evaluation" as provided by findings of Govers & Schoormans (2005). In return we propose that positive self-congruence may have a positive influence on emotional response where the perception of overall comfort of seats may be affected.

Method

Participants

A total of 18 participants (9 male, 9 female) took part in the study, with a mean age of 33.8 years (min=22,max=52,SD= 9.6). At least 3 years driving experience was required for participation. The mean number of years participants held a valid driving licence was 12.3 (SD=10.7).

Seats

The seats used in this study were the front driver and passenger seat of a mid-segment Sedan (Ford Mondeo Mk3). The seats were fitted with two visually different commercially available seat covers: the "Streetwise accessories" (henceforth referred to as the "Black seat") and "Ultimate speed" (henceforth referred to as the "Grey seat"), as depicted in Figure 1. Both seat covers were made of the same material (foam) and had the same thickness (2mm). The covers were tightly fitted to the original contour of the seats. The drape covers used to conceal the visual design were made out of white cotton cloth sheet. Both seats were tilted at an angle of 21° throughout the experiment and participants were instructed not to make any seat adjustments.

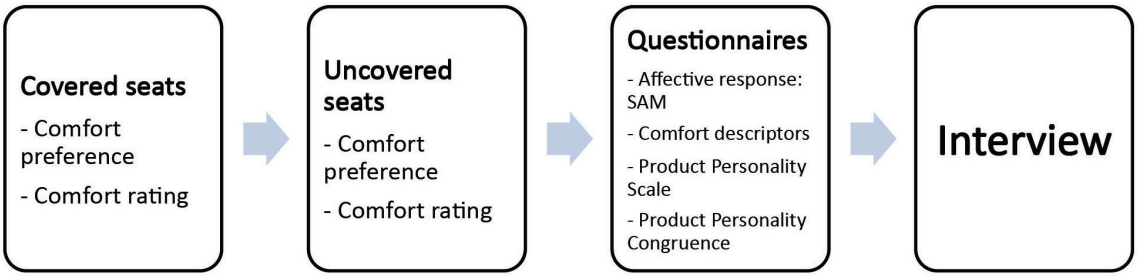

Figure 2. Diagrammatic representation of the experimental procedure employed including metrics.

Procedure and measures

The seats were tested in a laboratory environment under static conditions in four stages (see Figure 1). In line with, Helander's (2003) suggestion, participants were asked to make comparisons of the seats subsequently one after the other in order to improve discriminability by reducing the impact of reliance on participants' memory. The participants were not allowed to manipulate the position of the seats in anyway or use their hands to touch the seats in order to control for haptic or tactile sensations.

In the first stage, the seats were concealed with white cotton drapes. Participants were invited to sit on each of the concealed seats for one minute and were asked to indicate which of the two seats they preferred (i.e. forced-choice paradigm) in terms of seating comfort (see also Mergl et al., 2008). Participants were also asked to rate their "overall comfort" on a 7-point Likert scale ranging from "Not at All" to "Extremely" during the seated time period. In the second stage, the above procedure was repeated but this time with the seats uncovered exposing the visual design. To avoid any order effects, half the participants were asked to evaluate the black seat first, followed by the grey seat. The other half evaluated the seats in the opposite order. To avoid any order effects, half the participants were asked to evaluate the black seat first, followed by the grey seat. The other half evaluated the seats in the opposite order.In the third stage, participants were asked to rate their emotional response to the different designs using the valence and arousal dimensions of the Self-Assessment Manikin (SAM) on a 9-point scale. The SAM dominance dimension was discarded as it was not deemed relevant to the current evaluation. In addition, the participants were asked to fill out a battery of questionnaires including a bespoke comfort questionnaire consisting of a combination of items from Sohlman & Staaf (2006) and Helander & Zhang (1997). Sohlman & Staaf (2006) identified 17 descriptors to evaluate the perceived comfort differences between truck seats based on both visual and seated evaluations. For the current questionnaire, only the visual assessment items were used. In addition, the items "Plush" (Helander & Zhang, 1997) and "Attractive" (Franceschini, 2001) were utilised, making a total of 19 descriptors.

