



Loose = fun? How interstitial space in brand logos affects product perception

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ARTICLE INFO

Keywords:

Logo design
Interstitial space
Product perception
Hedonic versus utilitarian
Relaxation feelings
Visual marketing

ABSTRACT

This research examines how a ubiquitous logo design element—interstitial space—affects consumers' perceptions of whether a brand's products are hedonic or utilitarian. Seven preregistered studies demonstrate that consumers are likely to infer a brand's products to be more hedonic (vs. utilitarian) oriented when the brand has a spacious logo (vs. compact logo). This effect is driven by consumers' feelings of relaxation, and it can be attenuated when a logo includes a relaxing image. Therefore, consumers have a higher purchase intention toward a brand with a spacious logo (vs. a compact logo) when they have a hedonic shopping goal (vs. a utilitarian shopping goal). Additionally, consumers are more likely to support a hedonic brand changing its logo design from a compact one to a spacious one, but they tend to support a utilitarian brand changing its logo design from a spacious one to a compact one.

1. Introduction

Logo design plays a crucial role in the success of companies. A well-crafted logo can effectively communicate the mission of a company and has the power to shape consumers' perceptions of brands, products, and services. For example, brand logos can influence consumers' judgments regarding product safety, perceived comfort, and responsiveness to consumer needs (Gupta & Hagtvedt, 2021; Janiszewski & Meyvis, 2001; Jiang et al., 2016). It is common to see well-known brands investing in logo design or modification to convey specific information they want to impart to consumers, including the nature of the products, such as whether a brand's products are more hedonic or utilitarian-oriented.

Whether a product is hedonic or utilitarian is an important factor for consumers when making purchasing decisions. Their shopping goals are often driven by either hedonic or utilitarian purposes (e.g., Bridges & Florsheim, 2008; Li et al., 2020). Thus, they are frequently faced with choosing between a more hedonic or utilitarian product. Sometimes, they can discern whether the product is hedonic or utilitarian based on its characteristics (Roggeveen et al., 2015; Rottenstreich et al., 2007) or explicit marketing appeals (Cornil et al., 2020; Schroll et al., 2018). However, in certain situations, it can be challenging to make this determination (e.g., Batra & Ahtola, 1991; Botti & McGill, 2011). For

example, juice can be enjoyed mainly for its taste (hedonic) or its nutritional benefits (utilitarian) (Chen et al., 2017). Similarly, sneakers can be chosen for their style (hedonic) or their functionality (utilitarian) (Chen et al., 2017). When the primary benefits of products like juice or sneakers are unclear, or when the brands are new, consumers may find it difficult to determine their hedonic or utilitarian value. In these cases, consumers may rely on other cues, such as the language used in the brand's advertising (Kronrod et al., 2012). Brands often communicate their product strategies through visual marketing, and consumers are likely to rely on visual cues to make brand or product judgments by engaging in visual information processing (e.g., Jiang et al., 2016; Wyer et al., 2008). Therefore, it is possible that a logo design can influence consumer judgments about whether the product is more hedonic or utilitarian. The current research investigates how logo design, a salient and foundational visual brand element, affects consumers' perceptions of the product as hedonic or utilitarian.

Prior research about brand logo design mainly focused on design elements such as symmetry, simplicity, typeface, and shape, and how these design elements affect consumers' brand inferences and purchase intention (e.g., Bajaj & Bond, 2018; Hagtvedt, 2011; Janiszewski & Meyvis, 2001; Jiang et al., 2016). Adding to this stream of literature, we examine the impact of interstitial space in logo design (i.e., the distance

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between individual logo elements) on consumers' product perceptions. The interstitial space is a key factor when brands incorporate multiple independent design elements into their logos and it is common to observe variations in the size of the interstitial space across different logos. Though interstitial space is a necessary design element in most logos, we know little about consumers' reactions to it. The limited literature on this topic shows that large interstitial space used in a logo can positively impact consumers' visual evaluations of the logo and perceived clarity of the brand communication (Sharma & Varki, 2018) but negatively impact their safety perceptions (Gupta & Hagtvedt, 2021). The current research examines the effect of interstitial space in logos on consumers' perceptions of whether products are hedonic or utilitarian.



This research is quite meaningful for practitioners as they tend to overlook the impact of interstitial space on consumers' perceptions of products as hedonic versus utilitarian. A survey we conducted among participants with marketing or design work experience found that when they were asked to offer suggestions regarding the logo design of a company aiming to convey to consumers whether its products are hedonic-oriented or utilitarian-oriented, they tended to recommend that the company could consider design elements such as color (e.g., image color, text color), typography, iconography, taglines, and style variations. They were less likely to recommend that the company could consider interstitial space when designing the logo to communicate if a product was hedonic versus utilitarian (see Web Appendix A for details of the survey), indicating that practitioners pay less attention to the effect of interstitial space in logos on consumers' perceptions of products. In the current research, we propose and find that consumers are likely to infer that a brand's products are more hedonic than utilitarian when the brand has a spacious logo (vs. a compact logo). Feelings of relaxation drive the impact of interstitial space in logos on product perception. We further predict and find that this effect is attenuated when a logo contains a relaxing image.

This work contributes to several streams of research. The current study adds to the literature on logo design (Bajaj & Bond, 2018; Gupta & Hagtvedt, 2021; Janiszewski & Meyvis, 2001; Jiang et al., 2016; Sharma & Varki, 2018) by examining a relatively underexplored logo design element (i.e., interstitial space in brand logos) and its novel consequences. Our research also contributes to the literature on consumers' perceptions of whether a product is hedonic versus utilitarian (Herz, 2003; Kronrod et al., 2012; Leclerc et al., 1994) by uncovering a unique factor that can influence their product perceptions. Moreover, the current work contributes to the literature on feelings of relaxation (e.g., Gorn et al., 2004; Milliman, 1986) by showing a novel antecedent.

The findings of this research have important implications for marketers and logo designers, suggesting that brands can use logo designs to effectively communicate their product-positioning strategies and shape consumers' perceptions of their products. This is especially crucial when consumers are not well-versed about a brand and may rely on surface-level cues to judge its products' nature. Marketers can also strategically adapt their logo designs to reflect a shift in focus from hedonic to utilitarian products or vice versa.

2. Theoretical framework

2.1. Interstitial space in logos and feelings of relaxation

Interstitial space in logos refers to the distance between individual elements in their design (Gupta & Hagtvedt, 2021). Companies' logos differ in interstitial space and can be categorized as compact or spacious. A compact logo has less interstitial space and tightly arranges elements. For example, the sports brand Puma () and the FMCG (fast-moving consumer goods) brand P&G () have compact logos. A spacious logo has more interstitial space and loosely arranged elements. For example, the car brand Infiniti (I N F I N I T I) and the clothing brand

Fcuk (f c u k) have spacious logos.

