The Effect of Prices in Red on Mental Simulation

Daiki WAKAYAMA*

* Komazawa University, 1-23-1 Komazawa, Setagaya-ku, Tokyo 154-8525, Japan
dwakayama@komazawa-u.ac.jp

Abstract: The way a product is visually depicted facilitates more/less mental simulation. The imagination difficulty/ease of use of the product impacts on product evaluations such as purchase intentions. Although male consumers perceived greater savings (positive effect) when prices were presented in red, little is known about the impact of price color on mental simulation. This study discusses the effect of prices in red and the effect of visual depiction on mental simulation and product evaluation. This research revealed that there was a discouraging effect of prices in red on mental simulation by right-handed women and their evaluations when the visual stimuli was a mismatch between the product orientation and their dominant hand (e.g., showing a picture of a kettle with the handle on the left).

Keywords: Price color, Visual depiction effect, Handedness, Mental simulation, Product evaluation

1. INTRODUCTION

Elder and Krishna (2012) have demonstrated that a match between product orientation and handedness (right/left) facilitates mental simulation more than a mismatch. When product images facilitated more mental simulation, people reported more spontaneous using simulations and higher purchase intentions for the product. Imagination difficulty/ease of product usage impacts on product evaluations (e.g. Zhao, et al., 2012). This phenomenon was called the “visual depiction effect”. People seem to process the product images of orientation as a heuristic cue in evaluation.

Puccinelli et al. (2013) have shown that men perceived greater savings when prices were presented in red than when presented in black, whereas women did not. This phenomenon was called the “effect of red price”. As discussed by Puccinelli et al. (2013), men seem to process price information less in-depth and use the color of red as a visual heuristic to judge savings. In contrast, when the prices were presented in red, women appear more skeptical of the promotion and perceive fewer savings.

Therefore, it is logical to expect women to perceive difficulty imaging using a visually depicted product with price in red in the mismatch condition in which the product is oriented toward the participant’s non-dominant hand. We anticipate right-handed women report less mental simulation lead to lower user-friendliness when visual stimuli containing prices in red orienting the product toward the participant’s left hand. The purpose of this study is to provide a demonstration that the influence of price color on mental simulation and product evaluation provided by female participants.

2. METHOD

One hundred sixty-two undergraduate students at a private university in Tokyo were recruited to participate in this study. They were assigned to one of four conditions (right black, right red, left black, and left red). Participants were told that they would be evaluating an electric product on several dimensions. They were instructed to view the image and a brief amount of verbal copy before proceeding to answer questions about the product. The stimuli for this study were created by taking an image of an electric kettle with a handle on one side. The picture of the kettle was a black and white photo and which was flipped over a vertical axis to create a mirror image of the kettle without logo marks. Thus, the handle was on either the right or the left side of the kettle. In addition to the image, the stimuli included a price (3,480 yen, price color: red or black; see fig. A1- fig. A4 in the appendix A) presented with the image and a short description of the product (the verbal copy was T-fal Electric Kettle, Justin Plus 1.2l, Body Weight: 970g, Rated Power Consumption: 1250W, Energy saving because keep warm function is not included.). The price and the product information used were based on a price list of Amazon.com at the time of this survey (July 2015).

After viewing the image and reading the product information, participants were asked to evaluate the picture of the kettle on the extent to which they could feel that the product was user-friendly (1 = very user-friendly; 11 = not at all user-friendly). Participants also evaluated
the picture of the kettle on the extent to which they agreed with the statement "I had no difficulty imagining using the kettle in my mind" (1 = strongly agree; 11 = strongly disagree) which scale was used as one of three measures of an ease of mental simulation scale (reverse coded) by Elder and Krishna (2012). They were assessed using eleven-point scales. Each scale was used a single-item measure for simplicity. Finally, participants provided basic demographic information by indicating their gender and age, as well as their handedness (right- or left-handed). As suggested in the previous studies, price color and product orientation were key difference variables which can affect processing visual information and evaluating product (user-friendliness). Visual stimuli with prices in red should lead female participants to process it more deeply and more skeptical than visual stimuli with prices in black. A match between product orientation with a price in red and handedness should affect mental simulation more than a mismatch for female participants. That is, if the orientation was directed to the right and the participant was right-handed (coded as a match), participants' perceived user-friendliness of the product will be affected by facilitated mental simulation than a mismatch condition.

3. RESULTS

Of the 162, 67 (41.4%) were men, 94 (58.0%) were female participants, 16 (9.9%) were left-handed.

3.1 Red price effect on imagination difficulty for right-handed female participants

A 2 (orientation: right or left) × 2 (price color: red or black) between-subjects ANOVA with orientation and color as the independent variables and imagination difficulty as the dependent variable revealed a significant two-way interaction between the two factors ($F(1,79) = 4.232, p = .043 < .05$, partial $\eta^2 = 0.051$). The analysis revealed that right-handed female participants under the mismatch condition perceived more difficulty of imagination when the price was presented in red than in black ($M_{Right-Black} = 4.61; M_{Right-Red} = 4.19; M_{Left-Black} = 3.83; M_{Left-Red} = 5.35$; see Table 1 and Figure 3.1). However, neither the main effect of orientation nor the main effect of price color was significant ($M_{Right} = 4.38; M_{Left} = 4.73; F(1,79) = 0.162, p = .689 n.s., M_{Black} = 4.22; M_{Red} = 4.83; F(1,79) = 1.35, p = .249 n.s.$). The results confirm that there was no red price effect on making evaluations of an imagination difficulty of using the kettle when the orientation matched participant's dominant hand. The results show that the imagination difficulties of using a product was negatively affected by the price color of red in the mismatch condition.

