

## **The Role of Vivid Imagery and Concrete Verbal Information in Omission Detection and Persuasion**

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### **Abstract**

*Research on omission neglect has demonstrated that consumers are insensitive to many different types of missing, unmentioned, and unknown information. However, there is no prior research examining the role that vividness plays in omission detection and persuasion. The present research distinguishes between vividness in imagery and vividness of verbal information and shows that vividness in imagery actually undermines persuasion by increasing one's sensitivity toward missing information, while verbal vividness, reflected in concrete verbal information, increases persuasion. Considered together, the results challenge the prior practice of treating vividness in imagery and verbal information as homogeneous sources of vividness. The results also suggest that vivid imagery may facilitate omission detection.*

**Key words:** Vividness effect, omission neglect, omission detection, visual processing, visual-verbal compatibility

### **Introduction**

Consider the scenario you might encounter on any normal day: You check your mailbox after work and sift your personal mail from a pile of promotional leaflets. You scan the leaflets quickly and a picture of a rental apartment catches your eye. You stop to read the description of the apartment carefully. Under which circumstance do you think the apartment looks interesting enough to prompt a call to the real estate agency? The present research answers the above question by juxtaposing characteristics of verbal information with those of visual information. Visual and verbal information are the fundamental vehicles that marketers use in non-personal marketing. An average consumer is exposed to nearly 2,000 marketing messages a day. With time and cognitive constraints, consumers hardly have complete information when making judgments. Information overload for consumers motivates marketers to develop increasingly vivid visual and verbal marketing messages via ads, packaging, and other media. Therefore, understanding how vivid visual and verbal information impact consumers' information processing under circumstances of limited information becomes especially relevant and important in the current market place.

Although vividness effects have been explored extensively, relatively little is known about how vivid imagery information, when paired with vivid product descriptions, will affect consumer inference and message persuasiveness. Prior research has investigated vividness effects derived from communication characteristics that appear in verbal concreteness (vs. abstractness), imagery colorfulness, presentation format (audio, videotaped information, WOM presentation), and the presence (vs. absence) of instructions to imagine (Herr, Kardes & Kim 1991; Nisbett & Ross 1980; Taylor & Thompson 1982). When manipulating vividness, prior research does not differentiate imagery and verbal vividness, thus assuming they have similar effects on judgments.

However, Pham et al's (2001) findings challenged this assumption by highlighting the distinctiveness of imagery vividness on judgment and decision-making.

The first goal of this research is to examine the effects of verbal and imagery vividness by treating them as two unique sources of vividness. Specifically, vividness in verbal information will be investigated through manipulating verbal concreteness (vs. abstractness); differentiation of vividness in imagery information will be investigated through the manipulation of imagery colorfulness. In the present paper, we assume that concrete (vs. abstract) verbal information and colorful imagery (vs. B/W imagery) possess a higher degree of vividness (Taylor & Thompson 1982). The second goal of the research is to determine how verbal and imagery vividness influence consumers' sensitivity toward omissions and their inferences on missing information.

### ***1. Omission Neglect***

Judgments made by consumers are usually formed based on limited information because marketers typically omit unfavorable information. Omission neglect, the insensitivity toward missing information, attributes, options, or issues, occurs when judgments are made on the basis of insufficient or weak evidence (Sanbonmatsu et al. 1991, 1992, 1997, 2003). Under conditions with limited information, consumers usually rely on presented information and fail to incorporate the unmentioned information and unknown factors that are critical to fair judgment and sound decisions (Sanbonmatsu et al. 1991, 1992, 1997, 2003). Judgments made on the basis of insufficient evidence are usually inappropriately extreme and held with overconfidence. Failure to notice missing information leads to extreme opinions because people overweigh the diagnosticity of the presented information and discount the importance of the missing information (Sanbonmatsu, Kardes & Herr 1992). Although omissions are typically non-salient and not easy to detect, recognition of the absence of missing information of an attribute leads to inferential correction that moderates judgments (Sanbonmatsu et al. 1991). Prior research has recorded several occasions when heightened sensitivity toward omitted information was found. For example, a comparative evaluation context carrying a differential amount of product information is able to increase consumers' cognizance of weak and limited information, and thereby encourages moderate judgments (Sanbonmatsu et al. 2003). In addition to the occasions when consumers are provided with a comparative context, when consumers are warned about missing information (Sanbonmatsu et al. 1997, 2003), or when they are sufficiently knowledgeable about the target product to spontaneously consider missing information (Sanbonmatsu et al., 1992), cognizance of missing information will also be increased.