Research in other domains has examined the impact of empty space in visual design on consumers' perceptions, such as perceptions about product quality, store prestige, company size, trustworthiness, and aesthetics (e.g., Pracejus et al., 2013; Pracejus et al., 2006; Sevilla & Townsend, 2016). For instance, Sevilla and Townsend (2016) demonstrate that presenting products with more interstitial space can increase consumers' perceptions of product aesthetics and store prestige. Pracejus and colleagues (2013) show that consumers infer a company to be larger and more powerful if it uses more empty space in its advertisements. However, little research has examined consumers' reactions to the interstitial space in a logo. Limited existing literature suggests that large interstitial space used in a logo can have a positive influence on consumers' visual evaluations of the logo and the perceived clarity of the brand communication (Sharma & Varki, 2018). But it can have an adverse effect on consumers' safety perceptions (Gupta & Hagtvedt, 2021).

Adding to this stream of literature, we propose that larger interstitial space in a logo will lead to greater feelings of relaxation, which refer to a pleasant, low-arousal emotional state that is free from tension, stress, and nervousness (Gorn et al., 2004; Pham et al., 2011). This is because a logo with larger interstitial space can create a sense of freedom, which is associated with a high level of relaxation, whereas smaller interstitial space can induce a sense of confinement, which is related to a low level of relaxation. More specifically, previous research indicates that larger physical space is linked to a greater sense of freedom and reduced feelings of confinement, and smaller physical space is associated with increased feelings of confinement and a diminished sense of freedom (e.g., Levav & Zhu, 2009; Meyers-Levy & Zhu, 2007). For example, research in environmental psychology finds that staying in a small and contained space (e.g., a room with a lower ceiling) can induce feelings of confinement, which make people feel that their freedom is threatened and lead to freedom-restoring behaviors such as variety seeking. However, people are open and feel free when they are physically in a large space (Levav & Zhu, 2009; Meyers-Levy & Zhu, 2007). Moreover, when individuals feel unrestricted by external factors and are free to make choices and act according to their own desires, they can release any feelings of tension or stress that they may be holding on to and freely engage in activities that bring joy and pleasure. This, in turn, will increase their feelings of relaxation. However, when individuals feel constrained by external factors and unable to express their true selves, they may experience heightened levels of stress or anxiety (e.g., Moody & Galletta, 2015), ultimately diminishing their feelings of relaxation. Previous research also directly supports the link between space and relaxation. For instance, a small or confining physical space can be a source of stress and tension (Kim & Zulueta, 2020; Morgan & Tromborg, 2007), which are indicative of low levels of relaxation. Taking these observations together, given that large spaces are usually associated with more freedom and low-stress responses, we predict that a spacious logo will likely induce stronger feelings of relaxation than a compact logo.

2.2. Feelings of relaxation and perception of products as hedonic versus utilitarian

We further predict that feelings of relaxation will lead consumers to infer products to be more hedonic than utilitarian. Hedonic products refer to those that appeal to consumers' emotions and are consumed primarily for pleasure, fantasy, and fun, whereas utilitarian products are designed to serve functional or practical purposes, and their consumption is mainly driven by end-goal considerations (Dhar & Wertenbroch, 2000; Hirschman & Holbrook, 1982; Strahilevitz & Myers, 1998). Accordingly, perception of products as hedonic versus utilitarian refers to whether a brand's products are perceived to be more hedonic or utilitarian by consumers. Sometimes consumers can easily infer that a

product is hedonic versus utilitarian based on its characteristics (Roggeveen et al., 2015; Rottenstreich et al., 2007; Shiv & Fedorikhin, 1999) or marketing appeals (Cornil et al., 2020; Schroll et al., 2018). For example, products with sleek designs and playful features are often perceived as more hedonic, while products with simple designs and practical features are typically viewed as more utilitarian. Certain products, such as games and PlayStations, are inherently perceived as hedonic, and items like plates and refrigerators are typically viewed as utilitarian. In addition, when a brand explicitly emphasizes the pleasant experiences or functionality of its products in its marketing appeals, consumers are more likely to form product hedonic versus utilitarian perceptions based on those appeals. In other situations, it can be challenging for consumers to judge whether a brand's products are more hedonic or more utilitarian (e.g., [Batra & Ahtola, 1991](#); [Botti & McGill, 2011](#)). For example, shoes or clothes can be categorized as either, depending on their design or usage (e.g., [Chen et al., 2017](#); [Kivetz & Zheng, 2017](#)). In such cases, consumers may rely on other cues, such as the language used in the brand's advertising. For instance, existing research shows that when advertisements use assertive language to present products or services, consumers are more likely to perceive the products or services as hedonic ([Kronrod et al., 2012](#)).

In this research, we propose that feelings of relaxation induced by a brand's logo design can affect consumers' perceptions about how hedonic or utilitarian the brand's products are. Specifically, we predict that feelings of relaxation induced by a brand's logo design will encourage consumers to perceive the brand's products as more hedonic (vs. utilitarian). First, relaxation is closely related to pleasure, which is a universal and essential feature of hedonic consumption ([Alba & Williams, 2013](#)). Consumers who purchase hedonic products are often motivated by seeking pleasure, and those who purchase utilitarian products are usually motivated to solve a problem or accomplish a specific task where effectiveness and efficiency are key considerations, which are, to some extent, inconsistent with pleasure-seeking (e.g., [Chen et al., 2017](#); [Scarpi, 2012](#)). When people feel relaxed, they experience a release of tension and a reduction in stress levels, which can enhance their capacity to experience pleasure. The association between relaxation and pleasure may lead consumers to infer that products from a brand with a spacious logo, which induces feelings of relaxation, can provide pleasure and be hedonic in nature.

Second, relaxation is one of the key benefits that hedonic products offer to consumers (e.g., [de Witte et al., 2022](#); [Harney et al., 2023](#)). Feelings of relaxation can be induced by various kinds of hedonic products or activities, such as indulging in cake or chocolate, using products with lavender scents, or reclining on a soft sofa ([Balleyer & Fennis, 2022](#); [Herz, 2009](#)). However, engaging in utilitarian activities or consuming utilitarian products, such as taking pills, using cleaning supplies, or completing work-related tasks or household chores, is less likely to induce feelings of relaxation and may even increase tension levels (e.g., [Härmä, 2006](#); [Pittman et al., 1996](#)). Third, hedonic products are primarily emotional and affective, and utilitarian products are more cognitive and instrumental (e.g., [Holbrook & Hirschman, 1982](#); [Strahilevitz & Myers, 1998](#)). Thus, feelings of relaxation are more closely associated with hedonic products that can induce affective responses than with utilitarian products that do not elicit such responses. Last but not least, neuroscientific investigations using brain-imaging techniques have revealed that hedonic experiences activate brain regions associated with reward and relaxation, further supporting the relationship between product hedonic perception and relaxation (e.g., [Kringelbach, 2005](#); [Taranikanti et al., 2023](#)).