Gover's (2004) product personality scale was used for the assessment of personality profiles of the seats. Product personality congruence, user image congruence, and product evaluation were also assessed for each seat design (Govers & Schoormans, 2005). The referred "product evaluation" in the Govers, (2004) study, was assessed on the items used in the measurement scales (i.e. beautiful, good product, attractive, like to have this product) (Govers & Schoormans, 2005; Govers, 2004; Sirgy & Johar, 1999). For Product-personality congruence a direct measure of congruence with four items on five-point scales were used (i.e.product is like me, matches me etc.). An average product-evaluation, product-personality congruence and user image congruence score of each respondent for each product was calculated in line with Govers (2004). Govers & Schoormans (2005) hypothesised product-evaluation (PE) as a function of Product Personality Congruence (PPC) and User Image Congruence (UIC): PE = f(PPC + UIC).

Finally, in the last stage, a post-trial interview was conducted to capture any further comments regarding the seats and the perception of comfort. At the end of the interview, it was also revealed to the participants that the two seats were physically identical and their reactions captured.

Statistical analysis

None of the data passed the tests for normality and therefore non-parametric statistics were employed. All statistical analyses were performed with IBM SPSS version 22.

Results

Preference and overall comfort ratings

As previously reported by Erol et al. (2014), with the seats covered, they performed equally well in terms of perceived comfort. However with the designs were exposed, 14 out of 18 participants indicated that the black seat design to be more comfortable than grey seat. In addition, the overall comfort ratings for the black seat were also found to be higher than that of the grey seat where the difference was found to be statistically significant ($Z= -2.23$, $p< .05$) (Wilcoxon Signed Rank test).Thus, despite the seats being physically identical, the mere change in visual appearance by covers had a significant effect on the perception of seating comfort. It was also reported that tests revealed female participants rated the comfort for the black seat significantly higher than the grey seat when the designs were exposed ($Z= -1.98$, $p<0.5$).

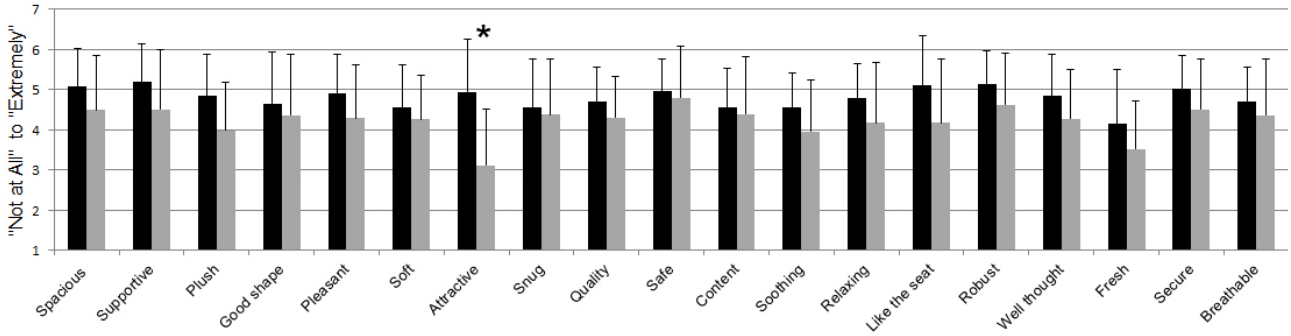

Figure 3. Mean values of comfort descriptors for the black (black bars) and grey design (grey bars). Error bars indicate the standard deviation (SD).