### ***2. The Role of Vivid Imagery in Missing Information Detection***

How does vividness in verbal and visual information influence consumers' sensitivity toward omissions? Let's first consider the common way of manipulating vividness in prior research. Researchers manipulated vividness by varying the degree of imagery colorfulness and verbal concreteness (Taylor & Thompson 1980). Therefore, the higher vividness condition consists of a colorful (vs. B/W) image accompanied by concrete (vs. abstract) description. The underlying assumptions of this practice are: (1) both verbal concreteness and imagery colorfulness are sources of vividness; (2) the presence of both sources should aggregate vividness; and (3) the aggregated vividness should amplify vividness effects. While the first two assumptions have been supported by prior research (Taylor & Thompson 1982), the third assumption is not tenable in view of the impact rendered by chronic imagery vividness on creativity in problem solving through an increased chance of discovering and reinterpreting non-salient information (Finke 1993; Shepard 1978). Shepard (1978) offered several explanations. He holds that that imagery vividness provides more perceptual richness than verbal description, which facilitates the detection of non salient details and relationships. An alternative explanation is that imaginary vividness serves as a motivating force that encourages affective and behavioral engagement.

Pham et al's (2001) recent paper on the unique effects brought by chronic vividness of imagery lends support to Shepard's contention. In their paper, while chronic imagery vividness was assessed by an established index called Questionnaire upon Mental Imagery (QMI) (Sheehan 1967), the verbal vividness manipulation consisted of concrete and abstract descriptions of presented information. In one experiment, participants were asked to make a choice between two vacation packages (A and B) described in a bullet-point format (the low verbal vividness condition) from a travel agency or in vivid testimonials from previous travelers (the high verbal vividness condition). In addition, although the abstract description was ambiguous about the superiority between the two packages, the vivid testimonials had a choice implication that favored package B.

Results showed that choice intentions were influenced by the interaction between participants' imagery vividness score and the vividness of the description of the package. Specifically, the exclusive influence of abstract description was found among high imagers, whereas the vivid testimonials impacted only low imagers. These results suggest that uniqueness of chronic imagery vividness lies in the tendency of vivid imagers to pay greater attention to less salient (vs. salient) information. Since less salient (vs. salient) information is weighted more heavily, decisions of vivid imagers are more likely subject to the nature of less salient (vs. salient) information.

### ***3. The Role of Vivid Verbal Information in Missing Information Detection***

Adaval and Wyer (1998) found the effects of concrete verbal information on consumer information processing and judgment in an attempt to investigate the role played by narratives in consumer information processing. The attempt was inspired by the "story model" of decision making proposed by Pennington and Hastie (1988) who found that participants favored story-ordered information over witness-ordered information in juridical decisions. Two reasons were offered to explain the favorability of story-ordered information in decisions. First, the story-ordered information constitutes a narrative that is consistent to the presentation of most social knowledge. Second, narratives conveyed in temporal order and thematic relevancy are consistent to prior knowledge and should be easier for comprehension. As narratives are less effortful to process, favorable information of a target product should lead to more positive evaluations when it is presented in narratives rather than in a list format. Adaval and Wyer further argued that because narratives match consumers' preexisting knowledge structure, a holistic strategy is more likely to be adopted to evaluate an event when it is presented in the format of narratives. By contrast, abstract, non-narrative-based information encourages the adoption of a piecemeal strategy that examines the content of an event in an attribute-by-attribute manner. Four experiments in Adaval and Wyer's paper support this hypothesis.

In one of the experiments, participants were provided with two travel brochures, one of which described a trip to Thailand and the other to India. Between the two trips, the content of one trip was presented in a list format and the other in a narrative form. In addition, the content of one brochure was in a picture-dominant (smaller text relative to a color photograph) or a text-dominant format. The results showed a main effect for the format of the brochure, suggesting that the trips were evaluated more favorably when the features were presented in a narrative format (vs. list format). Additionally, further data analysis showed that participants made least favorable evaluations when pictures were provided alone (vs. text alone or both pictures and texts provided). This finding is consistent with Pham et al's findings, rendering further evidence of the distinctive role played by imagery vividness. The finding also corresponds to reversed vividness effects found in prior research when pictures were involved (Frey & Eagly 1993; Taylor & Thompson 1982).