Given the above evidence, it is reasonable to argue that the feelings of relaxation are positively related to hedonic perception of the product but negatively related to utilitarian perception of the product. In the context of brand logo design, we propose that products of a brand with a logo that induces feelings of relaxation should be regarded as more hedonic and less utilitarian.

2.3. The current research

We theorized above that a spacious (vs. compact) logo will induce feelings of relaxation. We also argued that hedonic products or experiences are more closely associated with feelings of relaxation than utilitarian ones. Thus, we predict that consumers will infer a brand's products to be more hedonic (vs. utilitarian) when the brand has a spacious logo (vs. compact logo), and feelings of relaxation mediate the proposed effect. Formally, we hypothesize that:

H1: Consumers are likely to infer that a brand's products are more hedonic (vs. utilitarian) when the brand has a spacious (vs. compact) logo.

H2: The effect of interstitial space in logos on consumers' product perceptions is mediated by feelings of relaxation.

Moderation effect of relaxing image. The proposed effect may be weakened in contexts where other design factors can induce a sense of relaxation among consumers—for example, when a logo includes a relaxing image. Visual stimuli can have a significant impact on our feelings (e.g., [Moè & Sarlo, 2011](#)). Relaxing images such as nature scenes or tranquil environments can make people feel relaxed (e.g., [Coles & Millman, 2013](#); [Kim et al., 2022](#)). Therefore, in the context of our study, it is possible that the presence of relaxing images in a logo could heighten feelings of relaxation and make consumers perceive the brand's products as more hedonic, regardless of whether the logo is compact or spacious. We predict that the proposed effect would be weakened when a relaxing image is added to a logo. Putting it formally:

H3: The effect of interstitial space in logos on consumers' product perceptions will be weakened when a brand logo includes a relaxing image (vs. not).

Implications for brand design. One implication of the proposed effect is consumers' attitude toward a brand's decision to change its logo. In reality, brands may need to change their logos due to various internal or external factors, such as adjustments to brand image ([Melewar & Ake, 2005](#)) and changes in consumer demands ([Bolhuis et al., 2018](#)). Brands often seek consumer feedback before changing their logos (e.g., [Stalzer, 2019](#)) to ensure that the redesign is appropriate. Understanding consumers' attitudes toward brands' logo changes can assist brands in successfully redesigning their logos. Based on the theorizing presented above, we predict that consumers are more likely to support a hedonic brand changing its logo design from compact to spacious. At the same time, they would tend to support a utilitarian brand changing its logo design from spacious to compact. Stating it formally:

H4: Consumers are more likely to support a hedonic brand changing its logo design from a compact one to a spacious one, and to support a utilitarian brand changing its logo design from a spacious one to a compact one.

Alternative explanations. Some alternative explanations might exist for the impact of interstitial space in logos on hedonic versus utilitarian product perception examined in this research. For example, it could be argued that the proposed effect is due to the perceived aesthetics of spacious logos. More specifically, prior literature has suggested that more interstitial space can lead to an increased perception of aesthetics ([Sevilla & Townsend, 2016](#)), and visually appealing products provide more sensory benefits and are likely to be viewed as more hedonic ([Candi et al., 2017](#); [Hagtvedt & Patrick, 2014](#)). Moreover, one may argue that the proposed effect could be driven by perceived brand prestige/power, as previous literature suggests that empty space in visual design can increase consumers' perceptions of store prestige ([Sevilla & Townsend, 2016](#)) and brand power ([Pracejus et al., 2013](#)). However, the relationship between brand prestige/power and hedonic versus utilitarian product perception could be positive or negative ([Adams, 2011](#); [Deb & Lomo-David, 2020](#)). For example, hedonic appeals can enhance consumers' perception of prestige in hotels ([Deb & Lomo-David, 2020](#)); while prestige goods are viewed as more utilitarian within a collectivist culture ([Adams, 2011](#)). We measure and rule out

these alternative explanations in the posttests or studies.

3. Overview of studies

Seven studies (all preregistered) test the predictions. Studies 1A and 1B examine the effect of interstitial space in logos on consumers' hedonic versus utilitarian product perceptions, using text and graphic logos, and products from different categories. Study 2 enhances the external validity of the effect by replicating it using a real brand. In Study 3, we demonstrate that consumers' feelings of relaxation drive this effect. Study 4 further supports the underlying mechanism by showing that the effect is attenuated when other design elements in a logo can evoke a sense of relaxation (e.g., when a logo has a relaxing image). We then demonstrate that consumers' purchase intentions toward products from brands with spacious logos (vs. compact logos) vary depending on their shopping goals (Study 5). Finally, we document a meaningful implication of the effect for brand logo design: for hedonic brands, consumers are more likely to support changing a logo design from compact to spacious, whereas for utilitarian brands, consumers tend to support changing a logo design from spacious to compact (Study 6).

4. Study 1

Study 1 tests our basic hypothesis that consumers are likely to infer the products offered by a brand to be more hedonic (vs. utilitarian) when the brand has a spacious logo (vs. compact logo), whether the logo is in text form (Study 1A) or graphic form (Study 1B). We utilized two distinct measures to assess whether a product is considered hedonic versus utilitarian from different perspectives. In Study 1A, we examined consumers' perceptions of the specific attributes associated with hedonic and utilitarian products. In Study 1B, we assessed consumers' general perceptions of how hedonic versus utilitarian the product is.

4.1. Study 1A

Two hundred US adults (52.5 % female; $M_{\text{age}} = 39.09$, $SD = 12.36$) took part in this preregistered study (https://aspredicted.org/L51_D27) on Amazon Mechanical Turk (MTurk). They were randomly assigned to one of the two (logo design: spacious vs. compact) between-subjects conditions.

Depending on their assigned conditions, participants were presented with a fictitious text logo we created (i.e., ANLTOS) for a sneaker brand featuring either a spacious design (the *spacious* condition) or a compact design (the *compact* condition; see [Appendix](#)). The two logos share identical design elements except for the interstitial space. A posttest confirmed that the spacious logo was indeed perceived as more spacious than the compact logo (see [Web Appendix B](#) for details). Participants indicated their expectations about the hedonic versus utilitarian nature of the products offered by the sneaker brand on a nine-point scale: 1 = "a sneaker brand that is famous for the functionality and craftsmanship of its products," 9 = "a sneaker brand that is famous for the stylish and pleasing design of its products" (adapted from [Chen et al., 2017](#)).

