

LET THE LOGO DO THE TALKING:
THE INFLUENCE OF LOGO DESCRIPTIVENESS ON BRAND EQUITY

WEB APPENDICES

Note: All the articles cited in these web appendices are referenced at the end of this document

WEB APPENDIX A: STUDY 1 — REPLICATION STUDIES

In Study 1, we manipulated logo descriptiveness (less vs. more) and showed that more descriptive logos elicited stronger impressions of authenticity because such logos are easier to process. We conducted two replication studies to show the generalizability, robustness, and validity of these results. The objective of the first replication study was to reproduce these results using different stimuli. The objective of the second replication study was to reproduce these results by manipulating (vs. measuring) the ease with which logos could be processed.

Replication Study 1: Stimuli and Pretest

We created two pairs of logos, one for a supermarket chain and the other for a producer of fruits. These logos are presented after the “Results and Discussion” section below. Each pair included a more descriptive logo and a similar, less descriptive counterpart. The more descriptive logo of each pair included either a shopping cart or a fruit tree, two design elements indicative of the type of product offered by supermarket chains and producers of fruits, respectively. To create the less descriptive logos, we made these two design elements less identifiable by removing the wheels of the shopping cart and replacing the foliage of the tree by a black circle. A two-part pretest ($n = 80$), similar to the pretest described in Study 1, confirmed that the two logos of each pair were perceived to be equally symmetrical, complex, likable, familiar, and dynamic ($ps > .10$), and that the more descriptive logo was perceived to be significantly more descriptive than its less descriptive counterpart ($ps < .02$).

Replication Study 1: Method and Measures

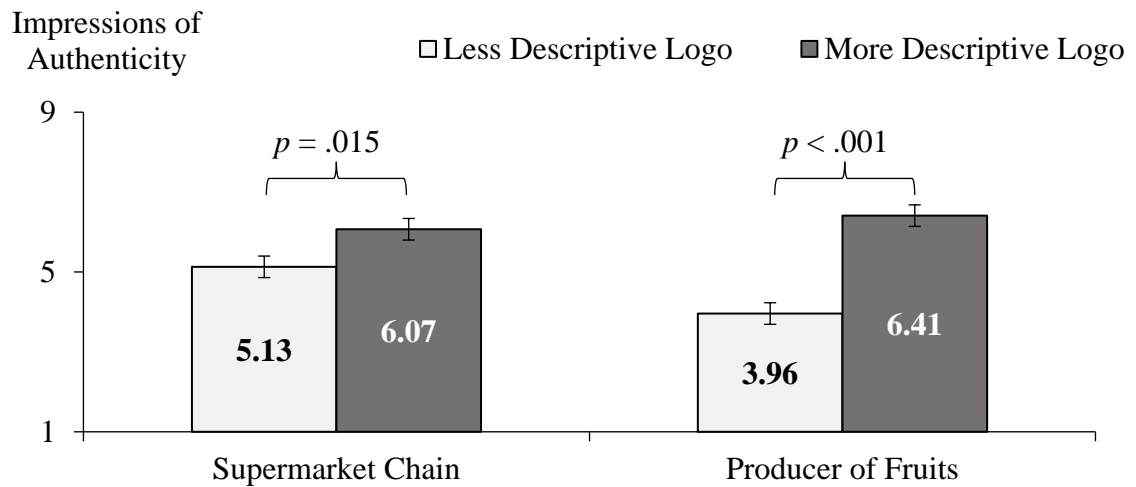
One hundred sixty individuals ($M_{\text{age}} = 38$ years; 42% female) recruited on MTurk participated in this study. We randomly assigned them to one of the four conditions of a 2 (logo descriptiveness: less vs. more) \times 2 (replicates: supermarket chain vs. producer of fruits) between-

participant experiment. We manipulated logo descriptiveness and replicates using the stimuli described previously. Specifically, we presented either the logo that included a shopping cart or the one that included the cart without wheels to the participants who were informed they would be shown the logo of a supermarket chain. We presented either the logo that included a fruit tree or the one that included a black circle in place of the tree's foliage to the participants who were informed that they would be shown the logo of a fruit producer. After participants saw their assigned logo, they rated the extent to which it elicited impressions that the brand was authentic on three nine-point scales ($\alpha = .94$) identical to those used in Study 1.

Replication Study 1: Results and Discussion

We conducted a 2×2 between-participant ANOVA with logo descriptiveness and replicates as fixed factors, and logo-elicited impressions of authenticity as the dependent variable. Replicating the results of Study 1 and providing additional support for H_{1a}, the results revealed a significant main effect of logo descriptiveness on impressions of authenticity. Specifically, the more descriptive logos elicited stronger impressions of authenticity ($M = 6.24$) than the less descriptive logos ($M = 4.55$; $F(1, 156) = 39.88, p < .001$). The main effect of replicates was not significant ($p > .10$). The logo descriptiveness \times replicates interaction was significant ($F(1, 156) = 7.96, p = .005$), indicating that the magnitude of the effect of logo descriptiveness on impressions of authenticity varied as a function of the specific replicate. However, for both replicates, the planned contrasts displayed in the figure that follows showed that the more descriptive logo elicited significantly stronger impressions of authenticity than its less descriptive counterpart ($ps < .02$).

Replication Study 1: Planned Contrasts and Stimuli



Notes. The more (less) descriptive logo version is on the right (left).

Replicate 1. Supermarket Chain



Replicate 2. Producer of Fruits



Replication Study 2: Stimuli and Pretest

For this replication study, we used the two more descriptive logos used in Study 1, which are available in the paper's Appendix. Following an established method to manipulate the ease with which stimuli can be processed (Reber and Schwarz 1999; Thompson and Ince 2013;

Unkelbach 2007), we manipulated the figure-ground contrast of these two descriptive logos. The easier-to-process (harder-to-process) versions were presented in high (low) figure-ground contrast. Although our theoretical development suggests that more (vs. less) descriptive logos are more conceptually fluent, we used a manipulation of perceptual fluency in this study because perceptual and conceptual fluency often have parallel effects on evaluative judgements and manipulations of both types of fluency often lead to the same experience of ease of processing (Lee and Labroo 2004; Reber, Wurtz, and Zimmermann 2004).