### ***4. Hypotheses***

In this paper, we propose that imagery vividness and concrete verbal information drive different effects on consumers' responses toward omissions. We manipulate verbal vividness by varying the degree of concreteness of the trip description presented to participants (concrete, vivid language vs. list-feature format). Imagery vividness is manipulated at two levels consisting of two pictures: One is in B/W format and the other is in full color. We predict that while verbal concreteness decreases the sensitivity toward omissions (resulting in higher evaluations), imagery vividness should increase this tendency (resulting in lower evaluations). The effects of concrete verbal information can be mainly explained by Adaval and Wyer's contention that verbal concreteness facilitates the construction of a narrative-based representation of information that encourages the adoption of a holistic (vs. piece-meal) strategy in information processing. Contrastingly, abstract, non-narrative-based information encourages the examination of individual attributes and thereby results in a piece-meal processing (vs. holistic) strategy. When a holistic (vs. piece-meal) strategy is adopted, product evaluation becomes more favorable due to decreased sensitivity toward omissions.

H<sub>1</sub>: Products presented with concrete verbal information (vs. feature-listing information) will receive more favorable (vs. less favorable) evaluations.

We attribute more favorable evaluations in the concrete verbal condition to consumers' decreased sensitivity toward omissions.

Therefore,

H<sub>2</sub>: Omitted attributes (attributes that are not presented) will receive more favorable (vs. less favorable) evaluations in products presented with concrete verbal information (vs. feature-listing information).

On the other hand, imagery vividness increases attention paid to non salient information, and thus heightens sensitivity toward omissions. Therefore, colorful (vs. B/W) imagery fosters inferential correction that leads to more moderate product evaluations.

H<sub>3</sub>: Products paired with a colorful (vs. B/W) image will receive less favorable (vs. more favorable) product evaluations.

We predict that lower evaluations in the colorful-image condition are due to consumers' increased sensitivity toward omission as a result of the vivid image.

Therefore,

H<sub>4</sub>: Omitted attributes will receive less favorable (vs. more favorable) evaluations in products paired with colorful (vs. B/W) image.

## **5. Method**

### **Participants and Design**

106 participants (66 males) were recruited from a large Midwestern university for the study and were given extra credit for participation. Participants were randomly assigned to one of the four conditions consisting of two treatments: imagery vividness and verbal concreteness. Participants were asked to evaluate a trip to Hawaii based on provided information. The condition of imagery vividness included either a colorful or a B/W picture featuring an image of a beach view of Hawaii. Verbal vividness was manipulated by describing feature activities of the trip either in concrete, image-provoking language, or in a feature-listing manner. Hence, a 2 (imagery vividness: colorful vs. B/W picture) x 2 (verbal concreteness: concrete description vs. feature-listing description) between-subjects factorial design was used.

Participants were asked to consider planning a trip to Hawaii. The instructions were as follows, "Imagine that you have been thinking of having a group tour to Hawaii for a while. One day you encountered a brochure featuring the Hawaii trip. The first page of the brochure was a picture of Hawaii attractions as shown below."

After seeing the picture that presented a beach in Hawaii, participants were introduced the 'feature activities' to be covered in the four-day adventure on Hawaii's big island. The feature activities were either described in contextualized, image provoking language or in an abstract, feature-listing manner. The feature-listing description was presented as:

Feature Activities:

- Visit Hawaii Volcanoes National Park
- Join a kayak trip along South Kohala coastline.
- Scuba dive along the Big Island's Kona Coast
- Bird-watching adventure in the rain forest
- Take a mule-drawn wagon tour of Waipio Valley
- Enjoy a dinner cruise on a catamaran.

The concrete, vivid description was presented as:

Feature Activities:

- Travel to Hawaii Volcanoes National Park and discover the world's tallest, largest, and most active volcanoes.
- Join a fun filled 3.5 hour guided kayak trip along the South Kohala coastline. Discover the coral gardens of Puako Reef, a marine sanctuary, where sea turtles green feed among multicolored fish.

- Scuba dive the calm clear waters of the Big Island's Kona Coast with Big Island Watersports, the Big Island's complete water sports outfitter.
- Take the bird-watching adventure in the rain forest, spot rare and endangered Hawaiian birds, and immerse yourself in a world of giant ferns, orchestral birdsong, and crisp mountain air.
- Take a mule-drawn wagon tour of Waipio Valley, a place of dramatic tropical beauty with majestic waterfalls, taro patches, lush tropical foliage and wild horses.
- Enjoy a spectacular sunset and a delicious dinner aboard the Noa Noa, ultra stable, 50-foot catamaran.