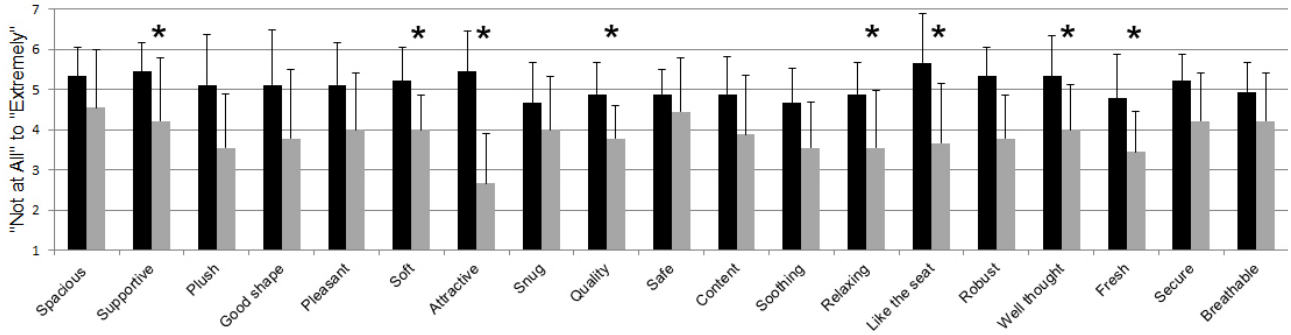

Figure 4. Mean values of comfort descriptors for the black (black bars) and grey design (grey bars) for female participants only. Error bars indicate the standard deviation (SD).

Affective response SAM

For the black seat, the valence was found to be higher (mean=6.3, SD=1.3) that for the grey seat (mean= 5.4, SD= 1.8). Further analysis showed that there were gender effects, where it was found that females were rating the black seat higher in terms of valence (Z = -1.62, Monte carlo Sig, p<0.5,1-tailed, Wilcoxon signed rank test; black seat mean=6.7, SD=1.4; grey seat mean=4.8, SD=1.9) whereas for males the ratings for both the seats were the same and did not provide any significant differences (black seat mean=6.0, SD=1.1; grey seat mean=6.11; SD=1.4). The arousal dimension was not found to be of significance in terms of differentiation between the seats (black seat mean=4.6, SD=1.1; grey seat mean=4.4; SD=1.7) and again between genders.

Comfort descriptors

Figure 3 shows the mean values of the comfort descriptors for the black and grey design. It can be seen across all the comfort descriptors the black seat was rated higher than the grey seat. Statistical analysis indicated that only the descriptor "attractive" differed significantly (Z= -2.73, p< .01). However further analysis showed significant gender effects. For the female participants in Figure 4, statistically significant differences were observed whereby the items "supportive" (Z= -2.23, p< .05), "soft" (Z= -2.33, p< .05), "attractive" (Z= -2.39, p< .05),"quality" (Z= -2.06, p< .05), "relaxing" (Z= -1.98, p< .05), "I like the seat" (Z= -1.97, p< .05), "robust" (Z= -2.39, p< .05), "well thought" (Z= -2.25, N-Ties=16, p< .05), "fresh" (Z= -2.03, p< .05) were rated higher for the black seat (Wilcoxon Signed Rank test). For the male participants however, none of the comfort items were rated significantly different. It was observed that generally females tended to score the grey seat design lower with scores. Particularly females in comparison to males, rated "soft" (U=11, p=.007), "fresh" (U=17.5, p= .036) "I like the seat" (U=18.5, p=.045), "well thought" (U=18.5, p= .042) significantly higher for the black seat. Males in comparison to females rated the grey seat particularly higher for "robust" (U= 10, p= .006) and "quality" (U=16.5, p= .0280) (Mann-Whitney U test).

Product personality dimensions

Figure 5 shows the bar graph of the product personality descriptors for the black and grey seats. It can be seen that the two designs performed differently. The black seat was rated significantly more "serious" (Z= -2.23, p<.05),"honest" (Z= -2.11, p<.05), "provocative" (Z= -2.09, p<.05) and "dominant" (Z= -2.84, p<.05) whereas the grey seat was found to be statistically more "boring" (Z= -2.13, p<.05) (Wilcoxon Signed Rank test). In terms of gender differences, none of the descriptors were found to be significant for the male participants. However for the female participants (see Figure 6), there was a significant difference between the seats in favour of the black seat for the descriptors "pretty" (Z= -2.20, p<.05), "dominant" (Z= -2.41, p<.05), "lively" (Z= -2.15, p<.05), "provocative" (Z= -2.11, p<.05), "honest" (Z= -2.18, p<.05), "serious" (Z= -2.04, p<.05), where the grey seat was again found more "boring" (Z= -2.54, p<.05)(Mann-Whitney U test).