Replication Study 2: Method and Measures

One hundred seventy-four individuals ($M_{\text{age}} = 34$ years; 39% female) recruited on MTurk participated in this study. We randomly assigned them to one of the four conditions of a 2 (figure-ground contrast: low vs. high) $\times 2$ (replicates: basketball equipment manufacturer vs. running shoe brand) between-participant experiment. We manipulated figure-ground contrast and replicates using the stimuli described previously. After participants saw their assigned descriptive logo, they rated the extent to which it elicited impressions that the brand was authentic on three nine-point scales ($\alpha = .90$) identical to those used in Study 1.

Replication Study 2: Results and Discussion

We conducted a 2×2 between-participant ANOVA with figure-ground contrast and replicates as fixed factors, and impressions of authenticity as the dependent variable. The results of this analysis provide additional evidence for the underlying effect of ease of processing. Specifically, we found a main effect of figure-ground contrast: the descriptive logos presented in high figure-ground contrast elicited stronger impressions of authenticity ($M = 5.86$) than the descriptive logos presented in low figure-ground contrast ($M = 5.17$; $F(1, 170) = 8.47, p = .004$). No other effects were statistically significant.

WEB APPENDIX B: STIMULI USED IN STUDY 2

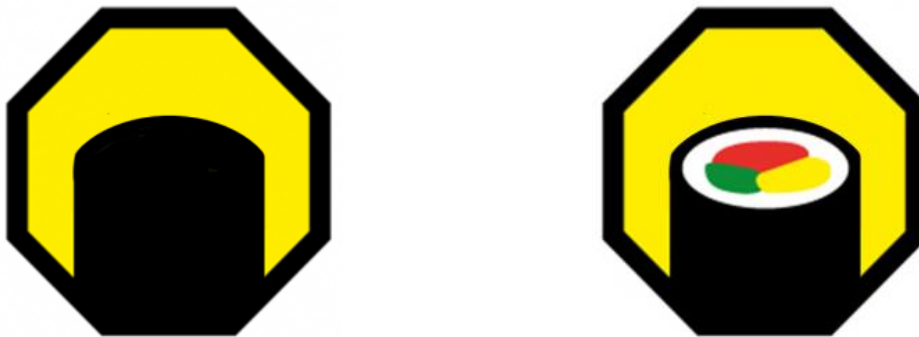
Notes. The more (less) descriptive logo version is on the right (left). The brand description is below the logos.

Replicate 1. Outdoor Gear Brand



This is the logo of an outdoor gear brand, which sells tents, fleece, jackets and other outdoor gear. This outdoor gear brand was established in 2002 in Austin, Texas. Since it opened, it has had the logo shown above.

Replicate 2. Sushi Restaurant



This is the logo of a sushi restaurant, which was established in 2002 in Austin, Texas. Since it opened, this sushi restaurant has had the logo shown above.

WEB APPENDIX C: PARAMETER ESTIMATES FOR THE DUMMY VARIABLES IN TABLE 1

| <i>Variables</i> | A – Mediator Variable Model (Impressions of Authenticity) | | | |
|--------------------------|--|------|-------|----------|
| | β | SE | t | <i>p</i> |
| <u>Shape dummies</u> | | | | |
| Rectangle | .29 | -.21 | 1.38 | .171 |
| Square | .18 | -.20 | .89 | .375 |
| Other shapes | .23 | -.25 | .92 | .357 |
| <u>Hue dummies</u> | | | | |
| Blue | -.29 | -.25 | -1.14 | .256 |
| Green | .17 | -.26 | .64 | .520 |
| Gray | -.38 | -.18 | -2.14 | .034 |
| Orange | -.14 | -.33 | -.42 | .675 |
| Pink | -.47 | -.35 | -1.35 | .180 |
| Red | -.43 | -.31 | -1.38 | .169 |
| Yellow | -.24 | -.35 | -.69 | .491 |
| Purple | -.49 | -.25 | -1.94 | .055 |
| Brown | -.32 | -.39 | -.81 | .419 |
| Other colors | -.58 | -.40 | -1.48 | .142 |
| <u>Logo type dummies</u> | | | | |
| Icon-only logo | .07 | -.14 | .51 | .609 |
| Wordmark | .11 | -.15 | .75 | .456 |
| <i>Variables</i> | B – Dependent Variable Model (Purchase Intentions) | | | |
| | β | SE | t | <i>p</i> |
| <u>Shape dummies</u> | | | | |
| Rectangle | .03 | -.15 | .18 | .858 |
| Square | -.03 | -.15 | -.18 | .855 |
| Other shapes | .03 | -.18 | .19 | .850 |
| <u>Hue dummies</u> | | | | |
| Blue | -.11 | -.19 | -.60 | .548 |
| Green | -.13 | -.19 | -.69 | .489 |
| Gray | -.24 | -.13 | -1.83 | .070 |
| Orange | -.10 | -.24 | -.43 | .665 |
| Pink | -.37 | -.26 | -1.42 | .159 |
| Red | .06 | -.23 | .26 | .794 |
| Yellow | -.10 | -.26 | -.39 | .699 |
| Purple | -.16 | -.19 | -.84 | .403 |
| Brown | .06 | -.29 | .20 | .841 |
| Other colors | .05 | -.29 | .18 | .860 |
| <u>Logo type dummies</u> | | | | |
| Icon-only logo | -.02 | -.10 | -.23 | .817 |
| Wordmark | -.11 | -.11 | -.99 | .325 |