An ANOVA revealed that participants in the spacious condition expected the products offered by the sneaker brand to be more hedonic than utilitarian ($M = 5.53$, $SD = 2.18$) compared to those in the compact condition ($M = 3.78$, $SD = 2.20$; $F(1, 198) = 31.91$, $p < 0.001$; $\eta_p^2 = 0.139$).

4.2. Study 1B

Two hundred and one US and UK adults (50.2 % female; $M_{\text{age}} = 29.02$, $SD = 8.57$) took part in this preregistered study (https://aspredicted.org/SZ2_1GC) on Prolific. They were randomly assigned to one of the two (logo design: spacious vs. compact) between-subjects conditions.

Depending on their assigned conditions, participants were presented

with a fictitious graphic logo we created for a smartwatch brand featuring either a spacious design (the *spacious* condition) or a compact design (the *compact* condition; see [Appendix](#)). The two logos shared identical design elements except for the interstitial space. A posttest validated the interstitial space manipulation (see [Web Appendix B](#) for details). Then we provided participants with definitions of hedonic products and utilitarian products and asked them to indicate their general perceptions of the smartwatch brand products as hedonic versus utilitarian on a nine-point scale: 1 = "comparatively more utilitarian," 9 = "comparatively more hedonic" (adapted from [Dhar & Wertenbroch, 2000](#)).

Replicating prior findings, an ANOVA revealed that participants in the spacious condition perceived the products of the smartwatch brand to be more hedonic than utilitarian ($M = 4.58$, $SD = 1.94$) compared to those in the compact condition ($M = 3.67$, $SD = 1.99$; $F(1, 199) = 10.90$, $p = 0.001$; $\eta_p^2 = 0.052$).

4.3. Discussion

Consistent with our hypothesis 1, we found that participants were more likely to infer or expect the products of a brand to be more hedonic than utilitarian if the brand had a spacious (vs. compact) logo. The effect persisted for both text logos and graphic logos across different product categories (e.g., sneaker, smartwatch). Additionally, posttests validated that the logo design (i.e., spacious vs. compact) did not influence consumers' liking of the logos or perceived congruence between the logo and the product category (see [Web Appendix A](#) for details). Similar posttests were conducted in several of the subsequent studies, and the results were consistent with those of this study. Furthermore, as the brand name used in Study 1A was fictitious and perceived brand realism may be a concern (see [Web Appendix B](#) for the brand realism posttest), people may wonder whether the observed effect could occur in the real world. To address the brand realism concern, we replicated the observed effect by using a real brand (Studies 2 and 4) and by using fictitious brand names that were perceived as very realistic (Studies 3, 5, and 6; see [Web Appendix B](#) for the brand realism posttest).

5. Study 2

As the brand names used in Studies 1A and 1B were fictitious, Study 2 aimed to replicate the observed effect with a real brand to bolster the external validity.

5.1. Method

Three hundred and one UK and US adults (59.8 % female, 1.3 % non-binary, 1.0 % preferred not to say; $M_{\text{age}} = 39.78$, $SD = 11.28$) took part in this preregistered study (<https://aspredicted.org/8zdz-r8zc.pdf>) on Prolific. They were randomly assigned to one of the two (logo design: spacious vs. compact) between-subjects conditions.

We selected a well-known headphone brand, *Sennheiser*, as the target brand because it is often listed as one of the 10 best or most popular headphone brands in the world ([Report and Data, 2023](#)). Upon joining the study, participants were instructed to assume that the brand Sennheiser had recently revised its logo and introduced new products. We chose to focus on participants' perceptions of the brand's new products to avoid potential biases from their pre-existing perceptions of the brand's current products. Depending on their assigned conditions, participants were presented with a logo we created for Sennheiser featuring either a spacious design (the *spacious* condition) or a compact design (the *compact* condition; see [Appendix](#)). The two logos share identical design elements except for the interstitial space. A posttest validated the interstitial space manipulation (see [Web Appendix B](#) for details). Participants then indicated their general perceptions of Sennheiser's new products as hedonic or utilitarian on a nine-point scale: 1 = "comparatively more utilitarian," 9 = "comparatively more hedonic" (adapted

from Dhar & Wertenbroch, 2000). Additionally, we measured brand familiarity (“How familiar are you with the brand?” 1 = “not at all,” 9 = “very much”). After that, participants were debriefed and dismissed.

5.2. Results

An ANOVA revealed that participants in the spacious condition perceived Sennheiser’s new products to be more hedonic than utilitarian ($M = 4.21$, $SD = 2.04$) than did those in the compact condition ($M = 3.46$, $SD = 1.77$; $F(1, 299) = 11.85$, $p < 0.001$; $\eta_p^2 = 0.038$). However, perceptions of brand familiarity did not differ significantly between spacious and compact conditions ($M_{spacious} = 3.09$, $SD = 2.72$ vs. $M_{compact} = 3.65$, $SD = 2.96$; $F(1, 299) = 2.88$, $p = 0.091$). The observed main effect still held when brand familiarity was entered as a covariate ($F(1, 298) = 11.53$, $p < 0.001$; $\eta_p^2 = 0.037$).

5.3. Discussion

Study 2 enhanced the external validity of the observed effect by replicating it with a real brand. Specifically, the results suggest that existing brands can influence or alter consumers’ perceptions of their products as hedonic or utilitarian by strategically modifying their logo designs. Moreover, this study suggests that the effect persists regardless of consumers’ familiarity with the brand.

6. Study 3

Study 3 seeks to replicate the observed effect and test the underlying mechanism (i.e., feelings of relaxation) directly via mediation. Additionally, it aims to provide evidence to rule out several alternative explanations, such as uniqueness perception, luxury perception, and processing fluency.

6.1. Method

Three hundred and one US adults (48.2 % female, 0.3 % non-binary, 1.3 % preferred not to say; $M_{age} = 38.74$, $SD = 11.30$) took part in this preregistered study (<https://aspredicted.org/yp6b-n8c8.pdf>) on Connect. They were randomly assigned to one of the two (logo design: spacious vs. compact) between-subjects conditions.

Similar to Study 1A, participants saw a fictitious text logo we created for an electronics brand NYEL. The logo featured either a spacious design (the *spacious* condition) or a compact design (the *compact* condition; see Appendix). The two logos shared identical design elements except for the interstitial space. A posttest validated the interstitial space manipulation (see Web Appendix B for details). Participants indicated their perceptions of the brand’s products as hedonic versus utilitarian on the same nine-point scale used in Study 2 (1 = “comparatively more utilitarian,” 9 = “comparatively more hedonic”). Finally, we measured feelings of relaxation by asking participants to indicate the extent to which they experienced relaxation, leisure, and ease when viewing the logo, all on 9-point scales (1 = “not at all,” 9 = “very much”; Cronbach’s $\alpha = 0.93$; adapted from Gorn et al., 2004). Additionally, we measured uniqueness perception (“How unique do you think the logo is?”; “not at all,” 9 = “very much”), luxury perception (“How luxurious do you think the logo is?”; “not at all,” 9 = “very much”), and processing fluency (“The logo is__”; 1 = “difficult to process”, 9 = “easy to process”).

