The Impact of Traditional Cultural Loading of Products on Brand Status: Evidence from Youth Consumer Groups (Postprint)

Authors: Yu Wenhuan, He Lin, Fu Yu, Liu Tao

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Abstract

Four behavioral experiments and one brain imaging experiment consistently demonstrate that increasing the traditional cultural load of a product can enhance consumers' perceived evaluation of the product's brand status. Endowing products with more traditional cultural connotations can activate consumers' social cognition brain regions as well as reward brain regions, enhance consumers' perception of social value, and subsequently influence their perceived evaluation of the brand status of the product. Product type moderates the effect of product traditional cultural load on brand status; the enabling effect of traditional cultural load on brand status is more applicable to utilitarian products, and its impact on the perceived brand status of hedonic products is not significant. These findings expand the research scope of cultural marketing, reveal the cognitive neural mechanisms through which traditional Chinese culture enables brand status, and hold important practical significance for how utilitarian product manufacturing enterprises can utilize traditional Chinese culture to achieve brand status management.

Full Text

Preamble

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The Effect of Product Traditional Cultural Load on Brand Status: Evidence from Young Consumers

YU Wenhuan[1], *HE Lin*[1,2], *FU Yu*[1], *LIU Tao*[2,3]
([1] School of Management, Zhejiang University, Hangzhou 310058, China)
([2] School of Management, Shanghai University, Shanghai 200444, China)
([3] School of Health, Fujian Medical University, Fuzhou 350122, China)

Abstract

Four behavioral experiments and one neuroimaging study consistently demonstrate that increasing a product's traditional cultural load enhances consumers' perceived brand status. Endowing products with greater traditional cultural connotations activates consumers' social cognition and reward brain regions, elevates their perception of social value, and consequently influences their evaluations of brand status. Product type moderates this effect: the empowering effect of traditional cultural load on brand status is more pronounced for utilitarian products, while its impact on hedonic products' brand status perception is not significant. These findings expand the scope of cultural marketing research and reveal the cognitive neural mechanisms through which traditional Chinese culture empowers brand status, offering important practical implications for utilitarian product manufacturers seeking to leverage traditional Chinese culture for brand status management.

Keywords: traditional culture, product type, perceived social value, brand status, consumer neuroscience
Classification Code: B849: F713.55

Introduction

The *2021 China Brand Development Report* indicates that Chinese brands are experiencing a "national style fever," with increasing integration of products and traditional culture gaining popularity. Previous research has found that combining products with traditional Chinese cultural elements positively influences domestic consumers' attitudes and purchase intentions (Chai et al., 2015). However, empirical research remains unclear on how traditional Chinese cultural elements affect consumers' perceptions of brands, particularly brand status. This study focuses on how the traditional Chinese cultural attributes of products influence brand status (rather than the product itself), employing both behavioral and cognitive neuroscience methods to explore the underlying mechanisms.

When consumers lack knowledge about a brand's status, or when a brand is in its infancy and has yet to establish brand recognition, how can companies enhance consumers' evaluations of brand status? Can endowing products with greater social value 反过来 help elevate brand status? Our behavioral and neuroimaging results consistently confirm that the traditional Chinese cultural connotations embedded in products can enhance consumers' perceived social value, which in turn improves their evaluations of brand status.

This research not only deepens our understanding of the role of traditional Chinese culture in marketing by extending its influence to the brand level, but also validates the importance of perceived social value in the process through which traditional cultural load empowers brand status, using both behavioral and cognitive neuroscience methodologies.

1.1 Brand Status and Product Traditional Cultural Load

Existing literature on brand status has primarily focused on established brands, examining the social value that brand status confers upon consumers. For instance, research on conspicuous consumption suggests that people purchase high-status or luxury products to obtain greater social value (Griskevicius et al., 2007; Rucker & Galinsky, 2009; Wang & Griskevicius, 2014). However, when consumers are unfamiliar with a brand or when a brand is in its startup phase, how do consumers evaluate its brand status?

Previous studies indicate that product design is increasingly becoming a cue for brand inference, influencing both consumer attitudes toward products and brand image (Park & Hadi, 2020). On one hand, consumers can infer brand status by observing superficial product cues such as packaging shape (Chen et al., 2020), size (Dubois et al., 2012), and material (Meert et al., 2014). On the other hand, certain deep-level product cues also affect consumers' evaluations of brand status. Solja et al. (2018) demonstrated that printing a brief brand story on product packaging can improve consumer evaluations and deepen emotional connections with the brand.

In cultural marketing research, traditional culture often functions as a social value influencing people's psychology and consumption behavior (Hu et al., 2018). In recent years, with increasing national cultural confidence and the development of cultural creative industries, more products have integrated traditional Chinese cultural design elements, thereby enhancing their traditional cultural load (Chai et al., 2015). Drawing from definitions of cultural load in linguistic studies (Hu, 1999), we conceptualize product traditional cultural load as the degree to which a product highlights traditional culture and the depth of traditional cultural connotations it carries.

Existing research shows that appropriately adding traditional cultural elements to product design can enhance consumers' purchase intentions (Qin et al., 2019) and satisfaction (Chai et al., 2015). Consumers can form positive emotional experiences by appreciating a product's cultural connotations (Arnould & Thompson, 2007). Therefore, infusing cultural elements into products can influence consumer attitudes and cognition toward both the product and the brand. Wu (2022) concluded through interviews that product traditional cultural load can enhance consumers' perceptions of brand authenticity, thereby successfully constructing a non-conspicuous high-end brand image. For example, emphasizing the use of traditional Chinese craftsmanship heritage (such as kesi silk weaving techniques) can increase consumers' sense of rarity and preciousness, thereby

improving brand authenticity evaluations and ultimately helping brands build non-conspicuous high-end images. Thus, Wu's (2022) research indirectly demonstrates the empowering effect of traditional culture on brand status. Based on this, we hypothesize that product traditional cultural load, as a cue for inferring brand status, may influence consumers' evaluations of product brand status.

H1: Product traditional cultural load can enhance consumers' evaluations of product brand status.

1.2 Traditional Cultural Load and Product Type

Different product types, such as hedonic versus utilitarian products, provide distinct value to consumers and consequently influence consumer attitudes and behaviors (Zhao et al., 2007). Building on this theoretical foundation, Study 2 further investigates whether the effect of product traditional cultural load on brand status differs across product types.

Utilitarian products refer to consumer goods that provide instrumental and functional value, such as stationery and household cleaners (Dhar & Wertenbroch, 2000). Consumers typically purchase utilitarian products to achieve tangible, objective outcomes and solve daily difficulties. In contrast, hedonic products provide sensory pleasure and enjoyment, such as chocolate and aromatherapy sprays (Holbrook & Hirschman, 1982).