WEB APPENDIX D: STUDY 3 — BOUNDARY CONDITION TEST LOGO TYPE

| | Model 1: Wordmark | | | | Model 2: Icon-Only Logo | | | |
|---------------------------------|--|--------------------|-------------|-------------|--|--------------------|-------------|-------------|
| | Panel A: Mediator Variable Model (Impressions of Authenticity) | | | | Panel A: Mediator Variable Model (Impressions of Authenticity) | | | |
| <i>Model summary</i> | R ² | Adj R ² | F | <i>p</i> | R ² | Adj R ² | F | <i>p</i> |
| | .38 | .27 | 3.49 | < .001 | .34 | .22 | 2.92 | < .001 |
| <i>Variables</i> | β | SE | t | <i>p</i> | β | SE | t | <i>p</i> |
| Constant | 4.00 | .56 | 7.18 | < .001 | 4.01 | .57 | 7.00 | < .001 |
| Descriptiveness (X) | .07 | .04 | 1.70 | .091 | .08 | .04 | 1.75 | .082 |
| Wordmark dummy (W) | .14 | .42 | .33 | .738 | | | | |
| Icon-only logo dummy (W) | | | | | .07 | .43 | .16 | .872 |
| X × W | .06 | .09 | .64 | .523 | .02 | .10 | .16 | .874 |
| Symmetry | .05 | .04 | 1.28 | .203 | .04 | .04 | 1.07 | .285 |
| Roundedness | -.02 | .03 | -.68 | .495 | -.01 | .03 | -.31 | .760 |
| Elaborateness | .02 | .05 | .33 | .741 | -.01 | .05 | -.20 | .842 |
| Repetition | -.09 | .05 | -1.89 | .061 | -.09 | .05 | -1.84 | .067 |
| Orientation | -.05 | .05 | -.82 | .411 | -.04 | .06 | -.64 | .524 |
| Proportion | .29 | .16 | 1.77 | .079 | .22 | .17 | 1.30 | .195 |
| Naturalness | .02 | .09 | .18 | .860 | -.06 | .09 | -.69 | .489 |
| Lightness | .00 | .00 | 1.74 | .084 | .00 | .00 | 1.74 | .084 |
| Saturation | .00 | .00 | -.91 | .363 | .00 | .00 | -1.22 | .223 |
| Liking | .34 | .07 | 5.15 | < .001 | .35 | .07 | 5.09 | < .001 |
| Shape dummies | Included | | | | Included | | | |
| Hue dummies | Included | | | | Included | | | |
| | Panel B: Dependent Variable Model (Purchase Intentions) | | | | Panel B: Dependent Variable Model (Purchase Intentions) | | | |
| <i>Model summary</i> | R ² | Adj R ² | F | <i>p</i> | R ² | Adj R ² | F | <i>p</i> |
| | .73 | .68 | 14.36 | < .001 | .73 | .67 | 14.26 | < .001 |
| <i>Variables</i> | β | SE | t | <i>p</i> | β | SE | t | <i>p</i> |
| Constant | -.33 | .49 | -.68 | .495 | -.28 | .48 | -.58 | .561 |
| Impressions of authenticity (M) | .89 | .06 | 14.35 | < .001 | .88 | .06 | 14.53 | < .001 |
| Descriptiveness (X) | -.03 | .03 | -.93 | .353 | -.03 | .03 | -.87 | .388 |
| Wordmark dummy (W) | .06 | .31 | .20 | .844 | | | | |
| Icon-only logo dummy (W) | | | | | .15 | .31 | .48 | .634 |
| X × W | -.04 | .07 | -.52 | .603 | -.05 | .07 | -.63 | .532 |
| Symmetry | .00 | .03 | -.14 | .890 | .00 | .03 | -.13 | .899 |
| Roundedness | -.01 | .02 | -.50 | .617 | -.01 | .02 | -.60 | .547 |
| Elaborateness | -.02 | .04 | -.47 | .640 | -.01 | .04 | -.33 | .742 |
| Repetition | -.01 | .04 | -.14 | .888 | .00 | .04 | -.12 | .903 |
| Orientation | .01 | .04 | .16 | .876 | .00 | .04 | .10 | .918 |
| Proportion | .08 | .13 | .61 | .540 | .09 | .12 | .75 | .456 |
| Naturalness | -.02 | .07 | -.31 | .760 | .00 | .07 | -.05 | .962 |
| Lightness | .00 | .00 | 1.25 | .212 | .00 | .00 | 1.25 | .215 |
| Saturation | .00 | .00 | -.69 | .488 | .00 | .00 | -.59 | .559 |
| Liking | .15 | .05 | 2.67 | .008 | .15 | .05 | 2.71 | .008 |
| Shape dummies | Included | | | | Included | | | |
| Hue dummies | Included | | | | Included | | | |

Notes. PROCESS Model 8. In both models, n = 174. The bolded variable (X × W) is the interaction effect of interest. Wordmark dummy: 0 = icon-only logo or mixed logo, and 1 = wordmark. Icon-only logo dummy: 0 = wordmark or mixed logo, and 1 = icon-only logo.

WEB APPENDIX E: PARAMETER ESTIMATES FOR THE DUMMY VARIABLES IN TABLE 2

| <i>Variables</i> | β | SE | t | <i>p</i> |
|----------------------------|---------|-----|-------|----------|
| <u>Hue dummies</u> | | | | |
| Blue | -.28 | .20 | -1.43 | .153 |
| Green | -.18 | .20 | -.91 | .362 |
| Gray | -.02 | .19 | -.12 | .902 |
| Orange | -.51 | .29 | -1.74 | .082 |
| Pink | -.07 | .45 | -.17 | .867 |
| Red | -.20 | .23 | -.87 | .384 |
| Yellow | -.37 | .27 | -1.34 | .180 |
| Purple | .05 | .30 | .17 | .864 |
| Brown | -.51 | .26 | -1.95 | .052 |
| Other colors | -.66 | .31 | -2.14 | .033 |
| <u>Orientation dummies</u> | | | | |
| Moves from left to right | .38 | .20 | 1.94 | .053 |
| Moves from right to left | .18 | .20 | .93 | .355 |
| <u>Shape dummies</u> | | | | |
| Rectangle | -.16 | .18 | -.93 | .353 |
| Square | -.17 | .17 | -1.00 | .317 |
| Triangle | -.53 | .25 | -2.14 | .033 |
| Other shapes | .08 | .20 | .40 | .693 |
| <u>Logo type dummies</u> | | | | |
| Icon-only logo | .04 | .10 | .42 | .673 |
| Wordmark | -.01 | .07 | -.21 | .831 |

WEB APPENDIX F: EXPLORATORY STUDY — THE EFFECT OF LOGO TYPE

The objective of this study was to examine whether logo type (i.e., wordmark vs. icon-only logo vs. mixed logo) can affect perceived logo descriptiveness in a controlled setting.

