Facing Dominance:  
Anthropomorphism, Product Face Ratios, and Consumer Preferences  

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Anthropomorphizing Products and Brands  

A common marketing practice
Endowing products with humanlike faces – a popular technique

Does the type of face characteristics really make a difference? If yes, how?
**Consumer Preference based on Looks**

Consumers prefer cars with distinctive front ends

![Bar Chart](image)

(CNW Research 2006)

**Seeing Human Faces in Nonhuman Objects**

The brain area (fusiform face area) responding to human faces also responds in the same way to humanlike caricatures

![Caricatures](image)

(Tong et al., 2000; Kanwisher and Moscovitch 2000; Gauthier et al., 2000)
Trait Inferences from Static Facial Cues in Human Faces

- People accurately read trait signals from stable facial cues in 100ms (Todorov et al., 2005)
- Can infer age, gender, race and emotions from faces.
- Also, infer underlying personality traits such as trustworthiness, and dominance

Face width-to-height ratio ($f_{WHR}$)

- Dominance and valence are among the most fundamental dimensions for human perception
- Among the many facial cues, face width-to-height ratio ($f_{WHR}$) has been suggested as a reliable dominance cue.
A person with high ratio is perceived as being more dominant and demonstrates more of dominant traits.

**High $\text{fWHR}$: A Signal of Success and Status**

US Presidents have higher $\text{fWHR}$ than average people

(Lewis et al., 2012)
High $f_{WHR}$: A Signal of Success and Status

- CEOs with a higher $f_{WHR}$ are more successful (Wong et al., 2011)
- $f_{WHR}$ correlates with professional athletes performance (Tsujimura et al., 2013)
- High ratio faces behave in a more competitive way; thus achieve more

Face width-to-height ratio and Testosterone

- Testosterone level - an underlying factor linking $f_{WHR}$ and dominant behavior (Lefevre et al., 2013)
- Testosterone stimulates growth of the jaw, cheekbones, and center of the face.
- Testosterone is also linked with aggression, dominance and competitiveness
- When competitive and challenging situations arise, testosterone levels rise – facilitating aggressive behavior
**Face width-to-height ratio and Testosterone**

- Interestingly, women find men with high fWHR more attractive for short term dates (high testosterone), but also less attractive as long term partners (due to their dominance).

**High fWHR Faces Liked LESS**

- Individuals with high fWHR faces show more aggression, deception, and untrustworthiness (Carre and McCormick 2008, Haselhuhn and Wong 2012)

- In general, faces with high fWHR are less liked (Stirrat and Perrett, 2010)
High $fWHR$ Car Faces Liked MORE

• Unlike High $fWHR$ human faces that are not liked due to perceived dominance of the other person, we suggest that High $fWHR$ car faces will be liked more!

Products Signal Identity and Status

• Prior work suggests that possessions are seen as extensions of self (Belk 1988) and to signal identity
• Dominant looking products signal wealth, confer status, and make people feel empowered
• Status signaling products are highly rewarding (Morgan et al. 2002)
**Hypothesis**

- Product faces with high fWHR will be seen as more dominant (like human faces with high fWHR), and will be liked more (unlike human faces).

- Test this in four studies

**STUDY 1:**

- Design: 3 (ratio) X 4 (face identity) X 2 (car vs. person) Mixed design

- N = 251 M-Turk Participants

- DV’s: Perceived Dominance (Powerful, aggressive, submissive); Liking (Liking, Positive)
STUDY 1:
Measuring Points for $f$WHR Calculation

WHR was calculated as width divided by height (a-b/c-d)

STUDY 1:
Sample Stimulus: Human Faces

$fWHR = 1.69$
STUDY 1:
Sample Stimulus: Human Faces

$fWHR = 1.87$

STUDY 1:
Sample Stimulus: Human Faces

$fWHR = 2.09$
STUDY 1:
Measuring Points for $f\text{WHR}$ Calculation

$f\text{WHR}$ was calculated as width divided by height (a-b/c-d)

STUDY 1:
Sample Stimulus: Car Faces

$f\text{WHR} = 1.68$
STUDY 1:
Sample Stimulus: Car Faces

\[ fWHR = 1.89 \]

STUDY 1:
Sample Stimulus: Car Faces

\[ fWHR = 2.11 \]
STUDY 1: Human Face Stimuli

STUDY 1: Automobile Face Stimuli
**STUDY 1: Results**  
\(N = 251\)

Both Person and Car faces with high WHR are perceived as more dominant.
Person faces with high WHR were liked less but high WHR car faces were liked more.
Perceived Dominance Mediates the effect of Ratio on Liking

### Discussion

- Dominant Car faces seen as ‘own’ – hence liked
- Dominant People seen as ‘others’ – not liked

Goal of Study 2 to test if the opposite effects for car faces and human faces driven by self-other perceptions
Study 2

- Design: 2 (Group membership) x 3 (fWHR) x 2 (Car vs. People)
- N = 310 M-Turk Participants
- DV’s: Perceived Dominance (Powerful, Aggressive), Liking (Liking, Positive)
- Manipulation Check: Self-Other (Overlap of Self Scale)

STUDY 2: Manipulations of Group membership

Person Faces:
Scenario description of a football match, and choosing a replacement for an injured player. For YOUR team or for your OPPONENT’S team.