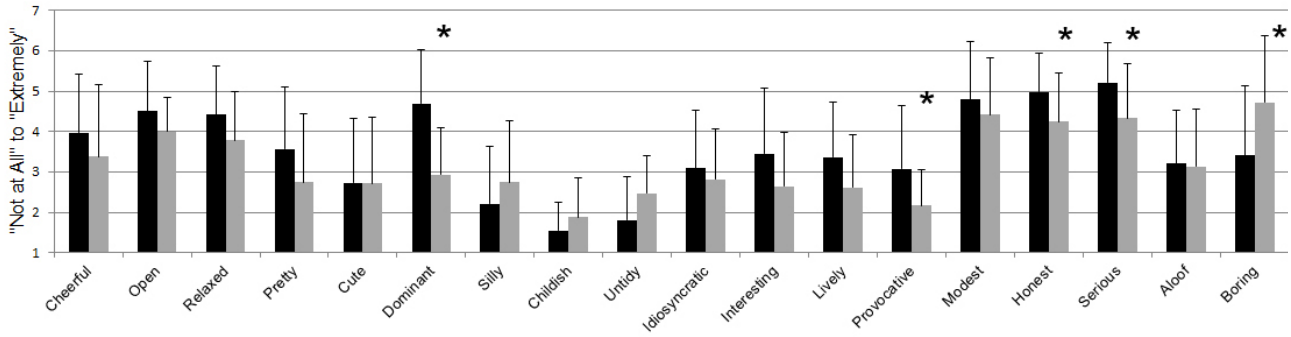

Figure 5. Mean values of product personality descriptors for the black (black bars) and grey design (grey bars). Error bars indicate the standard deviation (SD).

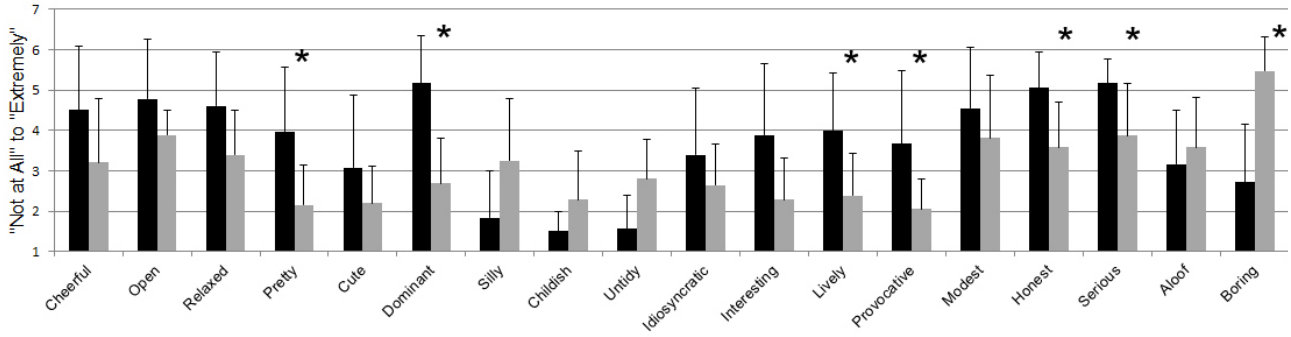

Figure 6. Mean values of product personality descriptors for the black (black bars) and grey design (grey bars) for female participants only. Error bars indicate the standard deviation (SD).

