

The Effect of Visual Novelty on Consumer Purchase Intention: The Moderating Roles of Self-Construal and Product Type

Authors: Zhu Zhenzhong, Li Xiaojun, Liu Fu, Chen, Haipeng (Allan), Zhu Zhenzhong, Chen, Haipeng (Allan)

Date: 2020-08-13T00:00:00+00:00

Abstract

Appearance innovation is playing an increasingly prominent role in market competition; however, both success and failure cases resulting from it are widespread. How to conduct appearance innovation to better appeal to consumers and what its underlying mechanism is remain poorly understood. Based on Need for Uniqueness Theory, Risk Perception Theory, and Self-Construal Theory, this paper examines the interaction effect between self-construal and appearance novelty on consumer purchase intention, as well as the underlying mechanism and boundary conditions. Through three experiments, we find that for consumers with independent self-construal, high appearance novelty can trigger need for uniqueness, thereby enhancing purchase intention; whereas for those with interdependent self-construal, low appearance novelty enhances purchase intention by reducing social risk perception. Additionally, this paper identifies the moderating role of product type in this mechanism: specifically, for utilitarian products, all consumers exhibit stronger purchase intention toward products with low appearance novelty, while for hedonic products, all consumers show stronger purchase intention toward products with high appearance novelty.

Full Text

The Effect of Visual Novelty on Consumer Purchase Intention: The Moderating Roles of Self-Construal and Product Type

ZHU Zhenzhong¹, LI Xiaojun¹, LIU Fu², Haipeng (Allan) CHEN³

(¹ School of Management, Shandong University of Technology, Zibo 255000, China)

(² School of Management, Jinan University, Guangzhou 510632, China)

(³ Gatton School of Business and Economics, University of Kentucky, Lexington KY 40506, United States)

Abstract

Visual innovation has become increasingly prominent in market competition, yet both success and failure cases resulting from it are common. How to make visual innovation more appealing to consumers and what its underlying mechanisms are remain poorly understood. Based on need for uniqueness theory, risk perception theory, and self-construal theory, this paper examines the interactive effect of self-construal and visual novelty on consumer purchase intention, its influencing mechanisms, and boundary conditions. Through three experiments, we find that for consumers with independent self-construal, high visual novelty enhances purchase intention by triggering need for uniqueness, whereas for those with interdependent self-construal, low visual novelty enhances purchase intention by reducing social risk perception. Additionally, this paper identifies the moderating role of product type in this mechanism. Specifically, for utilitarian products, all consumers show stronger purchase intention toward products with low visual novelty, while for hedonic products, all consumers show stronger purchase intention toward products with high visual novelty.

Keywords: Visual Novelty; Self-Construal; Need for Uniqueness; Social Risk Perception; Purchase Intention

Classification: B849; F713.55

1.1 Problem Statement

Consumers primarily rely on visual information to judge a product's elegance, functionality, and social meaning (Crilly et al., 2004). When companies successfully manage the first impressions established by product appearance, they can gain competitive advantage (Mugge et al., 2018). Increasingly, firms are innovating not only through technology but also through novel product appearances, making visual innovation increasingly prominent in the marketplace (Rubera, 2014) and recognized as an important differentiation tool (Talke et al., 2017).

Real-world cases of both success and failure due to visual innovation abound. For instance, the iPhone 4 released in 2010, featuring a glass front and back with a metal frame and rounded rectangular shape, stunned the world and achieved tremendous commercial success. In recent years, however, iPhones have been criticized for making only minor incremental changes to their appearance. In the water dispenser market, Midea's products are beloved for their simple and elegant design, while Angel, the pioneering brand that emphasizes visual innovation, has consistently held a smaller market share than Midea. How to make visual innovation more appealing to consumers (Stanton et al., 2016) and what its underlying mechanisms are remain poorly understood. Liu et al. (2020) note that because visual novelty reflects a deviation from the status quo, people from certain cultural backgrounds may be less accepting of visually novel products

due to their preference for the status quo. Therefore, this paper introduces the perspective of self-construal to investigate the mechanisms and conditions through which visual novelty affects purchase intention, revealing the interactive effect between self-construal and visual novelty on purchase intention. Building on need for uniqueness theory and risk perception theory, we construct the mediating mechanism through which visual novelty influences purchase intention. Finally, we introduce product type (utilitarian/hedonic) into our research framework to identify the boundary conditions of these effects.