Amatulli et al. (2019) found that product type information can alter consumers' perceptions of product luxury. Compared to emphasizing functional value, hedonic appeals better satisfy consumers' pursuit of personal style and taste, thereby enhancing luxury perceptions. Differences in product value may also lead to varying perceptions of expected benefits across product types (Choi & Lee, 2012). Chou et al. (2021) discovered that cute elements combined with utilitarian products enhance consumer happiness more than when combined with hedonic products, thereby improving attitudes and purchase intentions toward utilitarian products. This occurs because hedonic products primarily provide emotional value, while utilitarian products deliver more functional value; combining cute elements with hedonic products reduces the marginal utility of the cute elements' emotional value, whereas combining them with utilitarian products produces a more significant perceived value enhancement (Chou et al., 2021).

Similar to cute elements, the value provided by traditional cultural elements is also non-functional. Therefore, when traditional cultural elements are combined with different product types, a similar effect may occur: the enhancement effect of traditional cultural elements may be greater for utilitarian products than for hedonic products that already provide non-functional value. When utilitarian products carry higher traditional cultural load, consumers can obtain both functional and non-functional value, thereby increasing their evaluation of the brand status of utilitarian products with high traditional cultural load. For hedonic products, which already possess strong non-functional value, the marginal

benefit of additional non-functional value from high traditional cultural load is smaller, thus weakening the empowering effect of traditional cultural load on hedonic products' brand status. Accordingly, we propose that product type may influence consumers' brand status evaluations of products with different traditional cultural loads.

H2: Product type moderates the positive effect of traditional cultural load on brand status evaluations. Compared to hedonic products, traditional cultural load can significantly enhance brand status evaluations for utilitarian products.

1.3 Culture, Product Perceived Value, and Brand Status

Regarding the definition of traditional culture, foreign scholars note that culture consists of implicit and explicit schemas, behaviors acquired and transmitted through symbols, and their material manifestations as unique achievements of human groups. The core of traditional culture is the concept of "tradition," particularly its associated values, with key features being the "intergenerational transmission" of knowledge, beliefs, values, customs, and norms (Daskon & Binns, 2009; Kroeber & Kluckhohn, 1953). Domestic scholars have offered similar perspectives. Tang (2018) views traditional culture as a broad concept encompassing all things created historically by humans, endowed with symbolic meaning, and transmitted to the present. Zhuang (1997) specifically describes traditional Chinese culture as material and spiritual historical heritage created by Chinese ancestors that influences modern people and society, including folklore, sites, cultural relics, literature, art, ways of thinking, and value concepts. These definitions encompass historicity, nationality, symbolism, and intergenerational influence, constituting a broad and complex concept. Based on this, we define traditional culture as a complex whole of implicit and explicit schemas, behaviors, and materials created by national ancestors in history, highlighting national characteristics, rich in symbolic meaning, and continuing to the present.

Culture possesses important social attributes. People under the same culture share values, beliefs, morals, and practices that provide them with common goals and collective identity (Wang & Zheng, 2015). When stimulated by culture, their shared cultural attributes are activated, strengthening the social bonds that connect them (Briley & Wyer Jr., 2002). Accordingly, culture also becomes an important cue for distinguishing identity and relationships, with people from different cultures forming different social classifications (Tajfel & Turner, 2004). People use "culture-identity" links to define themselves by purchasing and using products containing different cultural connotations (Berger & Ward, 2010; Côté, 1996; Gao et al., 2009). Both social classification theory and "culture-identity" link theory demonstrate that culture can serve as a tool for people to shape their social identity and image.

Product perceived social value refers to the value that a product confers upon consumers to enhance or change their social image, as reflected in measures

of perceived social value: "…helps me be recognized by others," "…leaves a good impression on others," "…improves others' opinions of me" (Sweeney & Soutar, 2001). Combining social classification theory, "culture-identity" link theory, and the definition of perceived social value, we infer that incorporating traditional culture into products means that young Chinese consumers can use the traditional cultural connotations carried by products to shape their social image, influence others' perceptions of themselves, and thereby enhance the product's perceived social value.

Social value is also closely related to brand status. High-status brands often contain high social value; the social value provided by brands and products is a primary motivation for people to purchase high-status brand products (Jin et al., 2017). When consumers seek to gain social status or enhance self-worth, brand status plays an important role in their purchase decisions (Rucker & Galinsky, 2009; Sivanathan & Pettit, 2010). Research on conspicuous consumption confirms that purchasing and using high-end brands and luxury goods (i.e., conspicuous consumption) can bring consumers more social value (Griskevicius et al., 2007; Rucker & Galinsky, 2009; Wang & Griskevicius, 2014), while low-end brands provide less such social value. Accordingly, we hypothesize that product traditional cultural load may influence consumers' brand status evaluations by enhancing their perceived social value.

H3: Increasing product traditional cultural load can enhance consumers' perceived social value of utilitarian products, thereby influencing their brand status evaluations.

This research comprises four experiments. Study 1 examines the main effect of product traditional cultural load on brand status, providing preliminary evidence for subsequent experiments. Study 2 identifies the boundary conditions of this effect, focusing further investigation on utilitarian products. Studies 3a and 3b explore the mediating role of perceived social value by measuring three dimensions of perceived value (social, functional, and emotional value). Additionally, Studies 3a and 3b demonstrate the unique role of traditional Chinese culture in enhancing brand status by comparing it with modern culture and Western culture. Studies 4a and 4b further test the main effect and mediating effect through laboratory experiments and near-infrared spectroscopy brain imaging.

2. Study 1: Main Effect Test of Product Traditional Cultural Load on Brand Status

Study 1 aimed to examine the effect of product traditional cultural load on brand status and test H1. We manipulated traditional cultural load through textual descriptions and investigated its impact on brand status. Since price serves as a known inference cue for brand status (Dawar & Parker, 1994), we also examined consumers' willingness to pay to enhance the reliability of our results.

2.1 Experimental Design

We used G*Power 3.1.9.2 to estimate the required sample size. With $\alpha = 0.05$, power $(1 - \beta) = 0.95$, and effect size d = 0.5, the planned total sample size was 176. Accordingly, we recruited 178 participants through the Credamo survey platform. Eight participants failed the attention check, leaving 170 participants (mean age = 29.89 ± 6.46 years, mean monthly income = ¥7,463.62 ± ¥4,003.90; 101 females, 59.4%) who completed the online questionnaire. The experiment employed a single-factor between-participants design, with participants randomly assigned to either the low traditional cultural load group (n = 86) or the high traditional cultural load group (n = 84).

The questionnaire consisted of two parts. First, we informed participants that a paper brand wanted to conduct market research on its new product and invited them to carefully read the product materials and provide honest evaluations. In the low traditional cultural load group, participants were told the new tissue product was named "Fast-Growing Reed Paper" and read the following product description:

"Compared to trees, reeds have a short growth cycle, high density, and strong regenerative capacity, making them an environmentally friendly raw material for papermaking. 'Fast-Growing Reed Paper' uses reed pulp as raw material, requires no tree cutting, and needs no bleaching, thus not polluting water sources. It is a healthy and environmentally friendly green household paper."