Stimuli, Method, and Measures

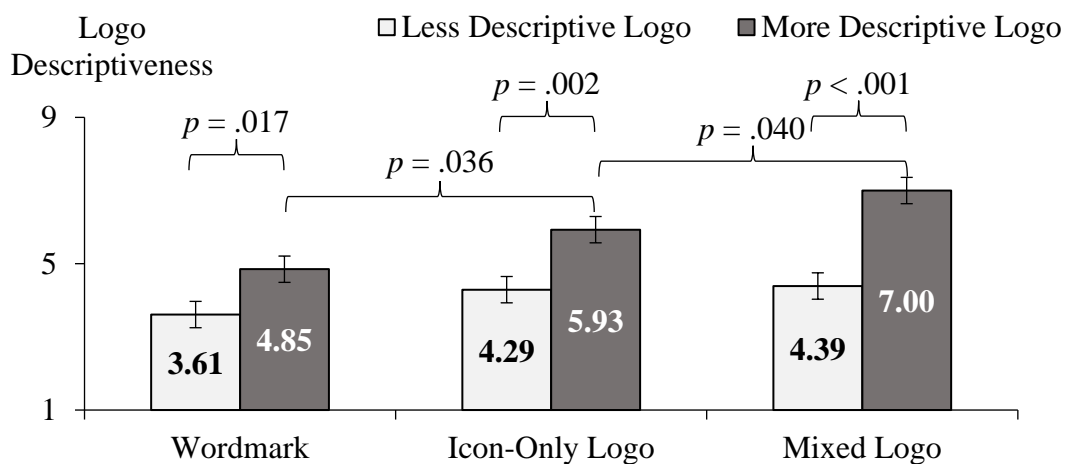
We created three pairs of logos for a pencil manufacturer we called “Noxu.” One pair consisted of a more and a less descriptive wordmark. The more descriptive wordmark was created by adding the word “pencils” to the less descriptive “Noxu” wordmark. One pair consisted of a more and a less descriptive icon-only logo. The more descriptive icon-only logo included a pen. To create the less descriptive icon-only logo we replaced the tip of the pencil with a semi-squircle. The last pair consisted of a more and a less descriptive mixed logo. The more descriptive mixed logo was constructed by merging the more descriptive wordmark with the more descriptive icon-only logo. The less descriptive mixed logo was constructed by merging the less descriptive wordmark with the less descriptive icon-only logo. These logos are presented at the end of this web appendix.

Two hundred forty participants ($M_{\text{age}} = 39$ years; 45% female) recruited on MTurk participated in this study. We randomly assigned them to one of the six conditions of a 2 (logo descriptiveness: less vs. more) \times 3 (logo type: wordmark vs. icon-only logo vs. mixed logo) between-participant experiment and told them that they would have to evaluate the logo of a pencil manufacturer. Logo descriptiveness and type were manipulated using the stimuli described previously. After participants viewed their assigned logo, they indicated the extent to which the logo was descriptive of the type of product marketed by the target brand (1 = not descriptive at all, and 9 = very descriptive).

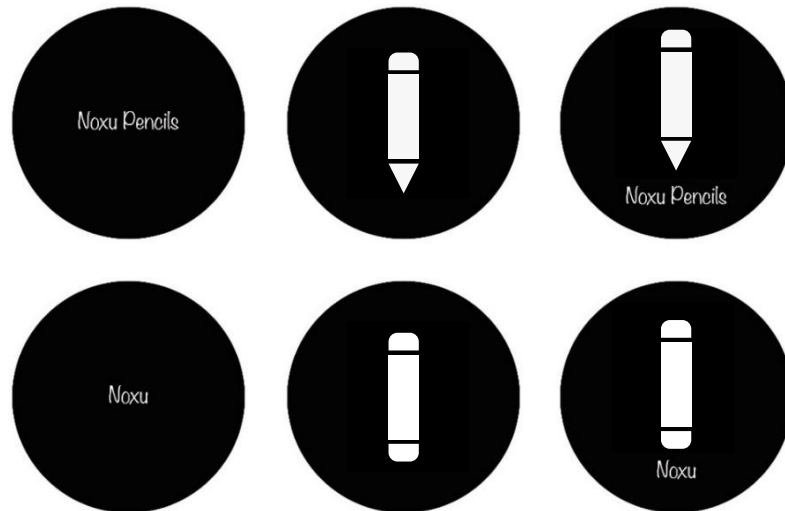
Analyses, Results, and Discussion

We conducted a 2×3 between-participant ANOVA with logo descriptiveness and logo type as fixed factors, and logo descriptiveness as the dependent variable. As expected, we found that the more descriptive logos ($M = 5.93$) were rated to be more descriptive than the less descriptive logos ($M = 4.10$; $F(1, 234) = 37.33, p < .001$). Interestingly, there was a significant main effect of logo type ($F(1, 234) = 8.11, p < .001$). The logo descriptiveness \times logo type interaction was not significant $F(1, 234) = 1.84, p > .15$). The figure below shows the planned contrasts. These contrasts revealed that the descriptive mixed logo ($M = 7.00$) was rated as more descriptive than the descriptive icon-only logo ($M = 5.93$; $F(1, 234) = 4.26, p = .040$), which was rated as more descriptive than the descriptive wordmark ($M = 4.85$; $F(1, 234) = 4.43, p = .036$). The results of this exploratory study indicate that mixed logos might be more effective at generating descriptiveness than icon-only logos, which are more effective at generating descriptiveness than wordmarks. These results might occur because visual elements can be easier to process than textual elements, and descriptive logos that include both a textual and a visual design are more conceptually fluent than descriptive logos that include either of these two types of elements. These effects might also occur because visual elements are more effective at capturing attention and generating more concrete and vivid visual imagery than textual element (Childers and Houston 1984; Pieters and Wedel 2004).