Self-congruence

Based on the previous studies Govers & Schoormans (2005) it was predicted that that product-personality congruence would have a positive effect on the "product evaluation" of the seats (H1). The regression results showed that as predicted product-personality congruence had a positive effect and the regression accounted for a 66% of the variance on product evaluation (Table 2). In other words, participants showed a preference for the seat with high product-personality congruence as opposed to low product-personality congruence. The second hypothesis (H2) was that product-personality congruence has a positive influence on product evaluation independent of the influence of user-image congruence: PE = f(PPC + UIC). Using a two-step linear regression, we first entered user-image congruence as a predictor variable and then added product-personality congruence following Govers & Schoormans (2005) approach.

As displayed in Table 2, for hypothesis 2, the user image congruence was significant in explaining the variance to 54.5% on product evaluation when entered in the first step. However when both *product-personality congruence and user image congruence were entered*, it was found that *user-image congruence* was not significant (p>.05). Therefore it was concluded that product personality congruence accounted as the significant predictor for product evaluation under these conditions. However it has to be noted that for this analysis multicollinearity might have been an issue as the user-image congruence and product-personality congruence were highly correlated for this study(r= .765, p<.0001).

The same analysis was replicated separately for both genders. It was found that for females product-personality congruence had a positive effect on product evaluation and the model accounted for a 63,2% the variance on *product evaluation* (p<.005), where user-image congruence was not significant. However, for the males, product-personality congruence was not significant where only user-image congruence was significant as a predictor of product evaluation model (p<.01). The relative interdependence of the product-personality congruence with user image congruence was lower for females (r = .664, p<.005) in comparison to males (r = .851, p<.0005).

Table 2. Effects of product-personality congruence and user-image congruence on product evaluation.

	Predictor	B	ß	R2	R2 adjusted
H1	Product Personality Congruence	.722	.812*	.660	.650*
H2	Step 1:User image congruence	.697	.739*	.545	.532*
	Step2: User image Congruence	.266	.283	.693	**.675**
	Product Personality Congruence	.530	.596*		

*(Note: *p <0.001, for step 2: User-image congruence p >0.05)*

The direct relationship between product personality congruency and user congruency in relation to overall comfort ratings were tested. It was found that product personality congruence and user image congruence were not correlated to overall comfort ratings. However overall product evaluation scores were found to be positively correlated to overall comfort ratings (rho = .351, p<.05) and there was an even stronger positive relation between valence and product evaluation scores (rho = .647, p<.01).

Discussion

The aim of this study was to explore the effects of visual design on perceived seating comfort and its underlying mechanisms. The results of this study indicated that the visual appearance had a significant effect on the perception of seating comfort and preference. Furthermore, the experimental procedure was successful in making participants believe that different seats were being tested and participants were unaware of the underlying hypothesis (Erol, Diels, Shippen, Richards, & Johnson, 2014). The current findings also corroborate the previous findings by Mergl et al. (2008) and indicate the robustness of the effect. In fact, the impact of the visual design on the perception of comfort was found to be even more powerful in the current study.

Sohlman and Staaf (2006) who investigated comfort factors for truck seats correlated the perception of seating comfort as rated on the basis of the visual appearance and actual experience with two identical seats having different upholsteries. It was found that the upholstery material was very important on the comfort preference and on the correlated factors in between the visual assessment and the seated assessment. However, the shortcoming of their approach was that the designs were visible to participants throughout the trials which meant an unbiased performance rating of the overall comfort factors were not available. Also the participants were not asked for a preference in terms of comfort. To avoid this issue in our study, we concealed the designs in the first stage and revealed in a systematic manner as to use the overall comfort rating on a single scale and then apply the visual comfort descriptor ratings, to explore the underlying mechanism of the initial preference without biasing the participants.

The black seat design overall was found to be performing better on overall comfort rating, on comfort descriptors and the design lead to a higher levels of "attractiveness". This reinforces the argument that attractive and delighting attributes lead to higher satisfaction levels (Franceschini,2001; Coates,2002). A particularly striking result in the current study was the large gender effects. It was shown that female participants were considerably more sensitive to the visual design as also reflected in the subsequent evaluation of seating overall comfort and comfort descriptors. Similarly, in terms of emotional dimensions, the valence scores for the black seat were higher for the female participants whereas the male ratings did not differentiate in between the two designs. As suggested by Zenk et al. (2008), it can be argued that females reflecting their liking of the design lead to an evaluation of their preferred seat with higher scores of overall comfort and comfort descriptors. (Coates,2002).