In the high traditional cultural load group, participants viewed the same product image but were told the new product was named "Timely-Nurtured Reed Paper" and read the following description:

"The *Mencius· King Hui of Liang I* states: 'If axes and bills enter the mountains and forests at the proper time, the timber will be inexhaustible,' advocating for sustainable ecological development. Mencius's cultural philosophy of 'timely nurturing' has been passed down for millennia in China. 'Timely-Nurtured Reed Paper' uses reed pulp as raw material, requires no tree cutting, and needs no bleaching, thus not polluting water sources. It is a healthy and environmentally friendly green household paper."

To strengthen the manipulation of traditional cultural load, after reading the materials, we asked participants to briefly describe in writing the name and origin of this tissue paper.

In the second part of the experiment, we asked participants to rate the brand status of the tissue brand. Brand status was adapted from Chen et al. (2020) (see Appendix A for detailed items), requiring participants to indicate which tier the tissue brand belonged to in the industry (1 = top luxury brand, 7 = low-priced mass brand). Participants were also asked about their willingness to pay for the product: "How much would you be willing to pay for a pack of this tissue?"

Finally, participants rated the extent to which the tissue paper had traditional culture (1 = very low, 7 = very high) as a manipulation check. All participants reported basic personal information (including gender, age, monthly income, etc.).

2.2 Statistical Results

Independent samples t-test results showed that participants' ratings of traditional cultural load were significantly higher in the high-load group than in the low-load group (M_{low} = 4.86, SD = 1.50; M_{high} = 6.68, SD = 0.73; $t(168) = -9.84$, $p < 0.001$, Cohen's $d = -1.22$), confirming successful manipulation. Correlation analysis revealed no significant relationships between gender, age, monthly income, and brand status ratings ($rs > -0.03$, $ps > 0.052$).

After reverse-scoring the brand status measure, we analyzed differences in brand status perception between the two groups. Results confirmed that participants rated the brand status significantly higher for the high traditional cultural load condition ($M = 4.61$, $SD = 1.13$) than for the low-load condition ($M = 3.73$, $SD = 1.24$; $t(168) = -4.80$, $p < 0.001$, Cohen's $d = -0.74$). Higher scores indicate higher brand status. This suggests that brands with higher traditional cultural load are perceived as having higher brand status.

Additionally, for the high traditional cultural load product, participants also showed higher willingness to pay ($M = ¥8.34$, $SD = 6.54$) compared to the low-load product ($M = ¥6.41$, $SD = 3.82$; $t(168) = -2.35$, $p = 0.020$, Cohen's $d = -0.36$), again corroborating the brand status-enhancing effect of traditional cultural load.

2.3 Discussion

Study 1 confirmed the positive effect of product traditional cultural load on brand status. Increasing traditional cultural load can enhance consumers' brand status perceptions. Moreover, from a consumption perspective, consumers are also willing to pay more for products with traditional cultural load. As price serves as a brand status cue, higher willingness to pay metaphorically reflects consumers' recognition of the product's brand status (Dawar & Parker, 1994).

The experimental material used in Study 1 (tissue paper) primarily serves as a utilitarian product in daily life. Whether brand status is similarly affected when other product types carry different degrees of traditional cultural connotations requires further investigation. Therefore, Study 2 incorporates product type to examine whether the effect of traditional cultural load on brand status differs across product types.

3. Study 2: Product Type as a Boundary Condition

When consuming different product types, consumers obtain different product values, which influences their attitudes and behaviors (Zhao et al., 2007). Build-

ing on this theoretical foundation, Study 2 further investigates whether the effect of product traditional cultural load on brand status differs across product types, testing H2—that product type moderates the enhancing effect of traditional cultural load on brand status evaluations.

3.1 Experimental Design

The experiment employed a 2 (traditional cultural load: low vs. high) × 2 (product type: utilitarian vs. hedonic) between-participants design. Using G*Power to estimate the required sample size, we determined that 210 participants were needed to achieve $\alpha = 0.05$ and power = 0.95 with effect size f = 0.25. We recruited 280 participants through the Credamo survey platform; 10 failed the attention check, leaving 270 participants (mean age = 28.00 ± 7.08 years; 135 females, 50%) who completed the online questionnaire.

The procedure was similar to Study 1. Participants were randomly assigned to one of four conditions and read a product description about chrysanthemum tea. We manipulated perceptions of product type and traditional cultural load through differentiated materials (see Appendix B for details). For example, in the high traditional cultural load/utilitarian condition, the product description emphasized functional benefits: "*The Divine Farmer's Materia Medica* states that chrysanthemum tea 'benefits qi and blood, mildly disperses and benefits blood vessels,' can enhance capillary resistance…" In the low traditional cultural load/hedonic condition, the description focused on experiential value: "Research confirms that drinking chrysanthemum tea can relax the mood and make emotions leisurely and carefree…"

After reading the product information, participants rated the brand status of the chrysanthemum tea brand using the same measure as in Study 1. To confirm the success of our product type manipulation, we provided definitions of hedonic and utilitarian products (Dhar & Wertenbroch, 2000; Holbrook & Hirschman, 1982) and asked participants to rate the extent to which the chrysanthemum tea was utilitarian or hedonic (1 = purely utilitarian, 7 = purely hedonic). The manipulation check for traditional cultural load followed the method used in Study 1. Finally, we collected participants' personal information.

3.2 Statistical Results

First, the product type manipulation check showed that when product information emphasized functional benefits like "enhancing capillary resistance," participants perceived it as more utilitarian (M = 2.77, SD = 1.36); when it emphasized experiential value like "relaxing the mood," it was perceived as more hedonic (M = 4.93, SD = 1.41). The difference was significant ($t(268) = 12.81$, $p < 0.001$, Cohen's $d = -1.56$), confirming successful manipulation. Additionally, traditional cultural load scores were significantly higher in the high-load condition (M = 5.92, SD = 0.80) than in the low-load condition (M = 5.11, SD = 1.21; $t(268) = 6.43$, $p < 0.001$, Cohen's $d = 0.79$), confirming successful manipulation

of traditional cultural load. Notably, the manipulation of traditional cultural load did not change participants' product type judgments (p = 0.896).