Planned Contrasts and Stimuli



Notes. The more descriptive logos are above the less descriptive logos. The wordmarks are to the left of the icon-only logos. The icon-only logos are to the left of the mixed logos.



WEB APPENDIX G: STUDY 3 — ADDITIONAL ANALYSES

Logo liking. Individuals can have more favorable attitudes towards stimuli that are easier-to-process (Alter and Oppenheimer 2009; Reber, Schwarz, and Winkielman 2004). An alternative explanation to our findings could thus be that more (vs. less) descriptive logos positively affect purchase intentions because they are liked more. We conducted a mediation analysis like the one reported in Table 1 to test this alternative account. However, instead of using impressions of authenticity as the mediator, we used ratings of logo liking. Impressions of authenticity was included as a control variable. Inconsistent with this alternative explanation, logo descriptiveness did not predict logo liking ($\beta = .05$; $t(145) = 1.13$, $p > .25$). The experiments reported in our paper provide additional evidence that logo liking is unlikely to underlie the effect of logo descriptiveness, as pretests showed that the more and less descriptive logos of each logo pair we used as stimuli did not significantly differ in liking.

Brand personality. Participants who provided purchase intentions and authenticity ratings also rated their impressions of excitement, sincerity, competence, sophistication, and ruggedness (each measured on a nine-point scale; 1 = not at all, and 9 = very; adapted from Aaker 1997). We used these ratings in three sets of analyses. First, we performed five mediation analyses like the one reported in Table 1. However, instead of using impressions of authenticity as the mediator, we used these five brand personality impressions. Ruling out these impressions as alternative mechanisms, logo descriptiveness was not a significant predictor of any of these impressions ($ps > .35$). Next, we repeated the analysis reported in Table 1 controlling for these five brand personality impressions. Showing the robustness of our hypothesis-testing results, the results of this analysis mirrored those reported in Table 1: logo descriptiveness was significantly and positively associated with stronger impressions of authenticity ($\beta = .05$; $t(142) = 3.19$, $p = .002$), which in turn led to significantly higher purchase intentions ($\beta = .33$; $t(141) = 2.06$, $p = .041$). Finally, building on prior work, one

might expect logo descriptiveness to interact with brand personality. For example, as disfluency can increase expectations of competence (Thompson and Ince 2013), logo descriptiveness could interact with impressions of competence. Moreover, fluency can signal commonness when consumers desire exclusivity or possibly luxury (Pocheptsova, Labroo, and Dhar 2010). As such, descriptiveness could interact with impressions of sophistication. We thus explored the interaction of logo descriptiveness with these five brand personality impressions in five separate mediated moderation regression analyses. In these analyses, impressions of authenticity was the mediator and purchase intentions the dependent variable. Neither of the five logo descriptiveness \times brand personality impression interactions had a significant effect on impressions of authenticity ($ps > .16$) or purchase intentions ($ps > .19$).

Inverted U-shaped relationship. Higher levels of descriptiveness could negatively affect impressions of authenticity and purchase intentions. We tested this possibility by conducting a mediation analysis like the one reported in Table 1. However, we included the squared term of logo descriptiveness as an additional independent variable. The squared term of logo descriptiveness was not a significant predictor of impressions of authenticity and purchase intentions ($ps > .10$), demonstrating that there was no inverted U-shaped relationship between logo descriptiveness and consumer responses in this study.

WEB APPENDIX H: STIMULI USED IN STUDY 4

Notes. The more (less) descriptive logo version is on the right (left). The brand description is below the logos.



NEMI is a London-based tea company offering a variety of whole leaf tea blends as loose tea and in biodegradable tea pyramids along with a Chai Syrup for chai lattes, iced teas and chai cocktails.

Additional Notes. For readers' reference, Nemi's original logo (which was not used in Study 4) is displayed below.



WEB APPENDIX I: STIMULI USED IN STUDY 5

Notes. The more (less) descriptive logo version is on the right (left). The two versions of the brand description are below the logos. The default description is the description of the positively valenced product. The description of the negatively valenced product is shown in square brackets.



Topino Oil is a leading vegetable oil producer that produces and sells olive oil [palm oil] in over 60 countries.

WEB APPENDIX J: CODING INSTRUCTIONS FOR THE MEASURES USED IN STUDY 6

| Variable | Coding | Definitions |
|------------------|---|---|
| Descriptiveness | 0 = Not descriptive, 1 = Descriptive | Descriptive logos include design elements that are indicative of the type of product/service marketed by brands. |
| Symmetry | 0 = More Symmetrical, 1 = More Asymmetrical | Symmetrical logos consist of halves that are mirrored along a vertical, horizontal, or diagonal axis. ¹ |
| Roundedness | 0 = More Rounded, 1 = More Angular | Round logos are primarily made of curved lines and circular elements. Angular logos are primarily made of elements that have angles. ¹ |
| Complexity | 0 = Simpler, 1 = More Complex | Complex logos are intricate. Complexity can arise from many different logo design features such as irregularity in the arrangement of elements, increases in the number of elements, and heterogeneity in the nature of elements. ¹ |
| Depth | 0 = Does not give the appearance of perspective or 3D, 1 = Does give the appearance of perspective or 3D | Depth gives the appearance of perspective or of a three-dimensional logo. ¹ |
| Dynamism | 0 = Does not give the impression of motion or flow, 1 = Does give the impression of motion or flow | Dynamic logos are those that give the impression of motion or flow. ^{1 2} |
| Orientation | 0 = Seems to move from right to left, 1 = Seems to move from left to right, 2 = Does not seem to move in either direction | This dimension is related to dynamism: logos can seem to be moving from right to left or left to right. They can also seem to not be moving. ² |
| Repetition | 0 = The different parts of the logo tend to be dissimilar, 1 = The different parts of the logo tend to be similar | Repetition of elements occurs when the various elements constituting a logo are similar or identical to one another. ¹ |
| Naturalness | 0 = Absence of a natural element, 1 = Presence of a natural element | Natural logos are those that include elements that depicts commonly experienced things, such as a human face, a ball, a plant, and an animal. ¹ |
| Shape | 0 = Circle, 1 = Rectangle, 2 = Square, 3 = Triangle, 4 = Others | Shape is the form or outline of a logo. |
| Logo Type | 0 = mixed logo—those consisting of both a wordmark and an icon, 1 = icon-only logo, 2 = wordmark | An icon-only logo is a logo that consists only of a graphic mark, emblem, icon, or symbol, and that does include text. A wordmark is a logo that consists only of text (typically the name of a brand) and does not include any graphic mark, emblem, icon, or symbol. ³ |
| Color Saturation | Measured using Adobe Photoshop | Saturation is to the intensity of pigment in the most commonly used color in a logo. ⁴ |
| Color Lightness | Measured using Adobe Photoshop | Lightness is the extent to which the most commonly used color in a logo is bright (vs. dark). ⁴ |
| Color Hue | 0 = black, 1 = blue, 2 = green, 3 = gray, 4 = orange, 5 = pink, 6 = red, 7 = yellow, 8 = violet, 9 = brown, 10 = other colors | Hue is the aspect of color that is usually described as “blue,” “green,” “yellow,” etc. ⁴ The hue of the most commonly used color in a logo should be coded. |
| Proportion | Height divided by width (in cm) | Proportion is the ratio of height over width; in cm. ¹ |