Kamp (2012) and Zenk et al. (2008) proposed that desired emotion for automotive seat comfort were associated with average pleasant and slightly arousing emotions. As Kamp (2012) and Zenk et al. (2008) both used in their study emo-card tool to assess the affective response which appeared to be more sensitive than SAM, the use of this tool should be considered for future studies. With regard to the SAM scales, it is noteworthy that the arousal dimension did not produce any differences between the seats. It may be argued that the assessment of seating comfort results in low intensity emotions and more sensitive scales may be necessary to reliably evaluate the intensity of the perceived emotion.

In terms of product personality, five descriptors proved to be significant in differentiating between the designs. The black seat was found more "serious", "honest", "provocative" and "dominant", whereas the grey seat was found to be more "boring". A separate analysis for the female participants also revealed the descriptors "pretty" and "lively" to significantly differ between the two seats in favour of the black seat. These results indicate that the visual appearance of automotive seats can significantly affect the perception of product personality, without affecting the actual seat contours. It can be argued that with further controlled manipulation of the physical designs and particular shapes, it is possible that even bigger effects can be triggered.

The results clearly indicate that specific colours and patterns of the different seat designs affected product personality differently. Mugge et al.(2009) also found that products such as cars and a vacuum cleaners were rated as "serious" when they were grey and had a basic, robust form. Given these effects, it is of interest for future studies to understand what specific automotive seat design cues are associated with what personality characteristics. This is of particular importance given the fact that product-personality congruence is known to affect product evaluation (Govers, 2004)and by extension comfort. Again, when evaluated separately for females, product-personality congruence was the only significant predictor of product evaluation. For the males, however, it was user image congruence and not product personality congruence that predicted product evaluation. With respect to these findings, it can be argued that females were more concerned with the personality of the seat and how they identified with the seat when making decisions, whereas males were concerned more with the stereotypical user image of the seats and how well it fitted with their own image. Although a direct positive relationship was not evident between overall comfort and self-congruence measures, the relationship between product evaluation and overall comfort ratings are suggestive of indirect effects.

In the post-trial interviews (see Erol et al.,2014), participants were motivated in their comfort preferences by referring to phrases such as "I liked the

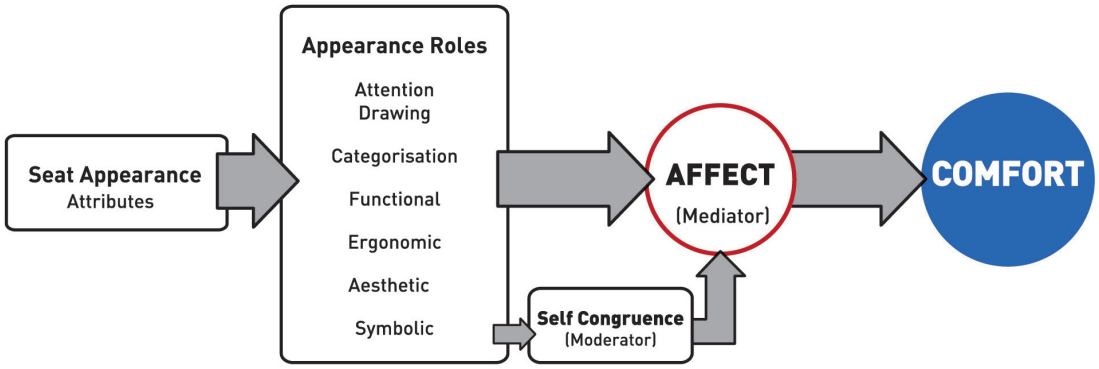

Figure 7. Proposed model for Effects of Appearance on Perceived Seating comfort.