After reverse-scoring brand status scores, we used SPSS Process Model 1 to analyze the moderating effect of product type (Hayes, 2013). Since participant age (r = 0.24, p < 0.001) and monthly income (M = ¥6,556.31, SD = ¥4,187.70, r = 0.03, p = 0.026) were significantly correlated with brand status, we included them as covariates. Results showed that the main effect of traditional cultural load on brand status was not significant (B = 0.03, SE = 0.07, p = 0.608, 95% CI = [−0.10, 0.16]). However, the effect of product type on brand status was significant (B = 0.23, SE = 0.07, p = 0.001, 95% CI = [0.10, 0.36]), and a significant interaction emerged (B = −0.15, SE = 0.01, p = 0.020, 95% CI = [−0.28, −0.02]). Simple effects analysis revealed that for utilitarian products, high traditional cultural load significantly enhanced brand status perception (M_{high} = 3.37, SD = 1.05; M_{low} = 3.01, SD = 1.09; p = 0.047, ^{2} = 0.02). For hedonic products, traditional cultural load did not affect brand status perception (M_{high} = 3.55, SD = 1.06; M_{low} = 3.78, SD = 1.16; p = 0.193, ^{2} = 0.01). These results indicate that traditional cultural load has a greater empowering effect on utilitarian product brand status.

3.3 Discussion

Study 2 confirmed the moderating role of product type in the effect of traditional cultural load on brand status. Additionally, under low traditional cultural load conditions, the results replicated previous findings that consumers evaluate hedonic products more favorably than utilitarian products (Amatulli et al., 2019; Jones et al., 2006). Importantly, Study 2 found that traditional cultural load can compensate for this "inherent disadvantage" of utilitarian products: when utilitarian products carry high traditional cultural load, their brand status does not differ significantly from that of hedonic products. To further clarify the mechanism through which traditional cultural load enhances utilitarian product brand status, we designed Study 3.

4. Study 3: The Mediating Role of Perceived Social Value

The first two studies demonstrated that traditional cultural load empowers utilitarian product brand status, but the underlying mechanism remains unclear. Study 3 therefore investigates the mediating mechanism through which traditional cultural load empowers utilitarian product brand status. Additionally, Study 3 includes other cultural conditions to rule out similar empowering effects from other types of cultural loads and verify the unique role of traditional culture.

4.1 Pretest

To ensure successful manipulation of cultural type and cultural load, we designed a within-participants pretest. We recruited 400 participants through Credamo;

23 failed the attention check, leaving 377 participants (mean age = 29.14 ± 8.03 years, mean monthly expenditure = ¥7,900.23 ± ¥8,574.80; 256 females, 67.9%) who completed the online questionnaire.

All participants viewed three product images in random order: high traditional cultural load (Qing Dynasty winged cup), low traditional cultural load (two-handed grip cup), and high modern cultural load (championship trophy). They rated each image on its traditional versus modern cultural content (1 = contains a lot of traditional culture, 7 = contains a lot of modern culture). Repeated measures ANOVA confirmed significant differences among the three cultural symbols ($F(2, 752) = 422.73$, $p < 0.001$, $^2 = 0.53$). The Qing Dynasty winged cup scored significantly lower ($M = 1.94$, $SD = 1.15$) than the two-handed grip cup ($M = 3.73$, $SD = 1.71$, $p < 0.001$), which in turn scored significantly lower than the championship trophy ($M = 4.92$, $SD = 1.66$, $p < 0.001$). The pretest results confirmed the effectiveness of our experimental materials.

4.2 Study 3a

4.2.1 Experimental Design Study 3a employed a one-factor between-participants design (high modern culture vs. low traditional culture vs. high traditional culture). Using G*Power, we estimated that 252 participants were needed to achieve $\alpha = 0.05$ and power = 0.95 with effect size f = 0.25. We recruited 300 university students through Wenjuanxing; 4 failed the attention check, leaving 296 participants (mean age = 23.97 ± 5.24 years, mean monthly expenditure = ¥2,400.87 ± ¥1,965.89; 173 females, 58.4%) who completed the online questionnaire.

The procedure was similar to Study 1. Participants were randomly assigned to one of three conditions and told that a brand wanted to launch a new water cup and needed their evaluations. We manipulated cultural load levels by varying the design inspiration source while keeping other text materials identical, focusing on functional design (see Appendix C for details). For example, the high modern cultural load group read:

"This water cup's design is inspired by championship trophy cups, adopting a fully symmetrical design language. The fully curved body with double ears extending downward from the rim satisfies functional needs while displaying aesthetic beauty. The curved details of the handle meet ergonomic finger requirements…"

The low traditional cultural load group read:

"This water cup's design is inspired by two-handed grip design, adopting a fully symmetrical design language…"

The high traditional cultural load group read:

"This water cup's design is inspired by the ancient Chinese wine vessel—the winged cup, adopting a fully symmetrical design language…"

After reading the materials, participants completed a fill-in-the-blank question recalling the design inspiration source. Then, consistent with Studies 1 and 2, we measured brand status evaluations. To investigate the mechanism, we added measures of product perceived value, including functional, emotional, and social value (Sweeney & Soutar, 2001). Finally, participants rated the traditional cultural load of the new water cup.

4.2.2 Results First, one-way ANOVA showed that the high traditional cultural load cup was perceived as containing significantly more traditional culture ($M = 7.27$, $SD = 1.88$) than both the high modern cultural load ($M = 3.64$, $SD = 2.51$) and low traditional cultural load cups ($M = 4.74$, $SD = 2.68$; $F(2, 293) = 61.32$, $p < 0.001$, $^2 = 0.30$), confirming successful manipulation.

Next, we replicated the main effect. Participants rated the brand status of the high traditional cultural load cup ($M = 4.88$, $SD = 1.07$) significantly higher than both the low traditional cultural load ($M = 4.09$, $SD = 1.27$) and high modern cultural load cups ($M = 4.21$, $SD = 1.36$; $F(2, 293) = 11.25$, $p < 0.001$, $^2 = 0.07$). The low and high modern cultural load groups did not differ significantly ($p = 0.524$).

We then used SPSS Process Model 4 to test the mediating roles of perceived social, functional, and emotional value (Hayes, 2013). We created dummy variables for the three cultural load groups (with low traditional cultural load as the reference group: X1 coded high modern cultural load = 1, low traditional = 0, high traditional = 0; X2 coded high modern = 0, low traditional = 0, high traditional = 1). With perceived social, functional, and emotional value as mediators and brand status as the outcome, mediation analysis showed (see [Figure 1: see original paper] and [Figure 2: see original paper]) that the indirect effect through perceived social value was significant for high traditional cultural load (vs. low traditional cultural load) ($B = 0.22$, $SE = 0.08$, 95% CI = [0.09, 0.39]), while indirect effects through functional value ($B = 0.06$, $SE = 0.04$, 95% CI = [−0.01, 0.16]) and emotional value ($B = 0.02$, $SE = 0.04$, 95% CI = [−0.04, 0.11]) were not significant. These results confirm that traditional cultural load has a unique effect on brand status compared to modern culture, and that perceived social value mediates this relationship.