Notes. ¹ Definitions adapted from Henderson and Cote (1998). ² Definitions adapted from Cian, Krishna, and Elder (2014). ³ Definitions adapted from Schechter 1993. ⁴ Definitions adapted from Gorn et al. (2004).

WEB APPENDIX K: STUDY 6 — BOUNDARY CONDITION TEST LOGO TYPE

| <i>Model summary</i> | Model 1: Wordmark | | | | Model 2: Icon-Only Logo | | | |
|--------------------------|------------------------------|--------------------|-------------|-------------|------------------------------------|--------------------|-------------|-------------|
| | R ² | Adj R ² | F | <i>p</i> | R ² | Adj R ² | F | <i>p</i> |
| | .86 | .85 | 68.86 | < .001 | .86 | .85 | 69.21 | < .001 |
| <i>Variables</i> | β | SE | t | <i>p</i> | β | SE | t | <i>p</i> |
| Constant | 1.08 | .36 | 2.98 | .003 | 1.10 | .36 | 3.03 | .003 |
| Descriptiveness (X) | .13 | .07 | 1.76 | .079 | .11 | .06 | 1.68 | .095 |
| Wordmark dummy (W) | -.02 | .08 | -.24 | .811 | | | | |
| Icon-only logo dummy (W) | | | | | -.03 | .11 | -.28 | .783 |
| X × W | -.01 | .12 | -.06 | .956 | .23 | .19 | 1.26 | .210 |
| Advertising intensity | -1.82 | .68 | -2.69 | .007 | -1.79 | .67 | -2.65 | .008 |
| R&D intensity | -3.90 | 1.24 | -3.16 | .002 | -3.87 | 1.23 | -3.14 | .002 |
| Financial liquidity | .07 | .03 | 2.87 | .004 | .07 | .02 | 2.91 | .004 |
| Total assets | .78 | .03 | 25.46 | < .001 | .78 | .03 | 25.39 | < .001 |
| Brand age | .04 | .04 | .81 | .421 | .04 | .04 | .85 | .396 |
| Product-market profile | .44 | .06 | 7.24 | < .001 | .44 | .06 | 7.27 | < .001 |
| Symmetry | -.06 | .14 | -.47 | .640 | -.08 | .14 | -.58 | .559 |
| Roundedness | .12 | .08 | 1.60 | .111 | .12 | .08 | 1.61 | .109 |
| Complexity | -.08 | .07 | -1.17 | .244 | -.07 | .07 | -1.01 | .313 |
| Depth | -.01 | .07 | -.16 | .871 | -.01 | .07 | -.15 | .879 |
| Dynamism | -.08 | .09 | -.94 | .349 | -.08 | .09 | -.93 | .355 |
| Repetition | -.07 | .07 | -1.05 | .294 | -.07 | .07 | -1.07 | .285 |
| Naturalness | .01 | .09 | .14 | .892 | .02 | .08 | .19 | .849 |
| Proportion | .08 | .10 | .76 | .447 | .08 | .10 | .73 | .465 |
| Lightness | .00 | .00 | .63 | .529 | .00 | .00 | .63 | .528 |
| Saturation | .00 | .00 | 1.15 | .253 | .00 | .00 | 1.01 | .311 |
| Hue dummies | | Included | | | | Included | | |
| Orientation dummies | | Included | | | | Included | | |
| Shape dummies | | Included | | | | Included | | |

Notes. In both models, $n = 423$ and the dependent variable is sales (Compustat item: sale; log transformed).

The bolded variable ($X \times W$) is the interaction effect of interest. Wordmark dummy: 0 = icon-only logo or mixed logo, and 1 = wordmark. Icon-only logo dummy: 0 = wordmark or mixed logo, and 1 = icon-only logo.

WEB APPENDIX L: STUDY 6 — ADDITIONAL ANALYSES

R&D and advertising. R&D and advertising data are often missing in the Compustat database. Following established practices (see Koh and Reeb 2015), we set missing values for R&D and advertising expenditures to zero before creating our advertising intensity and R&D intensity measures. Because this approach might occasionally lead to biased results, we checked the robustness of our findings using a method proposed by Koh and Reeb (2015). Specifically, we created a dummy variable that indicated whether R&D expenditures were missing or not for a given brand in the Compustat database. When R&D expenditures were missing, we set a brand's R&D intensity to the average reported R&D intensity within the brand's industry (two-digit sic). We created a similar dummy variable for missing advertising expenditures and modified our advertising intensity measure in a similar way. We repeated the analysis presented in Table 2 using these two dummy variables and the two modified R&D intensity and advertising intensity measures as control variables. Indicating that our results are robust to the treatment of missing R&D and advertising data, the effect of logo descriptiveness on sales remained significant and positive ($\beta = .10$; $t(385) = 2.00$, $p = .046$).