Participants were then asked to indicate their overall impression of the trip, the evaluation of the presented feature activities and omitted features activities (feature activities that were not mentioned in the description), all of which were measured by a seven-point scale (1 = extremely bad through 7 = extremely good). The omitted feature activities are (1) How would you rate the Hawaii trip on: Sunbathing on Punaluu Black Sand Beach? (2) How would you rate the Hawaii trip on: Art and Nightlife on the island? (3) How would you rate the Hawaii trip on: Take a 45-minute Surfing Class and Learn How to Surf?

Supplementary data was collected. The data was intended to access participants' self-reported judgment of the processing strategy (piecemeal vs. holistic) (Adaval & Wyer 1998). Participants were asked to indicate their degree of agreement on the two alternative strategies on seven-point Likert scales (1= strongly disagree through 6=strongly agree). The strategies were accessed by asking participants whether they "considered the trip based on the individual feature activities independently of one another" or "imagined the overall events that occur on the trip rather than thinking about individual feature activity."

## 6. Results

Manipulations of imagery and verbal vividness were successful. Participants who were exposed to the colorful (vs. B/W) picture perceived the picture to be more attractive ( $M_{color} = 5.24$  vs.  $M_{B/W} = 3.96$ ),  $F(1, 104) = 18.46$ ,  $p < .001$ . Those who were presented with concrete (vs. feature-listing) information about the trip rated the feature activities to be more vivid ( $M_{concrete} = 4.54$  vs.  $M_{feature-listing} = 4.04$ ),  $F(1, 104) = 4.19$ ,  $p < .05$ .

A 2 (imagery vividness: colorful vs. B/W picture) x 2 (verbal concreteness: concrete vs. feature-listing description) analysis of variance performed on the overall impression revealed a main effect for imagery attractiveness,  $F(1, 102) = 4.75$ ,  $p < .05$ , and a main effect for verbal vividness  $F(1, 102) = 5.20$ ,  $p < .05$ . Follow-up tests showed that the overall impression of the trip in the colorful picture condition was significantly lower than in the B/W condition ( $M_s = 5.31$  vs. 5.75),  $t(104) = 2.15$ ,  $p < .05$ . By contrast, describing the trip in concrete, image provoking language led to higher overall impressions than did descriptions given in an abstract, feature-listing manner ( $M_s = 5.76$  vs. 5.31),  $t(104) = 2.25$ ,  $p < .05$ . Therefore,  $H_1$  and  $H_3$  are supported. This pattern of results supports the finding in prior literature that recognizes the distinctiveness of imagery vividness relative to verbal vividness in information processing. The opposite effects on overall impression suggest that consumers might be more cognizant of omissions when they are exposed to vivid, colorful images. No interaction was found in the analysis (see Table 1).

Because omitted attributes received lower evaluations than presented attributes when imagery vividness was high, evidence supports  $H_4$ , that imagery vividness increases sensitivity toward missing information. A 2 (imagery vividness: colorful vs. B/W picture) x 2 (verbal vividness: concrete description vs. feature-listing description) analysis of variance was performed on the three omitted activities (sunbathing on black sand beach; check out art and nightlife on the island; take a 45-minute surfing class). The evaluations of the three omitted attributes were averaged and thus formed an omitted attribute index. The analysis revealed a main effect for imagery vividness on the omitted attributes index  $F(1, 104) = 7.84$ ,  $p < .01$ . Consistent to the prediction of  $H_4$ , omitted attributes received a less favorable evaluation when the trip was paired with a colorful image (vs. a B/W image) ( $M_s = 4.04$  vs. 4.79) (see Figure 1). However, inconsistent to our prediction based on  $H_2$ , no main effect was found for verbal vividness ( $M_s = 5.31$  vs. 5.76  $F < 1$ ) (See Figure 2). This pattern of results suggest that imagery vividness increases sensitivity toward omissions and when omissions are noticed, consumers adjust evaluations in a more moderate direction. The absence of a main effect from verbal vividness on omitted attributes suggests that participants in the high (vs. low) verbal vividness condition are likely equally cognizant of omissions.