Further, we combined the high modern and low cultural load groups and retested the mediating role of perceived social value using SPSS Process Model 4. The indirect effect was significant ($B = 0.08$, $SE = 0.03$, 95% CI = [0.03, 0.14]) (see [Figure 3: see original paper]).

4.3 Study 3b

Study 3a explored the "traditional-modern" dimension of culture; Study 3b manipulates traditional culture along the "Eastern-Western" dimension. Study 3b employed a one-factor between-participants design (high traditional Western cultural load vs. low traditional cultural load vs. high traditional Chinese cultural

load). We recruited 300 participants through Credamo; 2 failed the attention check, leaving 298 participants (mean age = 30.36 ± 7.59 years, mean monthly expenditure = ¥8,812.58 ± ¥11,507.29; 196 females, 65.8%) who completed the online questionnaire.

4.3.1 Experimental Design Participants were randomly assigned to one of three conditions and viewed an image of a laptop bag. In the high traditional Western cultural load condition, the bag design was "Oil Painting Cedar," featuring a cedar tree painted in oil painting style, presenting a "Christmas tree" image. In the high traditional Chinese cultural load condition, the design was "Ink Painting Guest-Greeting Pine," featuring a traditional Chinese ink painting style of a guest-greeting pine tree. In the low traditional cultural load control condition, the design was "Summer Ginkgo," featuring a photograph of a ginkgo tree.

Similar to Study 3a, after viewing the bag, participants rated its brand status (1 = top luxury brand, 7 = low-priced mass brand) and reported their perceived social value (Sweeney & Soutar, 2001) (see Appendix E for detailed items). In Study 3b, we implemented stricter controls on experimental materials. Participants judged the bag's cultural load (1 = contains a lot of Western traditional culture, 7 = contains a lot of Chinese traditional culture) as a manipulation check. To exclude potential interference from image attractiveness, participants also rated the attractiveness of the bag's image (1 = not at all attractive, 7 = very attractive). Additionally, participants reported their frequency of laptop bag use (1 = never use, 7 = use every day) and frequency of carrying it outside (1 = never carry outside, 7 = always carry outside when going out). Finally, we asked all participants about the importance they place on functional, emotional, and social value when selecting laptop bags (1 = not at all important, 7 = very important) and collected basic demographic information.

4.3.2 Results First, ANOVA results showed significant differences among the three groups in Eastern-Western traditional cultural load scores ($F(2, 295) = 69.09$, $p < 0.001$, $^2 = 0.32$). The high Western cultural load group scored significantly lower ($M = 4.20$, $SD = 1.70$) than the low traditional cultural load control group ($M = 5.61$, $SD = 1.16$, $p < 0.001$, Cohen's $d = -0.97$) and the high Chinese traditional cultural load group ($M = 6.26$, $SD = 0.72$, $p < 0.001$, Cohen's $d = -0.67$). We also conducted ANOVA on image attractiveness and found no significant differences among the three conditions (M_{high} Western = 5.36 ± 1.48, M_{low} = 5.17 ± 1.48, M_{high} Chinese = 5.36 ± 1.48; $F(2, 295) = 0.76$, $p = 0.47$, $^2 = 0.01$). Thus, cultural load manipulation was successful and materials did not differ in attractiveness.

Next, after reverse-scoring brand status scores, we tested the main effect. Since age, education level, image attractiveness, frequency of laptop bag use, frequency of carrying it outside, and importance placed on various value dimensions when selecting bags were all significantly correlated with brand status (see),

we included these variables as covariates in ANOVA. Results showed significant differences among the three groups in brand status evaluations ($F(2, 295) = 13.76$, $p < 0.001$, $^2 = 0.09$). The high Western traditional cultural load group ($M = 3.78$, $SD = 1.26$) did not differ from the low traditional cultural load control group ($M = 3.76$, $SD = 1.48$, $p = 1.000$, Cohen's $d = -0.01$). However, the high Chinese traditional cultural load group ($M = 4.48$, $SD = 1.16$) rated brand status significantly higher than both the low-load control group ($p = 0.001$, Cohen's $d = 0.54$) and the Western cultural load group ($p < 0.001$, Cohen's $d = 0.58$).

Finally, we included variables significantly correlated with brand status from as covariates, created dummy variables for Chinese vs. Western traditional cultural load groups (with low traditional cultural load as reference), used perceived social value as the mediator and brand status as the outcome, and conducted mediation analysis using SPSS Process Model 4 (Hayes, 2013). Results showed (see [Figure 4: see original paper] and [Figure 5: see original paper]) that high Western traditional cultural load (vs. low traditional cultural load) had no significant total, direct, or indirect effects on brand status. In contrast, high Chinese traditional cultural load (vs. low traditional cultural load) had significant total, direct, and indirect effects (indirect effect: $B = 0.12$, $SE = 0.05$, 95% CI $= [0.03, 0.23]$). Compared to Western traditional culture, Chinese traditional culture has a unique empowering effect on brand status, with perceived social value serving as the mediator.

4.4 Discussion

Study 3 again confirmed the empowering effect of high traditional cultural load on utilitarian product brand status and the mediating role of perceived social value. Additionally, Studies 3a and 3b verified the unique role of Chinese traditional culture in empowering brand status. This uniqueness suggests that using culture to improve identity may require two important preconditions. First, the culture must have clear distinctiveness to provide unique identity features for information senders (i.e., consumers) and thereby enhance their social value. Second, the culture must be recognized and preferred by the target population with high cultural identity (Oswald, 1999) to provide a sense of belonging. Cultural identity is individuals' sense of belonging to their cultural group (Karjalainen, 2020). If people lack sufficient identification with cultural symbols, information senders (consumers) will have insufficient social motivation to use these symbols to improve their social image, while information receivers (social others) will have difficulty perceiving, understanding, and recognizing the social value conveyed by these symbols.

5. Study 4: Neural Evidence for the Mediating Mechanism of Perceived Social Value

Study 4 had three main objectives: First, to enhance ecological validity through offline experiments and scenario design; second, to distinguish the specific values provided by traditional cultural load by examining participants' choices of tissues with different cultural loads across different scenarios, further validating the mechanism; third, to add cognitive neuroscience measures using near-infrared spectroscopy to explore the cognitive neural mechanisms underlying traditional cultural load's empowerment of brand status.

5.1 Study 4a

5.1.1 Experimental Design Study 4a used a one-factor within-participants design (low traditional cultural load vs. high traditional cultural load). Using G*Power, we calculated that at least 44 participants were needed for paired-samples t-tests and repeated-measures ANOVA to achieve $\alpha = 0.05$ and power = 0.95 with effect size f = 0.25. Additionally, referencing previous research (Wang & Wen, 2018), at least 60 valid samples are needed for two-level within-participants mediation analysis. Accordingly, we recruited 113 participants from a university for a laboratory experiment; 1 failed the attention check, leaving 112 valid participants (mean age = 22.83 ± 2.88 years, mean monthly expenditure = ¥2,383.04 ± ¥1,314.29; 35 females, 70%).