Product-market profile. We repeated the analysis presented in Table 2, including the logo descriptiveness \times product-market profile (goods vs. services brand) interaction term as an independent variable. This interaction was not significant ($\beta = .09$; $t(386) = .74$, $p > .45$), indicating that, in this specific study, the effect of logo descriptiveness did not vary significantly between service and goods brands.

Brand age. We performed a correlation analysis between brand age and logo descriptiveness and found that these two variables correlated negatively ($r(421) = -.24$, $p < .001$). This indicates that, in our sample, older firms had less descriptive logos than newer firms, and could indicate that logos tend to become less descriptive as brands grow older. Next, we performed a regression analysis like the one reported in Table 2 but with the logo

descriptiveness \times brand age interaction term as an additional explanatory variable. This term was not significant ($\beta = -.00$; $t(386) = -.09$, $p > .90$), indicating that the effect of logo descriptiveness is statistically equivalent for newer and older brands. Study 4 complements these results by demonstrating the moderating effect of brand familiarity in a controlled setting.

Managers' abilities. A potential alternative account to our findings is that the positive effect of logo descriptiveness on financial performance is not caused by logo descriptiveness per se but rather by brands with better marketing managers having opted for more descriptive logos. To test this account, we repeated the analysis presented in Table 2, including a measure of brands' return on marketing spending (ROMS) as an additional control variable. Presumably, brands with better (vs. worse) marketing managers enjoy a higher ROMS. Following prior work (Luo 2008), we computed ROMS as the ratio of sales to selling, general, and administrative expense (SG&A) minus R&D expenditures (Compustat items: $\text{sale} / (\text{xsga} - \text{xrd})$). Suggesting that managers' abilities did not confound our results, the effect of logo descriptiveness on sales remained significant and positive ($\beta = .14$; $t(370) = 2.35$, $p = .019$) when we controlled for ROMS.

WEB APPENDIX M: LOGO-BRAND CONGRUENCE POSTTEST

In the “General Discussion” section of our manuscript, we discuss how logo descriptiveness differs from logo-brand congruence. In this web appendix, we report a posttest that provides empirical evidence that these two constructs can be empirically distinct.

Stimuli, Method, and Measures

Two hundred sixty individuals ($M_{\text{age}} = 35$ years; 56% female) recruited on MTurk participated in this study. Each participant was shown one of the logo used as stimuli in our studies (we used twelve logo pairs, each formed of a more and a less descriptive logo) and explicitly told what type of brand the logo belonged to (e.g., a supermarket chain and a sushi restaurant). Then, we measured participants’ perceptions of logo-brand congruence on two nine-point scales (1 = very poor fit/very inappropriate, and 9 = very good fit/very appropriate; Krishna, Elder, and Caldara 2010), which we average into a single measure ($r = .87$).

Analyses, Results, and Discussion

As shown by the pretests we report at the beginning of each study, one logo of each pair was perceived to be significantly more descriptive than the other. However, as shown by the results of this posttest reported in the table below, the two logos of each pair most often did not significantly differ in perceived logo-brand congruence. These results indicate that while logo descriptiveness and logo-brand congruence can correlate, these two constructs are also empirically distinct. These results also demonstrate that alternative accounts based on logo-brand congruence are unlikely to explain the results of our studies.

Table — Mean Ratings of Logo-Brand Congruence

| | Mean ratings of logo-brand congruence | | |
|---|---------------------------------------|-----------------------|----------|
| | Less Descriptive Logo | More Descriptive Logo | <i>p</i> |
| <u>Study 1</u> | | | |
| Basketball Equipment Manufacturer | 5.14 | 5.60 | .418 |
| Running Shoe Brand | 6.43 | 5.77 | .276 |
| <u>Study 2</u> | | | |
| Outdoor Gear Brand | 6.59 | 7.02 | .475 |
| Sushi Restaurant | 3.43 | 5.79 | <.001 |
| <u>Study 4</u> | | | |
| Tea Company | 6.05 | 6.16 | .885 |
| <u>Study 5</u> | | | |
| Olive Oil Producer | 5.28 | 6.00 | .132 |
| Palm Oil Producer | 4.58 | 5.27 | .108 |
| <u>Replication Study (Web Appendix A)</u> | | | |
| Supermarket Chain | 6.62 | 6.34 | .663 |
| Producer of Fruits | 3.22 | 6.50 | <.001 |
| <u>Exploratory Study (Web Appendix F)</u> | | | |
| Wordmark | 4.48 | 4.49 | .980 |
| Icon-only logo | 4.15 | 6.02 | <.001 |
| Mixed logo | 4.14 | 6.58 | <.001 |

WEB APPENDIX N: WHICH TYPE OF LOGOS DO BRANDS USE?

To examine whether brands are more inclined to use more or less descriptive logos, we conducted an analysis of the logos of the 597 brands included in the samples of Studies 3 (n = 174) and 6 (n = 423). To conduct this analysis, we first coded the 174 logos used in Study 3 as either descriptive or not, depending on whether the 1,303 American consumers we surveyed rated these logos above or below the midpoint of the nine-point scale used to measure logo descriptiveness (see Study 3). Then, we appended this variable to the binary ratings of logo descriptiveness for the 423 brands included in the sample of Study 6. A chi-square test revealed that while 246 (41%) of these 597 brands had a descriptive logo, 351 (59%) did not ($\chi^2(1, N = 597) = 18.47, p < .001$). These results suggest that marketing practitioners might not take advantage of the potential benefits of logo descriptiveness and show thus that the findings discussed in our paper offer insights that could help brands develop more effective logos.