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Color</th>
<th>$n$</th>
<th>Mean</th>
<th>S.D</th>
<th>95% CI LL</th>
<th>95% CI UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
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<td>18</td>
<td>4.61</td>
<td>2.43</td>
<td>3.40</td>
<td>5.82</td>
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<tr>
<td></td>
<td>Red</td>
<td>21</td>
<td>4.19</td>
<td>2.23</td>
<td>3.18</td>
<td>5.20</td>
</tr>
<tr>
<td>Left</td>
<td>Black</td>
<td>18</td>
<td>3.83</td>
<td>1.65</td>
<td>3.01</td>
<td>4.66</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>26</td>
<td>5.35</td>
<td>2.08</td>
<td>4.51</td>
<td>6.19</td>
</tr>
</tbody>
</table>

Table 1: Means and standard deviations of right-handed female perceptions of imagination difficulty

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

Figure 3.1: Perceived difficulties of imagination

3.2 Red price effect on imagination difficulty for right-handed male participants

A 2 × 2 between-subjects ANOVA with orientation and color as the independent variables and imagination difficulty as the dependent variable revealed neither significant main effects nor a significant two-way interaction effect of orientation and color of price on perceived user-friendliness among men (Table 2).

<table>
<thead>
<tr>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
</tr>
<tr>
<td>Black</td>
</tr>
<tr>
<td>Immaginal difficulty</td>
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<tr>
<td>User-friendliness</td>
</tr>
</tbody>
</table>

Table 2: Analysis of variance results for imagination difficulty and user-friendliness among male participants

NOTE: Male participants
- a. Eleven-point scales (1 = “strongly agree”; 11 = “strongly disagree”).
- b. Eleven-point scales (1 = “very user-friendly”; 11 = “not at all user-friendly”).
- *Significant at .05. **Significant at .01. ***Significant at .001. n.s. Not Significant
3.3 Red price effect on user-friendliness for right-handed female participants

A 2 × 2 between-subjects ANOVA with orientation and color as the independent variables and user-friendliness as the dependent variable revealed a significant two-way interaction between the two factors ($F(1,79) = 4.196$, $p = .044 < .05$, partial $\eta^2 = 0.050$). Further, examination of the nature of the interaction revealed that right-handed female participants under the mismatch condition (if the orientation was directed to the left) perceived less user-friendliness when the price was presented in red than when it appeared in black ($M_{\text{Right-Black}} = 4.06; M_{\text{Right-Red}} = 3.77; M_{\text{Left-Black}} = 3.89; M_{\text{Left-Red}} = 5.12$, see Table 3). Figure 3.2 graphically presents the means. In contrast, neither the main effect of orientation nor the main effect of price color was significant ($M_{\text{Right}} = 3.90; M_{\text{Left}} = 4.61; F(1,79) = 2.522, p = .116 > .05$; n.s., $M_{\text{Black}} = 3.97; M_{\text{Red}} = 4.50; F(1,79) = 1.622, p = .207 > .05$: n.s.). This result suggests that there was no red prices effect on making evaluations of a user-friendliness when the orientation matched participant’s dominant hand. In the mismatch condition, female participants’ perceived user-friendliness negatively with the price color was red.

### Table 3: Means and standard deviations of right-handed female perceptions of user-friendliness

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Color</th>
<th>n</th>
<th>Mean</th>
<th>S.D.</th>
<th>95% CI LL</th>
<th>95% CI UL</th>
</tr>
</thead>
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<tr>
<td>Right</td>
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<td>1.68</td>
<td>3.20</td>
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<tr>
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<td>26</td>
<td>5.12</td>
<td>1.45</td>
<td>4.53</td>
<td>5.70</td>
</tr>
</tbody>
</table>

Note. CL=confidence interval; LL=lower limit; UL=upper limit.

![User-friendliness diagram](image)

**Figure 3.2:** User-friendliness

3.4 Red price effect on user-friendliness for right-handed male participants

A 2 × 2 between-subjects ANOVA with orientation and color as the independent variables and user-friendliness as the dependent variable revealed neither significant main effects nor a significant two-way interaction effect of orientation and color of price on perceived user-friendliness among men (Table 2).

4. DISCUSSION

The results demonstrate that female participants reported less mental simulation and lower product evaluations when visual stimuli with a price in red in the mismatch condition (orienting the product toward the participant’s left hand) when compared with the price in black, whereas they did not in the match condition. The findings are consistent with our reasoning that when processing the visual stimuli with red color prices within the negatively depicted condition (mismatch), it will lead to a less thorough processing and a negative impact on mental simulation, especially for rating a user-friendly product. Evidence suggests that prices in red play a role for female imaging activities as a discouraging effect. Future research is needed to understand the nature of the effect of red prices on consumers’ information processing and judgment.

APPENDIX

**STIMULI (a set of picture and price) USED IN THIS STUDY**

1: Left Black 2: Left Red 3: Right Black 4: Right Red

[¥3,480] [¥3,480] [¥3,480] [¥3,480]

REFERENCES