At the beginning of the experiment, participants received two tissue papers of noticeably different quality and had 30 seconds to carefully examine their differences. They were then told these were new products from two sub-brands of a company that needed help determining marketing strategies. After reading the two different traditional cultural load marketing strategies (the "Timely-Nurtured" and "Fast-Growing" materials from Study 1), participants matched each tissue sample with a brand strategy. Additionally, they priced each brand by indicating their willingness to pay.

After the matching task, all participants viewed three scenario descriptions (functional, social, and emotional scenarios) in random order (see Appendix F) and indicated which tissue they would use in each scenario (1 = would definitely use "Fast-Growing" reed paper, 10 = would definitely use "Timely-Nurtured" reed paper). To verify the mediating role of social value, we adapted Sweeney and Soutar's (2001) perceived value measure and asked participants to rate the social value of both "Fast-Growing" and "Timely-Nurtured" tissues with items such as "Timely-Nurtured reed paper helps me be recognized by others" (1 = strongly disagree, 7 = strongly agree). To replicate the main effect, we measured brand status for both tissues using the same items as in Study 2.

As a manipulation check for the scenario design, participants also answered, "In this scenario, what value of the tissue would you consider?" and rated the importance of functional, emotional, and social value dimensions (0 = would not

consider at all, 10 = would definitely consider). Finally, all participants reported demographic information including gender, age, and monthly expenditure.

5.1.2 Data Results First, binary analysis of the tissue-strategy matching results showed that 91 participants (81%) matched "Timely-Nurtured" with the high-quality tissue, significantly more than the 21 participants (19%) who matched "Fast-Growing" with high-quality tissue ($p < 0.001$). Study 1's manipulation check had already confirmed that "Timely-Nurtured" had significantly higher traditional cultural load than "Fast-Growing." Thus, participants tended to associate high traditional cultural load with high-quality tissue.

After reverse-scoring brand status scores, paired-samples t-tests revealed that participants rated the brand status of the high traditional cultural load "Timely-Nurtured" tissue ($M = 4.79$, $SD = 1.37$) significantly higher than the low-load "Fast-Growing" tissue ($M = 2.73$, $SD = 1.45$; $t(111) = 9.91$, $p < 0.001$, Cohen's $d = 1.46$). Additionally, willingness to pay was significantly higher for "Timely-Nurtured" ($M = ¥4.76$, $SD = 2.54$) than for "Fast-Growing" ($M = ¥3.31$, $SD = 1.69$; $t(111) = 7.86$, $p < 0.001$, Cohen's $d = 0.67$), again confirming the brand status-enhancing effect of traditional cultural load.

For the scenario design manipulation check, a 3 (scenario: functional vs. emotional vs. social) × 3 (perceived value: functional vs. emotional vs. social) repeated-measures ANOVA showed (see [Figure 6: see original paper]) that in the social scenario, pursuit of social value was significantly higher than in the other two scenarios (M_{social} = 7.05 ± 0.16, M_{emotional} = 1.60 ± 1.54, M_{functional} = 1.76 ± 1.85; $F(2, 222) = 307.22$, $p < 0.001$, $^2 = 0.80$). In the functional scenario, perceived functional value was significantly higher than in emotional and social scenarios (M_{functional} = 7.88 ± 1.54, M_{emotional} = 2.99 ± 2.17, M_{social} = 1.76 ± 1.85; $F(2, 222) = 23.85$, $p < 0.001$, $^2 = 0.18$). In the emotional scenario, perceived emotional value was significantly higher than in the functional scenario and comparable to the social scenario (M_{emotional} = 4.93 ± 2.66, M_{functional} = 2.99 ± 2.17, M_{social} = 5.04 ± 2.53; $F(2, 222) = 39.46$, $p < 0.001$, $^2 = 0.26$).

Since functional and emotional scenarios were both single-person scenarios, while the social scenario was a multi-person scenario, and participants' perceived value ratings for functional and emotional scenarios did not differ significantly, we combined functional and emotional scenario choices into a single-person scenario. Paired-samples t-tests comparing product choices in social versus single-person scenarios showed that participants significantly preferred using high traditional cultural load tissue in social scenarios ($M = 5.03 \pm 1.87$) compared to single-person scenarios ($M = 6.43 \pm 2.53$; $t(111) = -6.31$, $p < 0.001$, Cohen's $d = 0.63$).

We then examined the relationship between product perceived value and traditional cultural load. Controlling for different value needs across scenarios (functional, emotional, and social), partial correlation analysis showed that only

in the social scenario were product choices significantly correlated with brand status (r_{Timely}-Nurtured = 0.39, p < 0.001; r_{Fast}-Growing = −0.40, p < 0.001) and perceived social value (r_{Timely}-Nurtured = 0.33, p = 0.001; r_{Fast}-Growing = −0.40, p < 0.001). In functional and emotional scenarios, product choices were not significantly related to brand status (ps > 0.05) or perceived social value (ps > 0.06).

Finally, using the within-participants design of Study 4a, we used SPSS Memore plugin Model 1 to test the mediating role of perceived social value (Montoya & Hayes, 2017). Results showed (see [Figure 7: see original paper]) that product perceived social value significantly mediated the effect of traditional cultural load on brand status perception (indirect effect: B = 0.95, SE = 0.15, 95% CI = [−1.23, −0.65]).

5.1.3 Conclusion Study 4a, using a within-participants offline experimental design, again confirmed the robustness of the effect of product traditional cultural load on brand status. Consumers evaluated high traditional cultural load products more favorably and assigned them higher brand status. Moreover, Study 4a used scenario designs emphasizing different product value attributes to associate brand choices with product social value. In multi-person social value scenarios, consumers preferred using high traditional cultural load products, again confirming the social value attribute of high traditional cultural load.

5.2 Study 4b

In Study 4a, 49 right-handed participants (mean age = 23.80 ± 2.87 years, mean monthly expenditure = ¥2,440.00 ± ¥1,314.29; 35 females, 70%) voluntarily participated in the brain imaging experiment. Therefore, we measured brain activity throughout the entire procedure of Study 4a. Both Studies 4a and 4b were approved by the Ethics Committee of Zhejiang University School of Management.

Since traditional cultural load can convey higher social value, we identified the temporoparietal junction (TPJ), orbitofrontal cortex (OFC), and prefrontal cortex (PFC) as regions of interest. Previous research shows that TPJ exhibits significant activation when people engage in social tasks, inferring, understanding, and processing others' beliefs and intentions (Carter & Huettel, 2013; Luo et al., 2017). The PFC is more involved in self-cognitive processing (Sui et al., 2007), showing greater activation when people think about self-related concepts. The OFC is a reward region, with activation levels reflecting subjective value of rewards (Levy & Glimcher, 2012). Based on these cognitive neuroscience findings and the behavioral results from previous studies, we hypothesized that compared to low traditional cultural load products, high traditional cultural load products would activate TPJ and OFC to a greater degree, providing higher social value. Correspondingly, when making product choices in social scenarios, participants' TPJ activation would be significantly higher than in individual scenarios.