WEB APPENDIX O: EXPLORATORY ANALYSES — LOGO DESCRIPTIVENESS × OTHER DESIGN CHARACTERISTIC INTERACTIONS

| Model 1: Impressions of Authenticity | | | | | Model 2: Purchase Intentions | | | |
|---|----------------|--------------------|--------------|-------------|---------------------------------|--------------------|--------------|-------------|
| <i>Model summary</i> | R ² | Adj R ² | F | <i>p</i> | R ² | Adj R ² | F | <i>p</i> |
| | .36 | .24 | 4.22 | < .001 | .73 | .68 | 18.04 | < .001 |
| <i>Variables</i> | β | SE | t | <i>p</i> | β | SE | t | <i>p</i> |
| Constant | 1.84 | 1.01 | 1.82 | .070 | -.90 | .57 | -1.59 | .115 |
| Descriptiveness (X) | .59 | .20 | 2.88 | .005 | .11 | .08 | 1.39 | .166 |
| Impressions of authenticity (M) | | | | | .88 | .07 | 13.56 | < .001 |
| Descriptiveness × orientation | -.09 | .03 | -2.64 | .009 | | | | |
| Descriptiveness × roundedness | | | | | -.03 | .01 | -2.03 | .044 |
| Symmetry | .04 | .04 | 1.08 | .280 | .00 | .03 | -.06 | .951 |
| Roundedness | -.02 | .03 | -.78 | .439 | .11 | .06 | 1.85 | .066 |
| Elaborateness | .00 | .06 | .07 | .948 | -.03 | .03 | -.78 | .434 |
| Repetition | -.10 | .04 | -2.62 | .010 | .00 | .04 | .00 | .998 |
| Orientation | .35 | .16 | 2.24 | .027 | -.01 | .04 | -.19 | .850 |
| Proportion | .22 | .16 | 1.42 | .157 | .10 | .12 | .82 | .413 |
| Naturalness | -.04 | .09 | -.38 | .705 | -.03 | .07 | -.44 | .664 |
| Lightness | .00 | .00 | 1.68 | .094 | .00 | .00 | 1.41 | .160 |
| Saturation | .00 | .00 | -1.63 | .105 | .00 | .00 | -1.00 | .321 |
| Liking | .38 | .07 | 5.37 | < .001 | .16 | .05 | 2.85 | .005 |
| Shape dummies | | Included | | | | Included | | |
| Hue dummies | | Included | | | | Included | | |
| Logo type dummies | | Included | | | | Included | | |

Notes. We repeated the analysis reported in Table 1, testing for all the possible interaction effects between logo descriptiveness and the thirteen logo design characteristics we used as control variables. The table above reports all the significant results these analyses yielded. Model 1 shows a significant logo descriptiveness × logo orientation interaction on impressions of authenticity. Model 2 shows a significant logo descriptiveness × logo roundedness interaction on purchase intentions (in Model 2, as in Table 1, the direct effect of logo descriptiveness on purchase intentions is not statistically significant when controlling for the mediator—impressions of authenticity). No other logo descriptiveness × design characteristic interaction was statistically significant.

WEB APPENDICES REFERENCES

- Aaker, Jennifer L. (1997), "Dimensions of Brand Personality," *Journal of Marketing Research*, 34 (August), 347-56.
- Alter, Adam L. and Daniel M. Oppenheimer (2009), "Uniting the Tribes of Fluency to Form a Metacognitive Nation," *Personality and Social Psychology Review*, 13 (August), 219-35.
- Cian, Luca, Aradhna Krishna, and Ryan S. Elder (2014), "This Logo Moves Me: Dynamic Imagery from Static Images," *Journal of Marketing Research*, 51 (April), 184-97.
- Childers, Terry L. and Michael J. Houston (1984), "Conditions for a Picture-Superiority Effect on Consumer Memory," *Journal of Consumer Research*, 11 (September), 643-54.
- Gorn, Gerald J., Amitava Chattopadhyay, Jaideep Sengupta, and Shashank Tripathi (2004), "Waiting for the Web: How Screen Color Affects Time Perceptions," *Journal of Marketing Research*, 41 (May), 215-25.
- Henderson, Pamela W. and Joseph A. Cote (1998), "Guidelines for Selecting or Modifying Logos," *Journal of Marketing*, 62 (April), 14-30.
- Koh, Ping-Sheng and David M. Reeb (2015), "Missing R&D," *Journal of Accounting and Economics*, 60 (August), 73-94.
- Krishna, Aradhna, Ryan S. Elder, and Cindy Caldara (2010), "Feminine to Smell but Masculine to Touch? Multisensory Congruence and its Effect on the Aesthetic Experience," *Journal of Consumer Psychology*, 20 (October), 410-18.
- Lee, Angela Y. and Aparna A. Labroo (2004), "The Effect of Conceptual and Perceptual Fluency on Brand Evaluation," *Journal of Marketing Research*, 41 (May), 151-65.
- Luo, Xueming (2008), "When Marketing Strategy First Meets Wall Street: Marketing Spendings and Firms' Initial Public Offerings," *Journal of Marketing*, 72 (September), 98-109.
- Pieters, Rik, and Michel Wedel (2004), "Attention Capture and Transfer in Advertising: Brand, Pictorial, and Text-Size Effects," *Journal of Marketing*, 68 (April), 36-50.
- Pocheptsova, Anastasiya, Aparna A. Labroo, and Ravi Dhar (2010), "Making Products Feel

- Special: When Metacognitive Difficulty Enhances Evaluation,” *Journal of Marketing Research*, 47 (December), 1059-69.
- Reber, Rolph and Norbert Schwarz (1999), “Effects of Perceptual Fluency on Judgments of Truth,” *Consciousness and Cognition*, 8 (September), 338-42.
- Reber, Rolf, Norbert Schwarz, and Piotr Winkielman (2004), “Processing Fluency and Aesthetic Pleasure: Is Beauty in the Perceiver's Processing Experience,” *Personality and Social Psychology Review*, 8 (November), 364-82.
- Reber, Rolf, Pascal Wurtz, and Thomas D. Zimmermann (2004), “Exploring “Fringe” Consciousness: The Subjective Experience of Perceptual Fluency and its Objective Bases,” *Consciousness and Cognition*, 13 (March), 47-60.
- Schechter, Alvin H. (1993), “Measuring the Value of Corporate and Brand Logos,” *Design Management Journal*, 4 (Winter), 33-39.
- Thompson, Debora V. and Elise C. Ince (2013), “When Disfluency Signals Competence: The Effect of Processing Difficulty on Perceptions of Service Agent,” *Journal of Marketing Research*, 50 (April), 228-40.
- Unkelbach, Christian (2007), “Reversing the Truth Effect: Learning the Interpretation of Processing Fluency in Judgments of Truth,” *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 33 (January), 219-30.