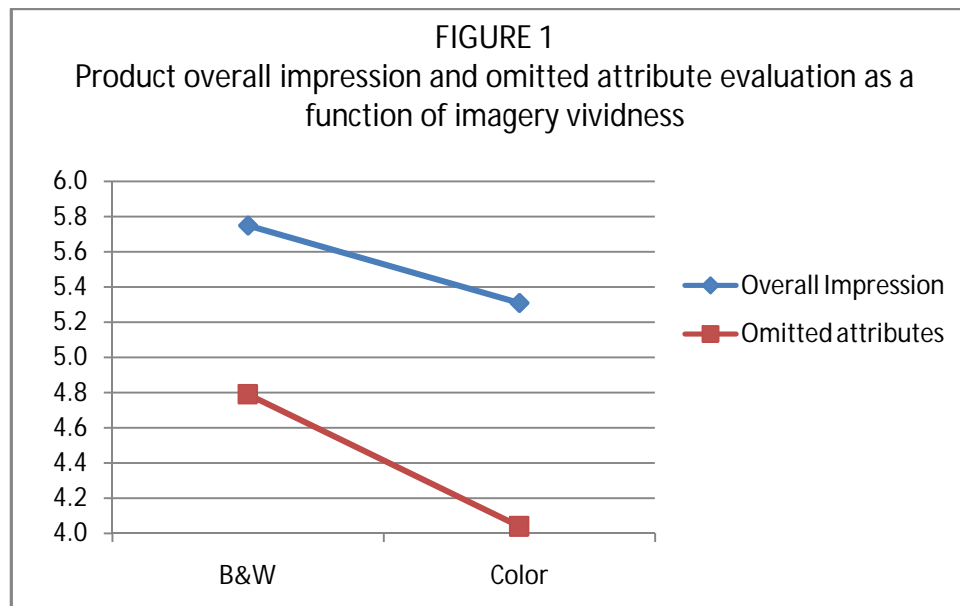
Therefore, the overall better impressions from the higher verbal concreteness previously found might be attributed to participants' preference for narrative-based (vs. nonnarrative-based) information (Schank & Abelson 1995) rather than to omission-related explanations. No interaction was found in the analysis.

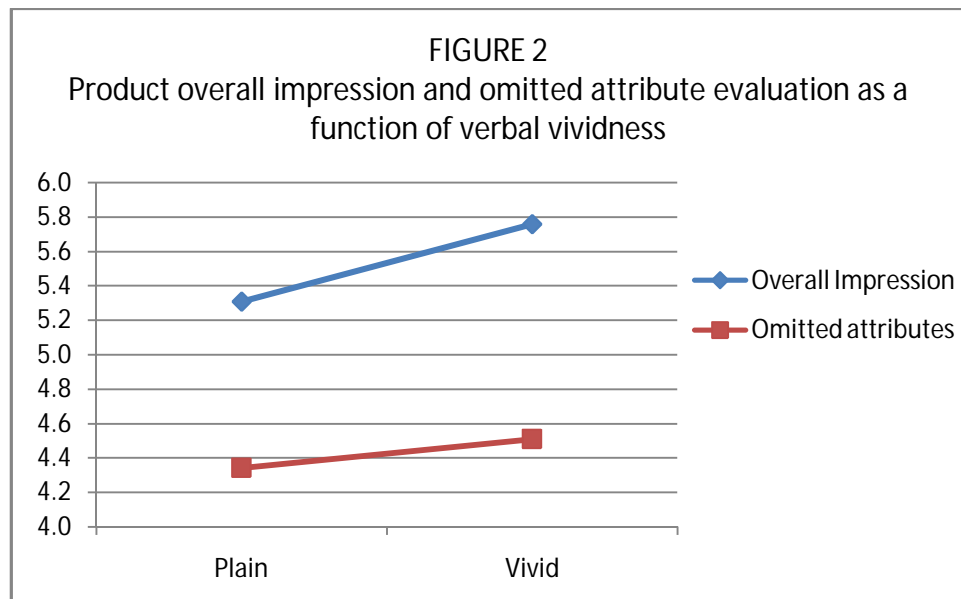
A strategy<sub>diff</sub> score was created by subtracting the self-reported piece-meal strategy score from holistic strategy score. A higher positive strategy<sub>diff</sub> score indicates a greater extent of using the holistic strategy (vs. piece-meal strategy). No main effect or interaction between imagery attractiveness and verbal vividness was found ( $p > .05$ ). The result suggests that verbal vividness does not lead to a greater tendency of using a holistic strategy over a piece-meal strategy to process information. Therefore, the result indicates that higher overall impressions made in the verbal vividness condition should not be attributed to participants' greater tendencies of using a holistic (vs. piece-meal) information processing strategy.