5.2.1 Near-Infrared Data Acquisition and Analysis We used a multichannel fNIRS device (SHIMADZU, Japan) to measure participants' brain activity during the task, with a sampling rate of 13 Hz. We placed 4 emitters and 4 detectors on each side of participants' temporoparietal junction, and 4 emitters and 4 detectors in the orbitofrontal and prefrontal regions. The distance between each emitter-detector pair was approximately 3.2 cm (range: 2.8–3.6 cm). The emitters and detectors in the OFC and PFC formed 10 channels (channels 1–10), while the left and right TPJ each had 4 channels (left TPJ: channels 11–14; right TPJ: channels 17–20). We confirmed that fNIRS channel positions effectively covered the regions of interest by measuring and calculating MNI coordinates for each channel using a 3D digitizer (see [Figure 8: see original paper] for channel distribution; detailed spatial localization information is in Appendix G). Channels 1–7 covered the prefrontal region, and channels 8–10 covered the orbitofrontal region.

We preprocessed raw data using MatlabR2021b (MathWorks, Natick, MA, USA) with NIRS_{KIT} analysis software (Hou et al., 2021), including drift correction, artifact correction (TDDR method), and filtering (0.01–0.08 Hz, IIR method). We used the last stable 10 seconds of data from the rest period before the experiment as baseline for baseline correction and z-score transformation. We focused on changes in oxygenated hemoglobin concentration. When analyzing activation levels, we averaged data across all channels corresponding to each region of interest and conducted paired-samples t-tests as needed, with FDR correction for multiple comparisons.

5.2.2 fNIRS Results Focusing first on the brand status evaluation phase, paired-samples t-tests showed (see [Figure 9: see original paper]) that compared to low traditional cultural load, evaluating high traditional cultural load products' brand status elicited higher activation in TPJ (LTPJ: $t(48) = 2.17$, $p = 0.035$; RTPJ: $t(48) = 3.53$, $p = 0.001$).

We then used repeated-measures ANOVA to examine brain activation differences during product choices across scenarios. Results showed no significant activation differences in the three brain regions between functional and emotional single-person scenarios ($ps > 0.10$). Therefore, following Study 4a, we combined these two scenarios into a single-person scenario and compared brain activation between single-person and social scenarios. Paired-samples t-tests revealed significant differences in left TPJ ($t(48) = 2.70$, $p = 0.009$) and OFC ($t(48) = 2.66$, $p = 0.011$). Social scenarios significantly increased activation in left TPJ and OFC compared to single-person scenarios.

5.2.3 Conclusion Study 4b found that when evaluating high traditional cultural load products' brand status, participants showed higher activation in bilateral TPJ than when evaluating low traditional cultural load products. TPJ is an important social cognition region; its activation indicates that participants engaged in social cognition-related processing, including inferring others' beliefs

(Carter & Huettel, 2013; Luo et al., 2017). Therefore, TPJ activity provides cognitive neural evidence that high traditional cultural load conveys more social information.

Similarly, when thinking about specific product usage scenarios, participants showed higher TPJ and OFC activation in social versus single-person scenarios, confirming that people emphasize products' social value in social contexts. Since participants chose high traditional cultural load products more frequently in social scenarios, this also demonstrates that high traditional cultural load products provide higher social value.

6. General Discussion

Building on existing cultural marketing research, this study examined how product traditional cultural load affects brand status perception among young consumers. Four experiments consistently demonstrated that increasing product traditional cultural load significantly enhances brand status perception. Both behavioral and brain imaging data indicate that the empowering effect of traditional cultural load on brand status is primarily driven by the social value conveyed by high traditional cultural load. Furthermore, we identified a boundary condition: utilitarian products are more susceptible to traditional cultural load than hedonic products. Adding traditional cultural load helps enhance utilitarian product brand status perception.

6.1 Theoretical Contributions

As material living standards improve, Chinese consumers' demand for spiritual culture and self-expression grows daily, prompting scholars to examine culture's influence on consumer psychology and behavior (Chai et al., 2015; Guo et al., 2019). However, few studies have systematically investigated how traditional Chinese culture affects brand status and its underlying mechanisms. Although Wu's (2020) qualitative research indirectly suggested that traditional culture can help build non-conspicuous high-end brand status, empirical testing is still needed. This research conceptualizes product traditional cultural load as a brand status inference cue, systematically analyzes its impact on brand (rather than product) status perception, and employs both behavioral and cognitive neuroscience methods to validate the mechanism, emphasizing the mediating role of social value. This study expands cultural marketing research by elevating the empowering effect of cultural load from the product level to the brand level.

Furthermore, our findings supplement research on the relationship between social value and brand status. Previous studies have primarily focused on the social value that brand status confers upon consumers. Few experiments have examined how social value, in turn, influences consumers' brand status perceptions. While brand status can empower consumers with social value based on established brand position, investigating how to enhance consumers' brand status perceptions when brand status is unclear or when brands are new has

important theoretical and practical significance. This research combines behavioral and cognitive neuroscience methods to validate the empowering effect of social value on brand status, confirming that enhancing product traditional cultural load can increase product social value and thereby effectively promote consumers' brand status perceptions.

This study also contributes to product type-related theory. Consistent with previous research, we confirmed that consumers evaluate different product types differently, with hedonic products generally receiving more favorable evaluations than utilitarian products within the same category (Amatulli et al., 2019; Jones et al., 2006). This study provides a way to compensate for this difference: adding traditional cultural load to products can reduce the perceived gap between product types. When utilitarian products carry high traditional cultural load, their brand status does not differ significantly from hedonic products.

Methodologically, this study uses neuromarketing approaches to measure consumers' brain activity in real-time when selecting products with different traditional cultural load levels and evaluating their brand status, revealing the cognitive neural mechanisms through which traditional Chinese culture empowers brand status and providing more objective cognitive neural evidence for traditional culture research.

6.2 Practical Implications

As manufacturing capabilities rapidly improve, competition among enterprises in the Chinese market intensifies. Many utilitarian product manufacturers and distributors have even fallen into fierce "red ocean" competition, severely hindering high-quality development of the manufacturing sector. Brand status management is a key path for brands to escape price wars. Therefore, how to enhance brand status in consumers' minds has become an important issue for utilitarian product enterprises. This study explores the market value of traditional culture from a cultural marketing perspective and examines its positive impact on brand status, with specific implications as follows.

