



A Neural Predictor of Consumer Psychology: An fMRI Study of the Effect of Celebrity, Non-Celebrity, and Rational Advertising Appeals on Dress Attractiveness

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**Introduction:** Consumers tend to purchase products based on product attractiveness (Eckman & Wagner, 1994). Thus, it is important to investigate how to capture their attention, and presumably increasing product attractiveness and buying intention. Along with the traditional research approaches, an increasingly popular method for assessing these factors is the study of the underlying brain activation that accompanies different types of advertising appeals designed to promote a given product. The data from such neuroimaging studies is important as it provides brain-based insights into consumer behavior beyond those garnered from the traditional methods.

**Literature Review and Hypotheses Development:** Consumer neuroscience is defined as the field of consumer research connecting neural processes (Plassmann et al., 2012). Consumer neuroscience focuses on the underlying brain processes that affect consumer perceptions and behaviors. Although considerable research has focused on the effect of the visual aspects of merchandising strategies and their impact on product evaluations, there is a lack of empirical research regarding the neural underpinnings of such marketing strategies and how they might provide insight into consumers' decision making processes and product evaluations. Thus, the present study attempts to fill this gap by investigating consumer brain-based activations in response to three different types of advertising appeals (i.e., celebrity, non-celebrity, rational).

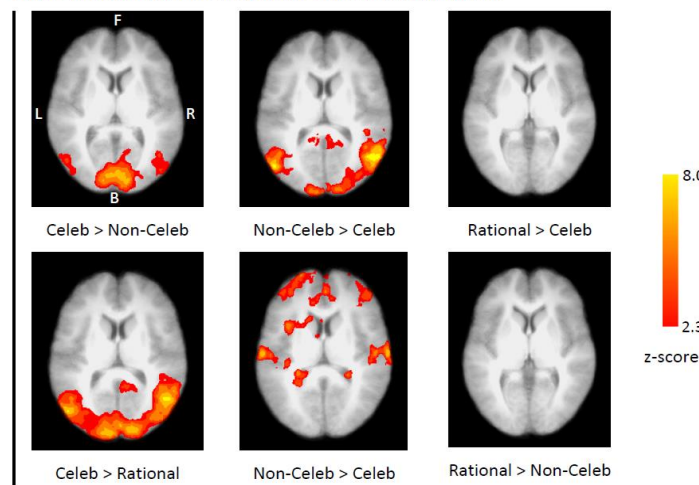
An advertisement has played an important role in the business world as it affects a consumer's attitude toward the advertised brand or the product (Connell et al., 2014). For example, celebrities on advertisements influence to create positive image of the brand/product for consumers and the strong celebrity-product association leads to the deeper encoding of the product in memory (Stallen et al., 2009). Non-celebrity endorsers also have been used to reduce costs but to display similar results as celebrity advertising appeals may do for the audience (Wang et al., 2009). On the other hand, rational appeals are more beneficial to direct to consumers to make an actual purchases compared to emotional appeals (Stallen et al., 2009). Thus, this study hypothesizes that *dress attractiveness will be differentially influenced by each of the three different types of advertising appeals and will also induce differing brain activations.*

**Methodology and Results:** A repeated measure experimental design with three different advertising appeals was employed in this study. Subjects were recruited through a general posting on the online announcement page of a Southwestern University. Twenty-seven female subjects (mean age = 20.8) participated. Three different advertising appeals (i.e., celebrity, non-celebrity, rational) were shown to participants while in and fMRI brain scanner. A total of 72 trials (24 instances  $\times$  3 types of advertising appeal) were randomly presented to each participant.

**Dress Attractiveness Results:** For the behavioral data, a repeated-measures ANOVA revealed that dress attractiveness for the non-celebrity appeals was higher than celebrity or rational appeals  $F(1.80, 46.71) = 10.41, p < 0.00$ . For the neuroimaging data, when making dress attractiveness evaluations, celebrity appeals produced significantly greater activation than other

appeals in the left and right lingual gyrus, regions thought to mediate high-level memory processes. Dress attractiveness evaluations of non-celebrity appeals revealed five significant clusters of brain activation, including the left cingulate gyrus, left angular gyrus, and right transverse temporal gyrus, all regions thought to be associated with self-reflection and imagery. No brain activation differences were found for the rational as compared to the other two appeals.

Figure 1. Brain activation comparison for product attractiveness



**Conclusion:** Our findings suggest that celebrity appeals are associated with increased brain activation of memory-related areas (perhaps retrieval), whereas non-celebrity appeals are more closely associated with activation of regions thought to mediate self-reflection and executive functioning. For rational appeals, our findings showed no significant activation in brain areas compared to celebrity and non-celebrity advertisement appeals. Interestingly, non-celebrity appeals had the most positive effect on perceived dress attractiveness and activated regions particularly important for self-reflection. The latter suggests that when viewing non-celebrity, consumers perceive a congruency between the product being advertised and themselves, a connection that may result in a more readily retrievable mental image of the product. In summary, celebrity appeals are most influential when attempting to establish name recognition for a new brand or product, while non-celebrity appeals induce more self-reflection and thus more consumer connectedness, perhaps leading to actual buying. Future research employing different types of celebrities and products will provide a more complete picture of the brain mechanisms.

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