6.2. Results

Consistent with our expectations, participants in the spacious condition rated the electronics brand’s products as more hedonic than utilitarian ($M = 4.35$, $SD = 2.23$) compared to those in the compact condition ($M = 3.18$, $SD = 2.16$; $F(1, 299) = 21.58$, $p < 0.001$; $\eta_p^2 = 0.067$). In addition, participants in the spacious condition reported greater feelings of relaxation ($M = 4.52$, $SD = 2.00$) than did those in the

compact condition ($M = 3.88$, $SD = 2.02$; $F(1, 299) = 7.50$, $p = 0.007$; $\eta_p^2 = 0.024$). A mediation analysis with PROCESS Model 4 showed that the mediation chain—logo design (compact vs. spacious) → feelings of relaxation → perception of product as hedonic versus utilitarian—was supported (indirect effect = 0.30, boot SE = 0.12; 95 % CI: [.0855, 0.5417]), suggesting that the observed effect was indeed mediated by feelings of relaxation. In addition, the direct effect of interstitial space in logos on product perception was still significant when the mediator (feelings of relaxation) was added to the model ($p < 0.001$), suggesting that feelings of relaxation partially mediated the observed effect.

Although interstitial space in logos had a significant impact on uniqueness perception ($M_{compact} = 3.17$, $SD = 0.228$ vs. $M_{spacious} = 4.17$, $SD = 2.21$; $F(1, 299) = 14.94$, $p < 0.001$; $\eta_p^2 = 0.048$), luxury perception, ($M_{compact} = 2.45$, $SD = 1.81$ vs. $M_{spacious} = 3.27$, $SD = 2.17$; $F(1, 299) = 12.77$, $p < 0.001$; $\eta_p^2 = 0.041$), and processing fluency ($M_{compact} = 7.83$, $SD = 1.61$ vs. $M_{spacious} = 5.96$, $SD = 2.51$; $F(1, 299) = 59.14$, $p < 0.001$; $\eta_p^2 = 0.165$), when we included our proposed mediator (i.e., feelings of relaxation) and all these three alternative explanations together as mediators in the model, we found that the mediation effect of feelings of relaxation remained significant (95 % CI: [.0803, 0.5624]) and the observed effect was not mediated by uniqueness perception (95 % CI: [-0.2376, 0.1378]), luxury perception (95 % CI: [-0.1252, 0.2241]), and processing fluency (95 % CI: [-0.0530, 0.4257]).

6.3. Discussion

The results of Study 3 provided direct evidence for the proposed mechanism. That is, a spacious logo (vs. a compact logo) increased consumers’ feelings of relaxation, leading them to perceive a brand’s products as more hedonic (vs. utilitarian). Moreover, we found that while interstitial space in logos influenced uniqueness perception, luxury perception, and processing fluency, the observed effect was driven solely by feelings of relaxation, not by these other factors. Furthermore, we ruled out some other alternative explanations (i.e., aesthetics perception, perceived brand prestige, and perceived brand power) with separate posttests. Results demonstrated that the interstitial space in logos did not affect these perceptions (see Web Appendix B for details). Thus, the proposed effect was unlikely to be driven by these variables. Similar posttests were conducted in several of the subsequent studies, and the results were consistent with those of this study (see Web Appendix B for details). In addition, we replicated our findings with italic logos, which are widely employed by brands. Though previous research suggests that compared to non-italic typefaces, italics can evoke feelings of happiness and whimsy (Haenschen et al., 2021) and may be better suited for hedonic products (Wang et al., 2023), our results indicate that the interstitial space in logos has a more significant influence on shaping consumers’ perceptions of a product as hedonic versus utilitarian, ultimately overriding the effect of italics. Therefore, replicating the effect among italic logos enhances the practical implications of our findings.

7. Study 4

Study 4 aims to examine the moderating role of a relaxing image in a logo. As theorized above, when other logo design elements (such as a relaxing image) can induce a sense of relaxation, consumers’ overall feelings of relaxation will be elevated. Therefore, they may perceive products from brands with such logos as more hedonic (vs. utilitarian) regardless of the interstitial space in logos. Thus, we predict that the effect of interstitial space in logos on consumers’ perception of a product as hedonic versus utilitarian will be weakened when a brand logo contains a relaxing image.

7.1. Method

A total of 601 UK and US adults (49.8 % female; $M_{age} = 41.84$, $SD = 12.01$) took part in this preregistered study (<https://aspredicted.org>

g/ZJD_22Y) on Prolific. They were randomly assigned to one of the 2 (logo design: spacious vs. compact) \times 2 (relaxing image: presence vs. absence) between-subjects conditions.

Upon joining the study, participants read an introduction to the real brand Sennheiser and were instructed to assume that it had recently revised its logo and introduced new products. Participants were presented with a fictitious Sennheiser logo featuring either a spacious design (the *spacious* conditions) or a compact design (the *compact* conditions). In the *relaxing-image-absence* conditions, the compact or spacious logos consisted of letters only, whereas, in the *relaxing-image-presence* conditions, the logos had both letters and a relaxing image (see Appendix). Separate posttests confirmed that a relaxing image indeed made people feel relaxed, that consumers perceived both the image and the letters in the logo as a cohesive unit, and that the interstitial space manipulation was successful (see Web Appendix B for details). Then, we measured participants' perceptions of the brand's products as hedonic versus utilitarian with the same scale used in Study 2. After that, participants were debriefed and dismissed.

7.2. Results

An ANOVA revealed a significant main effect of logo design ($F(1, 597) = 10.43, p = 0.001; \eta_p^2 = 0.017$) and a significant main effect of relaxing image ($F(1, 597) = 167.71, p < 0.001; \eta_p^2 = 0.219$), which were qualified by a significant interaction effect between logo design and relaxing image on consumers' hedonic versus utilitarian perceptions of the product ($F(1, 597) = 4.96, p = 0.026; \eta_p^2 = 0.008$; see Fig. 1).