First, for startup brands or when brands enter new markets, product manufacturers and enterprises can appropriately integrate traditional Chinese cultural elements into marketing activities to enhance products' social value and thereby achieve brand empowerment. Particularly in product promotions and advertisements that typically do not directly display high-diagnosticity brand status cues like price information, consumers often form initial impressions of products and their brand status through other factors. Enhancing traditional cultural load to improve consumers' brand status perceptions of (new) brands can help companies establish brand image.

Second, this study found that integrating traditional cultural elements into products is more effective for utilitarian products. Therefore, managers should adopt different design and marketing strategies for different product types. Marketers of utilitarian products should grasp young consumers' social needs, consider

their social usage scenarios, and appropriately add traditional cultural content that helps convey social value, thereby assisting young consumers in achieving image enhancement and social value pursuits, and consequently enhancing brand status and deepening young consumers' affection for the brand.

6.3 Limitations and Future Directions

This study has several limitations. First, regarding the sample, our sample size was relatively small, insufficient for exploring individual differences. Future research with larger samples is needed to examine perceptual and behavioral differences among consumers with different characteristics. Additionally, whether through online platforms or laboratory recruitment, participants were primarily young adults. The study lacks examination of special age groups such as the elderly, and whether conclusions apply to other age groups requires further validation.

Second, traditional culture is a complex whole that inevitably contains both excellent content and dross (Zhuang, 1997). This study has not explored how different valences of traditional culture affect consumer cognition, which is an important direction for future research. Additionally, the hierarchical relationships embedded in traditional culture may also influence product social value. For instance, Chinese traditional culture includes both imperial court culture and folk culture. This study only examined general types of traditional culture, lacking analysis of cultural hierarchy effects. Similarly, consumers of different socioeconomic statuses may perceive the same traditional cultural elements differently. Future research should specifically discuss how different levels of traditional culture affect product traditional cultural load, social value, and brand status, and the role of consumer socioeconomic status.

On the other hand, the premise that traditional cultural load empowers brand status through enhanced social value is that consumers identify with and prefer the traditional culture, hoping to convey its associated values to the outside world. Therefore, consumers' cultural preferences and cultural identity may moderate the empowering effect of traditional culture on brand status. This is also why we believe traditional culture differs from modern and foreign cultures in its ability to empower brand status. Existing research has not systematically explored this, and substantial experimental evidence is still needed. Future research should systematically and comprehensively consider the influence of cultural identity and cultural preferences.

Finally, regarding experimental materials, we selected daily necessities. However, another important category in the market is modern innovative technology products, such as smart home devices. These utilitarian products provide not only functionality but also emotional value such as novelty and technological sophistication. Whether the empowering effect of traditional culture on brand status found in this study also affects consumers' perceptions of such products awaits future investigation.

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Appendices

Appendix A. Brand Status Measure

Which tier do you think this brand belongs to in the diagram below? (1 = top luxury brand, 7 = low-priced mass brand)

Appendix B. Study 2 Experimental Materials

[FIGURE A (1): High traditional cultural load/utilitarian product group
FIGURE A (2): High traditional cultural load/hedonic product group
FIGURE A (3): Low traditional cultural load/utilitarian product group
FIGURE A (4): Low traditional cultural load/hedonic product group]

Appendix C. Study 3a Experimental Materials

High Modern Cultural Load Group:
This water cup's design is inspired by championship trophy cups, adopting a fully symmetrical design language. The fully curved body with double ears extending downward from the rim satisfies functional needs while displaying aesthetic beauty. The curved details of the handle meet ergonomic finger requirements. The overall shape achieves a relatively balanced unity between formal and functional requirements.
Design inspiration: Championship trophy

Low Traditional Cultural Load Group:
This water cup's design is inspired by two-handed grip design, adopting a fully symmetrical design language…

High Traditional Cultural Load Group:
This water cup's design is inspired by the ancient Chinese wine vessel—the winged cup, adopting a fully symmetrical design language…

Appendix D. Study 3b Experimental Materials

[New water cup image]

High Traditional Cultural Load Group:
This water cup's design is inspired by the ancient Chinese wine vessel—the winged cup, adopting a fully symmetrical design language…

[FIGURE B (1): High Western traditional cultural load group: Oil Painting Cedar
FIGURE B (2): Low traditional cultural load control group: Summer Ginkgo
FIGURE B (3): High Chinese traditional cultural load group: Ink Painting Guest-Greeting Pine]

Appendix E. Perceived Social Value Scale

Table A. Perceived Social Value Measurement Scale

I think this product…
- Helps me be recognized by others
- Improves others' opinions of me
- Leaves a good impression on others

Response scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = somewhat agree, 7 = strongly agree

Appendix F. Study 4 Scenario Design

Scenario 1 (Single-person functional value scenario):
Today you're alone in your dorm, eating at your desk. You accidentally spill

some soup on yourself and need tissue to clean up. You have both "Timely-Nurtured" and "Fast-Growing" tissues on your desk…

Scenario 2 (Single-person emotional value scenario):
Today you're alone in your dorm, studying for an exam. After a full day of studying, you feel stressed and sweaty. After devouring your takeout, you're sweating. You want to relax and wipe off the sweat. You have both "Timely-Nurtured" and "Fast-Growing" tissues on hand…

Scenario 3 (Multi-person social value scenario):
Today you're on a spring outing picnic with friends. After eating and drinking, you realize no one else has tissues, only you brought some in your bag, and you want to share them. You have both "Timely-Nurtured" and "Fast-Growing" tissues in your bag…

Appendix G. fNIRS Channel MNI Coordinates and Brain Region Coverage

Table B. fNIRS Channel MNI Coordinates and Covered Brain Regions

Channel	MNI Coordinates	Anatomical Brain Region Label
1	[coordinates]	10-Frontopolar area
2	[coordinates]	10-Frontopolar area
3	[coordinates]	10-Frontopolar area
4	[coordinates]	46-Dorsolateral prefrontal cortex
5	[coordinates]	10-Frontopolar area
6	[coordinates]	10-Frontopolar area
7	[coordinates]	46-Dorsolateral prefrontal cortex
8	[coordinates]	11-Orbitofrontal area
9	[coordinates]	11-Orbitofrontal area
10	[coordinates]	11-Orbitofrontal area
11	[coordinates]	40-Supramarginal gyrus
12	[coordinates]	40-Supramarginal gyrus
13	[coordinates]	40-Supramarginal gyrus
14	[coordinates]	40-Supramarginal gyrus
15	[coordinates]	40-Supramarginal gyrus
16	[coordinates]	39-Angular gyrus
17	[coordinates]	40-Supramarginal gyrus
18	[coordinates]	40-Supramarginal gyrus
19	[coordinates]	40-Supramarginal gyrus
20	[coordinates]	40-Supramarginal gyrus

Note: Detailed MNI coordinates are available in the online appendix.

Note: Figure translations are in progress. See original paper for figures.