seat", "I felt comfy in it", and "I felt fitted". Mugge (2011) argued that people use product personality as a cue to draw inferences about a product's perceived performance quality on different product variants. The participant responses in this study also are indicative of how the appearance of the seats led to perceived functional value and ergonomic quality. Participants also provided statements referring to visual elements of the seats such as the pattern and stitch which they indicated had influenced their "liking" towards the seats of their choice. This reinforces the argument that perceived comfort can only really be maximized when taking into account the "likes" and "dislikes" of consumers (Coates,2002). Some participants referred to the black seat as "sporty" whereas those males who preferred the grey seat referred to it as "old-classical" and indicated their choice to be based on these criteria. These can be interpreted as a means of "categorisation" amongst the seats, where aesthetic and symbolic cues have led to interpretations in to classifying the seats by visual attributes.

The black seat design overall was found to be performing better in "attractiveness", which indicates that attributes that attract the customer contribute to differentiating a particular product (Franceschini, 2001; Coates, 2002). As suggested in the Kano's model, this lead to a higher level of satisfaction in turn affecting their preference in comfort. In this study, further support to this argument was provided, as analyses indicated that valence and product evaluation scores were both positively correlated with overall comfort ratings. These results are suggestive of a mediating effect of the "attractive" attributes and potentially moderating effects of self-congruence. This potentially underlines the mechanism of how automotive seat design is evaluated and how it might be related to comfort preference. To rephrase, we can propose that in terms of congruity theory, the higher the congruence between the products' personality, utilitarian and value-expressive attributes (aesthetic-symbolic), the higher the valence towards the product, the more positive the evaluation of the product (Sirgy & Johar, 1999) and the higher initial comfort levels. However in order to analytically determine these effects in an integrated model, considerable participant numbers are required. The current sample of the study is small and the findings are limited to the particular convenience sample.

Finally, the utilitarian and value-expressive attributes mentioned during the post-trial interviews agreed rather well with the six different roles of product appearance proposed by Creusen and Schoormans (2005). In particular, it was observed that comments on the design manipulations in this study were associated with "aesthetic", "symbolic", "functional", "ergonomic quality" and "categorization" and "attention drawing". Based on the findings thus far, we propose a preliminary model below (Figure 7) to explain the impact of seat appearance on comfort.

The model proposes that the seat appearance exerts its effect on comfort through the affect created. Mediation (X →M →Y) has been defined in literature as the variation in X (i.e. Appearance roles) causing variation in M; the mediator (i.e. emotional response, attraction), which in turn is expected to cause variation in Y (i.e. Comfort) (Hayes, 2013). The "affect" created by the design has been hypothesised to causally mediate this relationship as an intervening variable with regards to the findings in this study. Moderation, known as interaction, is based on the understanding that a variable or set of variables influences the magnitude of the relationship (Hayes, 2013). In this model, the self-congruence has been hypothesised to influence the magnitude of affect (i.e emotional response) via seat appearance.

Conclusion

The study has shown that the visual appearance of otherwise identical seats, affects the emotional response, creates attraction and has significant effects on the perception of comfort and ultimate preference. These findings support Helander's (2003) contention that aesthetics can play a significant but often an underrated role in the perception of seating comfort. Furthermore, the effects were found to be considerably larger for female than for male participants and could imply that "female oriented" seat designs can be explored to obtain the largest effects on the perception of comfort. The findings are also of relevance to the design process. Certain interior design teams adopt a, time based approach to the product experiences, whereby the experiences have been divided in to

stages: the first impression of 3 seconds, and the sensory impact in the first 3 minutes and the 3 hours driving test (Phillips, 2016) . Each of these time segments form prime importance when providing input to seat designs and the proposed items to be used in a questionnaire. In order to assess the appearance factors affecting comfort, a study has to include valid and reliable items for visual appearance and the emotional response. It is therefore important to develop the proposed theoretical model on the initial impression of the seat where it might be possible that the certain dimensions of comfort perception of automotive seats are visually assessable even without seated trials. The establishment of these dimensions will provide a fundamental basis of quantifiable results on the effects of visual design cues that affect the "expected" and "initial" perception of overall seat comfort. These dimensions and cues are of prime interest for future studies.

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