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The Pervasive Effect of Aesthetics on Choice: Evidence From a Field Study

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Do people think logically and carefully before buying an expensive item, or are more superficial forces such as product appearance at work? To investigate this question, six months of car sales were predicted using objective measures of a design's typicality and complexity. The data revealed that cars conforming closely to a morph of designs of all cars outsell cars conforming less closely to the morph, but only when the design is visually complex. These design factors explain 42% of the sales variance and are independent of retail price, brand associations, technological specifications, and advertising. Subjective measures controlling for brand recognition further confirm the considerable impact of design factors on real purchases involving large financial commitments.

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EXTENDED ABSTRACT

When it comes to purchasing expensive consumer durables, most people believe the choices they make result from thoughtful contemplation. For example, few people are likely to respond that they bought a car because the design was pleasing and familiar. However, a century of research on mere exposure effects suggests the intriguing possibility that visual design features and, in particular, the ease with which they are processed might play a powerful role in everyday decision processes. Research indicates that because important and personally relevant products are familiar and come to mind easily, people implicitly associate ease and familiarity with importance and personal relevance. As a consequence, archetypical designs, which are easier to process and more familiar, also seem more important, self-relevant, and likeable. These ease of processing effects are significantly stronger for visually complex than for simple designs because people might become aware of the ease of processing simple stimuli and correct their evaluations; if the design seems too familiar it might even feel boring.

While laboratory studies provide robust evidence of this phenomenon, its effect size in a high-involvement real world context with real financial implications (e.g., a car purchase) is unclear. The current investigation systematically examines this issue.

To investigate the impact of design features on sales in an important, real-life setting, we obtained six months (January 2007–June 2007) of officially recorded car sales data from the German Federal Transport Authority. Two objective design aspects were considered for each car: archetypicality and complexity. In accordance with the laboratory findings, we expected that archetypicality would increase sales of visually complex, but not of simple, cars. That is, complex cars would benefit from the ease of processing their design features and appeal most when they are archetypical, whereas for simple designs the ease of processing archetypical features would be non-informative.

Objective design archetypicality. A professional frontal photograph was taken of each car under standardized conditions controlling for stylistic aspects. Using morphing software from research done on human facial appeal, a morph was created. An archetype similarity score calculated by summing the Euclidian difference of each of 50 feature points of a car from the averaged position of the corresponding feature in the morphed (archetypical) car was created. A higher score indicated that a particular car was more archetypical and presumably easier to process.

Objective design complexity. Based on perception research which proposes that a computer algorithm for compression of an image file can measure picture complexity because it removes redundancies, ZIP algorithm was selected as an objective measure of design complexity.

Validating objective measures with subjective ratings. To confirm the two objective measures depict the proper constructs, 564 U.S. consumers rated the cars for typicality and complexity of design. As we expected, Euclidian (objective) archetype similarity significantly correlated with subjective archetype similarity ($r=0.46$, $p<0.02$) but not with subjective visual complexity ($r=-0.29$, $p>0.15$). Similarly, ZIP (objective) complexity significantly correlated with subjective complexity ratings ($r=0.56$, $p<0.01$) but not with subjective archetype similarity ($r=-0.35$, $p>0.09$). Furthermore, Euclidian

similarity and ZIP complexity were unrelated ($r=0.05$, $p>0.81$), suggesting that our measures capture conceptually distinct constructs and are suitable independent predictors. Only 15.1% of all of the images were recognized correctly, indicating the designs were difficult to identify and ratings unlikely to be biased by established associations. The results were not altered by removing ratings of images that were recognized.

Sales by objective archetypicality and complexity. To control for the correlative nature of our sales data, we included retail price, advertisement spending, technological sophistication, brand preferences, and time since market launch for each car in the analysis. Importantly, *none* of these controls was significantly correlated with either objective measure. The predicted pattern of results emerged: a positive effect of archetypicality ($\beta=0.35$, $p=0.049$), a positive effect of complexity ($\beta=0.28$, $p=0.031$), and an interaction between these two factors ($\beta=0.43$, $p=0.026$). With respect to the control variables, we observed substantial effects of retail price ($\beta=-0.29$, $p=0.023$) and brand preference ($\beta=0.62$, $p<0.001$), but the other three variables did not influence sales ($P \geq 0.30$). The model including design and control variables explained 87% of sales variance, and design factors alone explained 42% of sales variance. Because of this high level of explained variance, it is likely all important variables are included in the model. Additional analysis based on MM estimation which iteratively readjusts and reduces the weights of possible outliers to find the optimal solution with unbiased estimates yielded the same results.

Sales predictions with subjective measures. As additional evidence, we used the subjective ratings of archetypicality and complexity collected from U.S. consumers to predict German car sales. We observed a positive effect of increased archetypicality ($\beta=3.47$, $p=0.015$) and increased complexity ($\beta=3.60$, $p=0.01$) and the interaction term ($\beta=3.55$, $p=0.032$), thus replicating the effects observed with the objective scores. Including the five control variables did not alter the results, nor did *excluding* the 15.1% ratings of designs that were recognized; the three terms remained significant, with the model explaining 74% of sales variance.

General discussion. Our investigation provides evidence in a real market setting of the extent to which visual design features affect a purchase people presumably contemplate a great deal. The effect, observed on six months of car sales, is independent of retail price, technological sophistication, brand associations, advertising, time in the market, and replicates for both compact and executive cars. We observed it with subjective measures that controlled for brand recognition, suggesting it occurs outside conscious recognition, and with objective measures applying equal weight to the visual features of all cars.

Critics might suggest cars “rationally” best also have the best-liked designs. However, it is unclear why “rational” features correlate with “archetypicality” of “visually complex” cars, or how some manufacturers intuit the importance of such features for design of some but not all of their brands. Others might suggest two sets of consumers exist in the market, some who value design and others who value descriptive features, and design-valuing consumers somehow buy archetypical, visually complex cars. However, this implies that “rational” consumers are randomly and equally spread across remaining three conditions suggesting they are unable to distinguish a better car.

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