Specifically, when there was not a relaxing image in the logo, the observed effect was replicated, with participants perceiving products of the brand with a spacious logo ($M = 4.39, SD = 2.26$) as being more hedonic than products of the brand with a compact logo ($M = 3.45, SD = 2.02; F(1, 597) = 14.91, p < 0.001; \eta_p^2 = 0.024$). However, the effect was attenuated when the logo had a relaxing image ($M_{spacious} = 6.25, SD = 2.01; M_{compact} = 6.07, SD = 2.17; F(1, 597) = 0.50, p = 0.479$). Examining the effect from another perspective, participants perceived the brand's products as more hedonic than utilitarian when a relaxing image was added to the compact logo ($M = 6.07, SD = 2.17$), compared to when the compact logo did not contain a relaxing image ($M = 3.45, SD = 2.02; F(1, 597) = 115.36, p < 0.001; \eta_p^2 = 0.162$). Similarly, products of a brand with a spacious logo were perceived to be more hedonic than utilitarian when the logo included a relaxing image ($M = 6.25, SD = 2.01$) than when it did not ($M = 4.39, SD = 2.26; F(1, 597) = 57.40, p < 0.001; \eta_p^2 = 0.088$).

7.3. Discussion

Consistent with our prediction, Study 4 showed that adding a

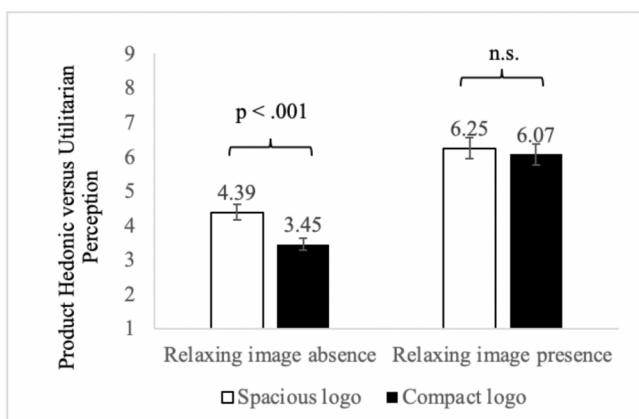


Fig. 1. Product perception as hedonic versus utilitarian (Study 4).

relaxing image to a logo weakened the effect documented above. This is because a relaxing image increases consumers' overall feelings of relaxation, which in turn makes consumers perceive products from brands with either a compact logo or a spacious logo as more hedonic. This study provides additional evidence for the main effect as well as the proposed underlying mechanism. Furthermore, results of an independent posttest indicated that, for a logo with both text and image, participants indeed noticed the text portion (see Web Appendix B for details). This suggests that it is unlikely that participants evaluated how hedonic versus utilitarian the product was solely based on the relaxing image while ignoring the brand name.

8. Study 5

Study 5 aims to demonstrate that interstitial space in logos can affect downstream consumer behaviors, such as purchase decisions. Specifically, it examines whether consumers have a higher purchase intention toward products from the brand with a spacious (vs. compact) logo when they have a hedonic shopping goal (vs. a utilitarian shopping goal).

8.1. Method

A total of 400 UK adults (50.2 % female, 0.5 % non-binary; $M_{age} = 40.72, SD = 11.17$) took part in this preregistered study (<https://aspred.icted.org/grzd-mky8.pdf>) on Prolific. They were randomly assigned to one of the 2 (shopping goal: hedonic vs. utilitarian) between-subjects conditions.

Participants imagined that they were shopping online with the goal of buying a pair of headphones. In the *hedonic* (vs. *utilitarian*) shopping goal condition, participants' goal was to purchase a pair of headphones that could satisfy their *hedonic* purposes, such as playing games (vs. *utilitarian* purposes, such as studying). Then, they were presented with two fictitious electronic brands, NEXATECH and TECHNOVA, along with their logos. One of the two logos had a spacious design, while the other had a compact design. A posttest validated the interstitial space manipulation (see Web Appendix B for details). To avoid the influence of brand name and other logo design factors (e.g., logo color, font), the logo designs were shown in a counterbalanced order (see the Appendix for the logos and the logo presentation order). After that, participants indicated which brand they wanted to purchase a pair of headphones from on a 10-point scale (1 = "brand A," 10 = "brand B"; brand A refers to the brand with a compact logo, and brand B refers to the brand with a spacious logo).

8.2. Results

An ANOVA revealed a significant main effect of shopping goal ($F(1, 398) = 30.51, p < 0.001; \eta_p^2 = 0.071$). Specifically, participants in the hedonic goal condition showed a higher purchase intention toward products from the brand with a spacious logo (vs. a compact logo) than those in the utilitarian goal condition ($M_{hedonic} = 5.79, SD = 2.76$ vs. $M_{utilitarian} = 4.24, SD = 2.84$). The effect held regardless of the logo presentation order (order 1: $M_{hedonic} = 5.66, SD = 2.87$ vs. $M_{utilitarian} = 4.77, SD = 3.12, F(1, 199) = 4.41, p = 0.037, \eta_p^2 = 0.022$; order 2: $M_{hedonic} = 5.92, SD = 2.65$ vs. $M_{utilitarian} = 3.71, SD = 2.42, F(1, 197) = 37.85, p < 0.001, \eta_p^2 = 0.161$).

8.3. Discussion

Consistent with our prediction, Study 5 demonstrated that consumers with a hedonic shopping goal have a higher purchase intention toward products from the brand with a spacious logo, while those with a utilitarian shopping goal have a higher purchase intention toward products from the brand with a compact logo.

9. Study 6

Study 6 aims to explore the implications for brand logo design. Specifically, we predict that consumers are more likely to support a hedonic brand changing its logo design from a compact one to a spacious one. At the same time, they would tend to support a utilitarian brand changing its logo design from spacious to compact. Study 6 tests this prediction.

9.1. Method

A total of 400 Chinese adults (67.8 % female; $M_{\text{age}} = 32.43$, $SD = 8.61$) took part in this preregistered study (https://aspredicted.org/Q7Z_VWC) on Credamo, a professional data collection platform in China, for a nominal payment. They were randomly assigned to one of the 2 (logo-change strategy: compact to spacious vs. spacious to compact) \times 2 (brand positioning: hedonic vs. utilitarian) between-subjects conditions.

In the cover story, we introduced ourselves as a sneaker brand called MOSSA (a fictitious brand we created) and expressed interest in gathering participants' opinions on our brand strategies. We introduced our brand and asked for their feedback on our logo-change strategy. Specifically, in the *hedonic* condition, we told participants that our brand was famous for its stylish and pleasing design. In the *utilitarian* condition, we told participants that our brand was known for its functionality and craftsmanship (adapted from Chen et al., 2017; see Appendix for details). We then informed participants that we were considering changing our brand logo design from a compact one to a spacious one (the *compact-to-spacious* condition) or from a spacious one to a compact one (the *spacious-to-compact* condition; see Appendix) and asked for their opinion regarding the logo-change strategy (1 = "The new logo is better, modify the logo," 0 = "The current logo is better, do NOT modify the logo").