1.2.1 Visual Novelty

Product appearance encompasses various elements such as size, color, pattern, and contour (Bloch, 1995). It differs from product design, which also includes internal aspects invisible to consumers. Product appearance conveys a visual impression that may influence consumer perceptions and evaluations (Liu et al., 2020), with its aesthetic and symbolic value becoming an important factor in consumer choice. It creates hedonic value, evokes emotional changes, and fosters deeper relationships (Noble & Kumar, 2010).

Companies often modify existing product appearances to create new products that visually deviate from consumer expectations for that category (e.g., round sneakers) (Li et al., 2018). When an appearance substantially deviates from the average appearance characteristics of its product category, it possesses high novelty (Mugge & Schoormans, 2012). Conversely, when it closely resembles other products, it lacks novelty (Li et al., 2013; Liu et al., 2017). The level of visual novelty reflects the degree of visual innovation and plays an important role in ensuring product success (Moon et al., 2015). Visually novel products easily attract attention and are often more appealing than typical appearances (Brunel & Swain, 2008), thereby enhancing potential adoption intentions (Rubera, 2014). However, visual novelty may also negatively affect consumer preferences, damaging perceptions of brand identity (Goode et al., 2013), reliability (Schnurr, 2017), and ease of use (Mugge et al., 2018). Given these conflicting findings regarding the effect of visual novelty on consumer preferences, we believe it is necessary to explore its underlying mechanisms and contingent conditions.

Furthermore, visual novelty is completely different from functional novelty brought about by technological innovation. Research shows that visual innovation and technological innovation interact in consumers' evaluations of innovation value and costs (Creusen & Schoormans, 2005; Rindova & Petkova, 2007). Mugge and Dahl (2013) also demonstrate that low visual novelty benefits consumer evaluations of radically innovative products. Therefore, when manipulating visual novelty, experimental design should exclude potential effects from functional novelty.

1.2.2 Self-Construal Theory

Self-construal refers to individuals' cognition of the relationship between self and others, divided into independent and interdependent types (Markus & Kitayama, 1991). Independent self represents a psychological tendency to separate the self from the social environment (Kitayama et al., 1997), often defining oneself through unique achievements and superior status (Yang et al., 2015). Interdependent self represents a psychological tendency to blur boundaries between self and others, not placing the self at the center (Torelli, 2006), but defining oneself through relationships with others (Yang et al., 2015). Both independent and interdependent selves are long-term personality traits gradually formed by individuals in specific cultural contexts (Singelis, 1994). Independent self is closely linked to Western culture, while interdependent self is associated with Eastern culture (Markus & Kitayama, 1991). Recent research indicates, however, that all individuals possess both self-construal elements, and these elements can be temporarily primed (Gardner et al., 1999).

Self-construal influences how consumers respond to product information (Aaker & Maheswaran, 1997), thereby affecting brand attitudes, brand evaluations, and brand image perceptions (Ng & Houston, 2006). Existing consumer behavior research on self-construal has primarily focused on word-of-mouth communication (Li et al., 2019), goal value (Verplanken & Holland, 2002), and advertising appeals (Chang & Feng, 2016). To date, no literature has examined visual novelty from the perspective of self-construal.

1.2.3 Need for Uniqueness

Uniqueness is an expression of self-awareness, reflecting people's desire to manifest individuality and pursue differences (Snyder & Fromkin, 1977). Consumers achieve a distinctive self-concept by seeking products recognized by the masses yet differentiated from them (Snyder & Fromkin, 1977). Differences in need for uniqueness influence consumer responses to product sensory attributes and subsequent product choices (Bloch, 1995), as well as self-expression (Kauppinen-Räsänen et al., 2018) and purchase intention (Jonah & Heath, 2007). Factors triggering need for uniqueness include product novelty (Ma et al., 2014), social exclusion (Bozkurt & Gligor, 2019), and sales cues (Das et al., 2018).