TABLE 1  
Overall Impression and Evaluation of Missing Attributes as a Function of Imagery Vividness and Verbal Vividness

	<i>Imagery vividness</i>		<i>Verbal vividness</i>	
	<i>B/W</i>	<i>Colorful</i>	<i>Feature-listing</i>	<i>Concrete</i>
Overall impression	5.75	5.31	5.31	5.76
Evaluation of omitted attributes	4.79	4.04	4.34	4.51

Note: Higher means indicate more favorable evaluation.





### 7. Discussion

Vividly presented information is characterized as “likely to attract and hold our attention and to excite the imagination to the extent that it is (a) emotionally interesting (b) concrete and imagery-provoking, and (c) proximate in a sensory, temporal, or spatial way” (Nisbett & Ross 1980, p.45). Consequently, vividly (vs. pallidly) presented information should influence product judgment due to increased accessibility of vivid information in memory. However, although empirical research has shown vividness effects on memory, vividness effects on judgment were not consistently found (for review see Taylor & Thompson 1980). Two lines of theories were offered to explain the obscured vividness effects in prior research. One derives from the resource-matching standpoint which is based on the premise that the presence of vividness effects is dependent on the cognitive resources available at the time of information processing (Keller & Block 1997; Kisielius & Sternthal 1984; Shedler & Manis 1986; Taylor & Thompson 1980). The second theory, proposed by Herr et al (1991), suggests that although memory mediates the vividness effect, the diagnosticity of vivid information moderates vividness effects.

In the present study, we proposed another explanation to the mixed vividness effects found in prior literature. We suggest that prior practice regarding imagery and verbal vividness as identical sources of vividness is problematic. The results in our experiment show that while verbal vividness often leads to more favorable evaluations of a product, imagery vividness can drive less favorable evaluations. This pattern of results also provides evidence for the contentions raised in prior literature that vividness can sometimes undermine persuasion (Frey & Eagly 1993). More importantly, the present research identifies the differential role played by imagery and verbal vividness in missing information detection. Although prior omission neglect research has found several variables that moderate consumers’ sensitivity toward omissions (Sanbonmatsu et al. 1991, 1992, 2003), little attention has been paid to the presentational characteristics of information and their influence on consumers’ sensitivity toward omissions. The present research shows that increasing imagery vividness can be another way to increase sensitivity toward missing information.

The role of verbal information on omissions remains rather unclear. Consistent to Adaval and Wyer’s findings, we find that verbal vividness leads to more favorable product evaluations. However, omitted attributes under the higher verbal vividness condition does not receive higher evaluations as predicted. Therefore, our data do not support the hypothesis that the more favorable evaluation under the higher verbal vividness condition is attributable to consumers’ decreased sensitivity toward omissions. Therefore, such a pattern of results might reflect participants’ preference for concrete (vs. abstract) verbal information. Additionally, although Adaval and Wyer found a greater tendency for consumers to adopt a holistic strategy (vs. piece-meal strategy) in processing narratives (vs. feature-listing) contexts, our data do not show that concrete verbal information facilitates holistic processing.



However, notice that one crucial difference between Adaval and Wyer's design and ours concerns the presence (vs. absence) of negative features in the product description. The narratives in Adaval and Wyer's paper include negative features whereas in our study, all presented and omitted attributes are favorable. Further research will examine the mechanism that underlies more favorable evaluations made under the circumstance of limited information when verbal concreteness is varied and when negative product features are embedded.

Our research also presents an important implication to marketers. That is, marketers' increasing effort to increase the vividness in visual communications with consumers may backfire. The counterintuitive results are brought by the potential that vivid imagery information encourages the detection of non-salient missing information. When missing information is noticed, product evaluations are adjusted toward a more moderate end. In the meantime, decision making may be based on "what's missing" rather than "what's present." Therefore, the positive (vs. negative) effects of vivid imagery are foreseen in circumstances when missing information is especially difficult to think of. Such circumstances might include the evaluation of brand leaders, product categories that consumers are not familiar with, or products with their unique selling points significantly lying in the visual appeals.

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