9.2. Results

The binary logistic regression analysis revealed a significant main effect of logo-change strategy ($\beta = -0.58$, $SE = 0.29$; Wald $\chi^2(1) = 3.97$, $p = 0.046$; $\text{Exp}(B) = 0.56$) and a significant main effect of brand positioning ($\beta = -0.62$, $SE = 0.29$; Wald $\chi^2(1) = 4.54$, $p = 0.033$; $\text{Exp}(B) = 0.54$), qualified by a significant interaction effect between logo-change strategy and brand positioning on consumers' opinion about the brand's decision to modify its logo ($\beta = 1.28$, $SE = 0.41$; Wald $\chi^2(1) = 9.73$, $p = 0.002$; $\text{Exp}(B) = 3.59$; see Fig. 2).

Specifically, for hedonic brands, more participants supported the brand changing the logo design from compact to spacious ($M = 64\%$) than from spacious to compact ($M = 50\%$; $\beta = -0.58$, $SE = 0.29$; Wald $\chi^2(1) = 3.97$, $p = 0.046$; $\text{Exp}(B) = 0.56$). However, the effect reversed for

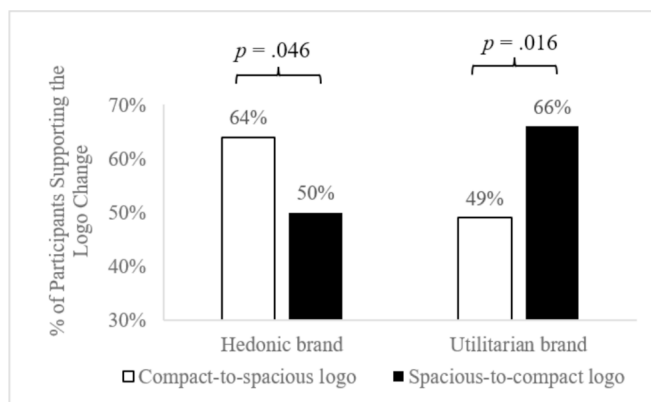


Fig. 2. Opinion about the logo change (Study 6).

utilitarian brands, with more participants supporting the brand in changing the logo design from spacious to compact ($M = 66\%$) than from compact to spacious ($M = 49\%$; $\beta = 0.70$, $SE = 0.29$; Wald $\chi^2(1) = 5.85$, $p = 0.016$; $\text{Exp}(B) = 2.02$). Looking at the data from a different perspective, participants were more likely to support a *compact-to-spacious* logo-change strategy when the brand was a hedonic brand than when the brand was a utilitarian one ($M_{\text{hedonic}} = 64\%$ vs. $M_{\text{utilitarian}} = 49\%$; $\beta = -0.62$, $SE = 0.29$; Wald $\chi^2(1) = 4.54$, $p = 0.033$; $\text{Exp}(B) = 0.54$). However, they were more likely to support a *spacious-to-compact* logo-change strategy when the brand was positioned as utilitarian compared to hedonic ($M_{\text{utilitarian}} = 66\%$ vs. $M_{\text{hedonic}} = 50\%$; $\beta = 0.66$, $SE = 0.29$; Wald $\chi^2(1) = 5.20$, $p = 0.023$; $\text{Exp}(B) = 1.94$).

9.3. Discussion

The results suggest that a consumer's attitude toward brands' logo-change decisions depends on brand positioning, specifically whether the brand positions itself as hedonic-oriented or utilitarian-oriented. We demonstrated that consumers were more inclined to endorse a hedonic brand transitioning from a compact to a spacious logo, while endorsing a utilitarian brand shifting from a spacious to a compact logo. Our findings suggest that brands can strategically redesign their logos based on brand positioning to elicit more positive consumer reactions and prevent boycotts resulting from brand logo changes.

10. General discussion

The present research found that consumers tend to infer products from a brand to be more hedonic (vs. utilitarian) when the brand has a spacious logo (vs. a compact logo; Studies 1A and 1B). This effect persists with real brands (Study 2). This effect is driven by consumers' feelings of relaxation (Study 3) and can be attenuated when a logo contains a relaxing image (Study 4). Additionally, consumers' purchase intentions toward products from brands with spacious logos (vs. compact logos) vary depending on their shopping goals (Study 5), and consumers show a more positive attitude toward hedonic (vs. utilitarian) brands that are planning to change their logo from compact to spacious (vs. spacious to compact) (Study 6).

10.1. Theoretical contributions

The current research adds to the literature on logo design (Bajaj & Bond, 2018; Gupta & Hagtvedt, 2021; Janiszewski & Meyvis, 2001; Jiang et al., 2016; Sharma & Varki, 2018) by examining a novel consequence of interstitial space in brand logos. Prior research has mainly focused on other logo design elements (e.g., logo shape, logo symmetry) and examined their impact on consumers' brand or product perceptions (Bajaj & Bond, 2018; Jiang et al., 2016). The present research concentrates on a relatively underexplored logo design element, interstitial space, and explores its impact on consumers' perceptions of products. The limited research about this element suggests both positive and negative impacts of large interstitial space on consumers' product or brand perceptions. For example, Gupta and Hagtvedt (2021) showed that large interstitial space decreases consumers' perceived product safety; Sharma and Varki (2018) found that large white space in logos can positively affect consumers' perceived clarity of the brand communication. Adding to this stream of research, we examined a neutral consequence of interstitial space: perception of product as hedonic versus utilitarian. We find that interstitial space in logos can influence consumers' inference about whether a brand's products are more hedonic or utilitarian.

Our research contributes to the literature on hedonic and utilitarian consumption (e.g., Herz, 2003; Kronrod et al., 2012; Leclerc et al., 1994) by uncovering a unique factor that can influence consumers' perceptions of products as hedonic versus utilitarian. Prior research has examined how various other factors influence consumers' preferences for hedonic

versus utilitarian products (e.g., Chen et al., 2017; Kivetz & Zheng, 2017) and the impact of consumption of hedonic or utilitarian products on consumers' post-purchase reactions, such as consumer referral likelihood (Zhu & Lin, 2019) or sense of guilt (Strahilevitz & Myers, 1998). Less is known about *how* consumers perceive whether a brand's products are more hedonic or utilitarian. Existing research suggests that consumers can infer this aspect based on explicit communication of product characteristics (Roggeveen et al., 2015; Rottenstreich et al., 2007; Shiv & Fedorikhin, 1999) or marketing appeals (Cornil et al., 2020; Schroll et al., 2018) that highlight hedonic or utilitarian features. When no explicit information is available, consumers are likely to infer whether products are hedonic versus utilitarian through implicit cues such as language assertiveness, foreign branding, and verbal context (Herz, 2003; Kronrod et al., 2012; Leclerc et al., 1994). Adding to previous research, the present work demonstrates that visual cues associated with a brand—specifically, logo design—can impact consumer perceptions of a product as hedonic or utilitarian.