1.2.4 Risk Perception

Risk perception refers to individuals' subjective feelings about objective risk, stemming from uncertainty in choice (Bauer, 1960). It influences consumer purchase intention (Das et al., 2018); higher risk perception implies greater potential for negative outcomes (Jiang et al., 2016). Factors affecting risk perception include product attributes (Zikmund & Scott, 1974), personal factors (Jia et al., 2015), incidental emotions (Loewenstein et al., 2001), and information framing (Raghubir & Menon, 2001).

1.3.1 The Interactive Effect of Visual Novelty and Self-Construal and Its Mediating Effect on Purchase Intention

Interactive Effect of Visual Novelty and Self-Construal. Bloch et al. (2003) found that novel appearances enhance consumer preferences, with stronger purchase intentions for more novel appearances (Yildiz, 2017). However, the effect of novel appearance is not always positive; in some cases, high novelty produces negative effects (Mugge & Dahl, 2013), especially when products are too novel and may be disliked by most people (Jaeger et al., 2017). How exactly does visual novelty affect consumer purchase intention, and what are its internal mechanisms and influencing factors? This paper explores these questions from the perspective of self-construal.

Self-construal triggers differentiated consumption goals (Aaker & Lee, 2001), and consumers with different self-construals perceive and respond differently to the same product (Li et al., 2013). When product novelty is high, independent consumers show higher purchase tendencies than interdependent consumers (Ma & Yang, 2010), preferring products with divergent attributes to express self-image (Millan & Reynolds, 2014). Interdependent consumers are less willing to take risks in social choices (Mandel, 2003), value consistency and harmony with others more highly (Li et al., 2016), and show greater preference for product conformity and herding behavior in consumption (Atakan et al., 2014). Similarly, we infer that the effect of visual novelty level on purchase intention also depends on consumer self-construal type. Specifically, independent self consumers have stronger purchase intentions for highly novel products, while interdependent self consumers have stronger purchase intentions for low novelty products. Based on this, we propose:

H1: Visual novelty and self-construal interactively influence purchase intention. Independent self consumers show stronger purchase intentions for high novelty products, while interdependent self consumers show stronger purchase intentions for low novelty products.

Mediating Role of Need for Uniqueness. Individuals with high need for uniqueness are particularly sensitive to similarity with others and more likely to display behaviors that create a sense of specialness, such as acquiring unique or scarce products (Snyder, 1992). Visual novelty satisfies the desire to distinguish oneself from others (Chitturi et al., 2008), and unique product appearances are more attractive to such consumers, triggering stronger need for uniqueness (Ruvio, 2008). Consumer uniqueness level has both direct and indirect relationships with new product preference (Irmak et al., 2010), and Laurie and Lee (2016) also show that need for uniqueness positively correlates with consumer purchase intention. Therefore, we believe need for uniqueness mediates the relationship between visual novelty and purchase intention.

In Western individualistic cultures, people primarily possess independent self-construal and strive to be unique and distinctive (Markus & Kitayama, 1991), while those in collectivist societies (e.g., East Asia, Latin America) more read-

ily accept group cultural values and focus on others' perspectives or self-other relationships (Wang & Wang, 2016). Research finds that European Americans prefer uniqueness more than East Asians (Kim & Markus, 1999), and individualism strengthens consumers' need for uniqueness (Liu et al., 2015). Furthermore, Song and Lee (2013) examined the effect of self-construal on consumer need for uniqueness, finding that highly interdependent individuals seek unique products to satisfy their need for uniqueness, while independent self individuals show stronger need for uniqueness. We thus infer that the match between visual novelty and self-construal also triggers consumer need for uniqueness. High novelty better matches independent consumers' goals and pursuit of uniqueness, while low novelty better matches interdependent consumers' goals and pursuit of uniqueness, more easily triggering corresponding need for uniqueness and thereby enhancing purchase intention. Therefore, we propose:

H2a: Need for uniqueness mediates the interactive effect of visual novelty and self-construal on consumer purchase intention.