Car Faces:
Scenario description of a neighbor buying a new car. The neighbor is either very annoying and someone like an enemy to them, or very friendly and someone very close to them.
STUDY 2: Perceived Dominance

\[ N = 310 \]

\[
\begin{align*}
\text{Person} &: 4.15, 4.63, 5.08 \\
\text{Car} &: 3.77, 3.87, 4.18 \\
\end{align*}
\]

\[ p < .001 \quad p < .007 \]

STUDY 2: Person Faces - Preferences

\[ N = 310 \]

\[
\begin{align*}
\text{Out-group} &: 4.14, 3.77, 3.57 \\
\text{In-group} &: 4.25, 4.34, 4.14 \\
\end{align*}
\]

\[ p < .01 \quad p < .004 \quad p < .002 \quad ns \]
STUDY 2: Car Faces - Preferences

Perceived Dominance mediates the effect of Ratio on Preference for People (Out-Group) and for Cars (In-Group)

STUDY 2: Mediation Analysis

Perceived dominance significantly mediates the effects of WHR on liking

- For people faces (out-groups)
- For car faces (in-groups)
Discussion

• Effect of dominance on liking is negative for people since people are seen as ‘other’
• Effect of dominance on liking is positive for products since product is seen as part of ‘self’
• Dominant Product faces liked because presumably these faces help one become more empowered and higher status.

Study 3 tests if effect will occur only for products that are capable of endowing high status... and not for those that cannot confer higher status

Study 3

• Design: 2 (ratio: High vs. Low - between) X 2 (types of product: status signaling vs. status irrelevant - within) mixed design
• N = 100 M-turk participants
• DV’s: Perceived Dominance (3-items); WTP (house: 0 to $800K; Mop: 0 to $50)
• Manipulation Check: Extent to which product signals status (4-items)
STUDY 3: Status Signaling vs. Irrelevant Products

* Pretest (n=55): no significant difference in estimated square footage

STUDY 3: Results

Perceived Dominance mediates the effect of Ratio on WTP for House but not for Mop.
Discussion

- Positive effect of perceived dominance on product liking seen only for a product that has the status signaling ability.
- This suggests that when people have a greater need to signal status, they are more likely to prefer such dominant products.

Discussion

- Study 4 tests the role of consumption goal more directly.
- If the consumption goal is competition it should heighten the positive effect of dominance on liking; if the consumption goal is affiliation it should mute the effect.
Study 4

• Design: 3 (Goals: Competition, Affiliation, Control) x Ratio (3: High, Medium, Low) x Cars (4 types – within)
• N = 400 M-turk participants
• DV’s: Perceived Dominance (3 items), Preference (2 items)
• Manipulation Check: Making Good impression is important, Goal is good relationship

STUDY 4: Goal Manipulations

Competition Goal
Scenario about renting a car for an important business trip... negotiating for a merger with a public company. ...the winner can expect great profits ... Your counterpart has been in a stronger position ... The goal in this negotiation is to win and get the best deal that you can get.

Affiliation Goal
Scenario about renting a car for a very special date with a person you met on Match.com. ... you two have been chatting and emailing each other for over two months. ... this person seems to be just the right one for you. You think it is time to take the relationship to the next level....maybe this person might be the soul mate you have been looking for.

Control
Scenario about renting a car while your car is getting fixed.
STUDY 4

STUDY 4: Perceived Dominance
N = 400

competition goal affiliation goal control

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STUDY 4: Preference

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Competition Goal: Affiliation Goal: Control

- **p<.05**
- **ns**
- **p<.001**

Implications

- **Theoretical Contributions**
  - Contributes to anthropomorphism research – how anthropomorphized products and humans are perceived similarly: WHR works similarly for perceived dominance but differently for preference of product versus human faces
  - Contributes to research on power especially in the context of consumer behavior
  - Contributes to research on product design – perception of underlying traits based on product shape
**Implications**

- **Practical Implications**
  - Marketers can use deeply embedded human perceptual bias to charge higher prices.
  - Analysis done of all 533 automobiles sold in the US (Nov 2013) by 25 different manufacturers (prices, fWHR, body type, brand)
  - Results show that fWHR predicts automobile prices for sedans ($\beta = 71.95, p < .001$), coupes ($\beta = 321.3, p < .001$), and convertibles ($\beta = 248.9, p < .001$) even after controlling for brands.

**Future Research**

- Does the effect of fWHR on perceived dominance differ with cultures that score high on power distance?
- Is there a gender effect – since men are more agentic, are they more responsive to changes in fWHR?
- Our results suggest that the effect is observed when fWHR increases, but to a lesser extent when fWHR decreases. Why is there an asymmetry?