Picture or Text Superiority?
The Two Forces of Element Size on Communication Effectiveness

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SHORT ABSTRACT

When should practitioners allocate more space to pictures or to text? Analyzing over 4,000 cover-photos of Facebook business pages, we found that enlarging pictures boosts (reduces) the number of likes for high (low) involvement products and high-end (low-end) brands as impression formation (message persuasion) is pivotal in the context.

Keywords: element size, visual space, visual marketing, advertising, computer vision, machine learning

EXTENDED ABSTRACT

Conventional wisdom suggests that a picture is worth a thousand words. Despite the large number of studies supporting this picture superiority notion, emerging evidence shows that enlarging pictures may sometimes hurt communication effectiveness (e.g., Kwan et al. 2017). Current understandings are however surprisingly limited regarding the allocation of surface size between pictures and text (i.e., element size). To reconcile the mixed effects concerning picture versus text superiority, this research provides a theoretical lens that disambiguates the element size effects along two routes—*impression formation* and *message persuasion*. We propose that these routes work in opposite directions in determining communication effectiveness. Depending on *product involvement* and *brand positioning*, the relative importance of impression and persuasion varies and leads one route to override the other.

Advertising research shows that pictures can create a holistic impression by evoking self-relevant narratives (Adaval and Wyer 1998) and emotion-laden responses (Miniard et al. 1991). Pictures also convey abstract qualities such as prestige (Pracejus et al. 2006). Rather than attempting to impress, however, many communications are designed to persuade (e.g., illustrating scientific findings). In these cases, the presence of pictures may shift attention away from text and interfere with the comprehension of verbal arguments (Wyer et al. 2008). Moreover, element size can serve as an indication of emphasis: the larger the text, the stronger the conviction it carries (Kwan et al. 2017). These findings suggest that enlarging pictures (relative to text) can facilitate impression formation while dampening message persuasion, producing opposing effects on communication.

So, when should practitioners allocate more space to pictures or to text? The answer concerns marketing objectives—if the goal is to *impress* or to *persuade*. We reason that enlarging pictures promotes the cognitive processes underlying impression formation while impeding the processes underlying message persuasion, and vice versa. As a result, pictorial size has a net positive effect in contexts weighted toward impression, and a net negative effect in more persuasive contexts. Concerning the relative importance of these marketing objectives, we

find that product categories and brands vary systematically. This enables us to validate our reasoning by examining the moderating role of product involvement and brand positioning. Assuming that impression is likely emphasized over persuasion for high-involvement products and high-end brands, we predict that enlarging pictures produces more favorable responses for these products and brands.

We first identified a diversity of products across categories with established indicators of involvement (Laurent and Kapferer 1985). Then we determined a list of brands for each product category that includes high and low-end brands based on public rankings and industry reports. In later analyses, each brand was assigned a corresponding level of brand positioning and product involvement (high vs. low). This assignment was verified by judges who were unaware of the research purposes. Based on the list, we sampled posts from the Facebook business pages of the brands. We focused on Facebook cover photos because they are an essential component of all business pages, are under full control of managers, and are used strategically to convey a designated image and/or message to target audiences. From 114 pages across regions pertaining to 69 brands in 9 categories, we collected a total of 4,383 cover photos along with the number of likes for each post and other information about the pages. To measure element size, we leveraged EAST (Efficient and Accuracy Scene Text detector, Zhou et al. 2017), a deep learning-based computer vision technique. This technique automatically detects text elements in multiple colors, irregular fonts, and complex layout, and isolates them from backgrounds so that we can estimate the ratio of picture size to text size (i.e., size ratio; Pieters and Wedel 2004). Finally, we obtained an augmented dataset with all necessary statistics about the cover photos and business pages, the size ratio, and a list of products and brands coded with respect to the relative importance of the two marketing objectives.

In a series of multivariate regressions, we investigated the relationship between the size ratio and communication effectiveness (measured by the number of likes) by analyzing the moderation effect of product involvement and brand positioning. In addition, we controlled for the effect of relevant factors including the presence of text content and human faces, aspect ratio, visual complexity, and post duration. We also included random coefficients in the models to capture the effects of unobserved factors at the brand level and the product category level. Specifically, we first built a null model (model 1) with the size ratio and all control variables as predictors. Its results fit with the notion that enlarging pictures enhances communication effectiveness (i.e., the picture superiority notion). When we entered involvement (positioning) and its interaction with the size ratio in model 2 (model 3), however, we found that both involvement and positioning significantly moderated the size effect while the effect of all control variables remained as in the null model. As predicted, enlarging pictures was beneficial to high-end brands and detrimental to low-involvement products. We obtained significant effects of similar size and direction when entering both moderators and their interaction with the size ratio simultaneously (model 4). Results support the idea of coexistence between the effects suggested by the notions of picture and text superiority: enlarging pictures enhances (hinders) communication effectiveness when impression (persuasion) weighs more in the context.

Theoretically, this research sets out a lens to understand the differential effects of element size and shows that their dominance depends on *the objectives to impress and to persuade*. Managerially, our findings highlight the importance that to maximize effectiveness, practitioners should adjust element size strategically and without necessarily following conventional wisdom. It is possible that enlarging pictures can produce a negative effect when Tesla (a high-end brand) attempts to convey a persuasive message, and a positive effect when Crest (a low-involvement

product) relates itself to upper strata. Practically, our present application of deep learning-based computer vision technique guides future endeavors to explore visual effects and generate insights from real-world big data sets on visual optimization and content customization.

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