Mediating Role of Social Risk Perception. Consumers experience embarrassment when purchasing, consuming, and disposing of certain products, thereby bearing social risk (Dahl et al., 2001). If product novelty is too high, it creates potential risk perception (Chernev, 2004) and generates social risk (Eisenman, 2007). Social risk perception prompts consumers to focus more on potential negative outcomes from purchase (Lee & Aaker, 2004), reducing purchase intention (Petersen & Kumar, 2015). Visual novelty represents unusual appearance improvements that are unfamiliar to perceivers (Leder & Carbon, 2005). Therefore, we believe social risk perception mediates the relationship between visual novelty and purchase intention.

Research finds that Chinese pay more attention to social risk than Americans (Weber et al., 1998), and interdependent self individuals value social norms more highly (Ybarra & Trafimow, 1998), care more about the size, function, and satisfaction of interpersonal relationships (Weber & Hsee, 2000), and tend to avoid social risk (Su, 2016). Independent self individuals strive to achieve positive outcomes and desired goals, thus exhibiting risk-taking behavior (Chernev, 2009; Hamilton & Biehal, 2005) and tending to bear risk (Su, 2016). We thus infer that the match between visual novelty and self-construal also affects consumer social risk perception. High novelty better matches independent consumers' risk-taking goals and pursuits, while low novelty better matches interdependent consumers' goals of avoiding mistakes and risk, more easily generating social risk perception and thereby reducing purchase intention. Based on this, we propose:

H2b: Social risk perception mediates the interactive effect of visual novelty and self-construal on consumer purchase intention.

1.3.2 The Moderating Effect of Product Type

People choose hedonic products for sensory pleasure and enjoyment, while typically purchasing utilitarian products for instrumental purposes (Nenkov & Scott,

2014). Companies adopt a “design for satisfaction” approach to produce low visual novelty products that meet functional and ergonomic needs, or a “design for pleasure” approach to produce high novelty products that meet hedonic needs (Chitturi et al., 2008). Research shows that hedonic value relates to novelty-seeking behavior (Wang et al., 2000), and that consumption pleasure connects with product visual novelty (Alba & Williams, 2012). Further, novelty is more important for hedonic than utilitarian consumption (Herzenstein et al., 2008) because consumption pleasure is experienced through the emotional aspects of product use, and high visual novelty may trigger consumption pleasure (Liu et al., 2020). Therefore, for hedonic products, high visual novelty better satisfies people’ s hedonic requirements, while for utilitarian products, low visual novelty better satisfies functional requirements, making them more favored by all consumers. Based on this, we propose:

H3a: Product type moderates the interactive effect of self-construal and visual novelty on purchase intention. Specifically, for utilitarian products, consumers with both self-construal types show stronger purchase intention for low novelty products; for hedonic products, consumers with both self-construal types show stronger purchase intention for high novelty products.

H3b: Need for uniqueness and social risk perception mediate the interactive effect of product type, visual novelty, and self-construal on consumer purchase intention.

In summary, we establish the overall research framework as shown in Figure 1 [Figure 1: see original paper].

2 Pretest

The purpose of the pretest was to determine the products for the formal experiments. Additionally, because functional novelty might affect the experiments and results, we considered using the pretest to exclude interference from functional novelty.

(1) Experimental Design

The pretest selected six groups of common daily products: desk lamp, night light, suitcase, wristwatch, backpack, and water dispenser. Color product images were used as stimulus materials to fully display product features. For each product, we selected one low visual novelty and one high visual novelty color image.

Variable Measurement. Functional novelty measurement adapted the scale from Rubera (2014) with three items including “This product has no functional innovation.” Visual novelty measurement adapted the scale from Stock and Zacharias (2013) with three items including “This product’ s appearance is novel.” All scales used 7-point Likert scales where 1 = strongly disagree and 7 = strongly agree.

Experimental Procedure. The pretest collected data through the Wenjuanxing platform, with research team members sharing links via WeChat groups and Moments to attract participants. Data collection lasted three days, yielding 120 questionnaires. After review, 116 were valid (mean age = 24.74, SD = 14.82, 74 females).