The current research also extends the literature on feelings of relaxation (e.g., Gorn et al., 2004; Milliman, 1986) by showing a novel antecedent of feelings of relaxation and its impact on consumer product judgment. Prior studies have shown that feelings of relaxation can be affected by factors such as individual differences, physiological states, and environmental factors (e.g., Burns et al., 1999; Milliman, 1986), as well as visual-related factors such as screen colors (Gorn et al., 2004). Adding to this stream of research, we show how a different visual cue, logo design, can also influence feelings of relaxation. Furthermore, we demonstrate that relaxation can impact consumers' perceptions of a product's characteristics, complementing past research suggesting that relaxation can affect individuals' judgment, such as of the perceived download quickness of a webpage (e.g., Gorn et al., 2004) and monetary valuations of products (Pham et al., 2011).

10.2. Limitations and future research

The current research has some limitations. First, most of the text logos used are in English, and the participants are predominantly from English-speaking countries. Our studies did not examine the proposed effect using logos that feature letters from other languages, such as Chinese or Korean. For instance, the shapes of certain letters in different languages may vary—some are more circular, while others are more angular. These shape differences could potentially moderate the observed effect. Future research could replicate the impact of interstitial space in logos on consumers' hedonic or utilitarian perceptions using logos in various languages and involving participants from diverse cultural backgrounds. Second, in this research, we examine the proposed effect by presenting only brand logos to participants, aiming to test a clear causal relationship. However, brand logos are sometimes embedded in specific contexts, such as advertisements and product packaging. Future research can investigate the proposed effect across a broader range of contexts to provide more practical implications for marketing practitioners.

A few research directions merit future exploration by marketing researchers. For example, it will be interesting to further examine how the proposed effect can be weakened or reversed, such as by consumers' construal level. We have argued here that logo interstitial space can induce feelings of relaxation. However, the perception of space may depend on individual differences such as construal level. Consumers with a high construal level tend to think abstractly, whereas those with a low construal level think more concretely and pay attention to details (Trope & Liberman, 2003). Compared to consumers with a low construal level, those with a high construal level may be less sensitive to the

interstitial space in logos, perceiving it as smaller. Therefore, we expect the proposed effect to be reduced among consumers with a high construal level.

Future research can also examine the impact of other logo design elements on consumers' perceptions of how hedonic versus utilitarian a product is, such as brand logo shape, circularity versus angularity. The circularity of a brand's logo shape refers to the degree to which it incorporates curved lines, while angularity pertains to the extent to which it features straight lines and sharp corners (Jiang et al., 2016). Circular shapes will activate a “softness” association and angular shapes will activate a “hardness” association (Jiang et al., 2016). Considering that softness is often linked to relaxation (e.g., a soft sofa is likely to induce relaxation feelings), it is plausible that brands featuring circular logos are more likely to be perceived as hedonic rather than utilitarian. Therefore, we predict that the proposed effect will be attenuated when brands use circular logos.

10.3. Managerial implications

The findings of the current research have important managerial implications, including assisting companies in improving their communication with consumers, who often judge the nature of a brand and its products (e.g., warmth/competence, innovativeness) based on its communication materials (e.g., logo design and advertising). This is especially the case when consumers are not well-informed about the brand and rely on surface-level information to make judgments. Our findings reveal that brand logo design can significantly influence consumers' perceptions of a brand's product nature (hedonic or utilitarian). As a result, brands should design logos that align with their product nature to effectively communicate their product-positioning strategies and shape consumers' perceptions of their products. Specifically, brands offering hedonic products or services should opt for spacious logos, and brands providing utilitarian products or services should choose compact logos.

In addition, our research has implications for brands that undergo logo design or brand positioning changes. Our findings indicate that when a brand transitions from selling utilitarian products to hedonic products, it is better to adjust its logo by incorporating more interstitial space. Conversely, when transitioning from selling hedonic products to utilitarian products, it is preferable to adjust its logo by reducing interstitial space. These adjustments can help brands better appeal to their target consumers and elicit more positive reactions.

Our findings suggest that marketers have additional options to influence consumers' perceptions of how hedonic versus utilitarian a product is. For instance, to increase the perception of being hedonic, brands may consider revising other logo design elements, such as incorporating a relaxing element, which could include using relaxing images, relaxing colors, soft shapes, or other visual elements that evoke feelings of relaxation.

Declaration of generative AI and AI-assisted technologies in the writing process

Generative AI and AI-assisted technologies were not used in the writing process.

CRediT authorship contribution statement

Qianqian Esther Liu: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization, Funding acquisition. **Dongjin He:** Writing – review & editing, Visualization, Validation, Project administration, Methodology, Investigation,

Funding acquisition, Formal analysis, Data curation, Conceptualization. **Yuwei Jiang:** Writing – review & editing, Supervision, Project administration, Conceptualization, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements



This research was supported by grants from the National Natural Science Foundation of China (Grant No. 72425015) awarded to Yuwei Jiang, the Lam Woo Research Fund [Grant No. LWP20017], the two Direct Grants [Grant No. DR23B6 & DR25B8], and the Faculty Research Grant [Grant No. DB24A1] from Lingnan University awarded to Dongjin He, and the Start-up Research Grant (Grant No. SRG2024-00052-FBA) from University of Macau awarded to Qianqian Liu.

Appendix A. Stimuli used in all studies

Study 1A:

spacious condition	compact condition
<p>A N L T O S s n e a k e r s</p>	<p>ANLTOS sneakers</p>

Study 1B:

spacious condition	compact condition
	





Study 2:

spacious condition	compact condition
<p>S e n n h e i s e r h e a d p h o n e s</p>	<p>Sennheiser headphones</p>

Study 3:

spacious condition	compact condition
<p>N Y E L e l e c t r o n i c s</p>	<p>NYEL electronics</p>

Study 4:




	spacious condition	compact condition
relaxing-image-absence condition		
relaxing-image-presence condition		

Study 5:

Order 1	<i>NEXATECH</i> brand A	<i>TECHNOVA</i> brand B
Order 2	<i>TECHNOVA</i> brand A	<i>NEXATECH</i> brand B

Study 6:

hedonic condition	utilitarian condition
MOSSA is a sneaker brand known for stylish and pleasing design. In particular, our products feature a sleek modern aesthetic and a beautiful contrast shade design. MOSSA’s signature emblem is found on the outer-side of these gorgeous-looking shoes.	MOSSA is a sneaker brand known for functionality and craftsmanship. In particular, our products feature a solid non-marking rubber outsole for long-wearing traction and durability. MOSSA’s signature emblem is found on the outer- side of these shoes.

compact-to-spacious condition	spacious-to-compact condition
 → 	 → 

Appendix B. Web Appendix

The following link is the Web Appendix of this article: https://osf.io/jmzve/?view_only=53779d68893042eda880778df9e19dac.

Data availability

Data will be made available on request.

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