(2) Results Analysis

Functional Novelty. Following Blijlevens et al. (2012), we averaged data from low and high novelty groups, coded low novelty products as 0 and high novelty products as 1, and conducted ANOVA analyses on functional novelty for the six product groups. Results showed no significant differences in functional novelty for desk lamp ($F(1,114) = 2.99, p = 0.09 > 0.05$), night light ($F(1,114) = 3.06, p = 0.08 > 0.05$), wristwatch ($F(1,114) = 0.06, p = 0.81 > 0.05$), and backpack ($F(1,114) = 2.93, p = 0.09 > 0.05$). However, suitcase ($F(1,114) = 4.61, p = 0.03 < 0.05$) and water dispenser ($F(1,114) = 6.00, p = 0.02 < 0.05$) showed significant differences in functional novelty.

Visual Novelty. ANOVA analyses on visual novelty showed significant differences for desk lamp ($F(1,114) = 22.27, p < 0.001$), night light ($F(1,114) = 20.99, p < 0.001$), and wristwatch ($F(1,114) = 34.10, p < 0.001$). No significant differences were found for suitcase ($F(1,114) = 2.38, p = 0.13 > 0.05$), backpack ($F(1,114) = 3.00, p = 0.09 > 0.05$), and water dispenser ($F(1,114) = 2.71, p = 0.10 > 0.05$).

The pretest indicated that desk lamp, night light, and wristwatch showed significant differences in visual novelty while excluding potential adverse effects from functional novelty, meeting experimental requirements. Therefore, we selected these products for subsequent studies.

3 Experiment 1: The Effect of Visual Novelty on Purchase Intention

This experiment used a 2 (visual novelty: low vs. high) \times continuous (self-construal: interdependent vs. independent) between-subjects design to primarily verify the interactive effect of self-construal and visual novelty on purchase intention (H1).

(1) Experimental Design

Participants were 112 undergraduate students from Shandong University of Technology (64 females, aged 18-21, $M = 19.42, SD = 0.72$). The experiment selected a night light as the stimulus, with color images sealed in an envelope.

Variable Measurement. Visual novelty measurement adapted the scale from Stock and Zacharias (2013) with three items including “The appearance design of this night light is novel.” Self-construal measurement used the localized Chinese scale revised by Pan and Lv (2013), including 10 interdependent self items and

6 independent self items. Purchase intention measurement adapted the scale from Dodds et al. (1991) with three items including “I am willing to purchase this night light.” All scales used 7-point Likert scales where 1 = strongly disagree and 7 = strongly agree.

Experimental Procedure. First, experimenters briefly explained the purpose and process, randomly assigning participants to low or high visual novelty groups and measuring their chronic self-construal. Participants then removed the image from the envelope for careful viewing, completed the scales with experimenter guidance, and provided demographic information. Participants received WeChat red packets as compensation after the experiment.

(2) Results Analysis

Reliability Analysis. Cronbach’s α coefficients were 0.84 for visual novelty, 0.75 for self-construal, and 0.80 for purchase intention, all meeting analysis requirements.

Purchase Intention. Using Process Model 1 (Hayes, 2013) to examine the relationship between visual novelty, self-construal, their interaction, and purchase intention, results showed significant effects of visual novelty ($b = 0.27$, $t = 3.54$, $p < 0.001$), self-construal ($b = 0.24$, $t = 4.41$, $p < 0.001$), and their interaction ($b = 0.37$, $t = -4.64$, $p < 0.001$) on purchase intention. Since the moderator (self-construal) was continuous, we conducted Floodlight analysis using the Johnson-Neyman method (Spiller et al., 2013), as shown in Figure 2 [Figure 2: see original paper]. For independent self-construal consumers (self-construal index > 0.59), high visual novelty products elicited stronger purchase intention than low novelty products ($b = 0.97$, $t = 4.01$, $p < 0.001$). For interdependent self-construal consumers (self-construal index < -0.72), low visual novelty products elicited stronger purchase intention than high novelty products ($b = -0.76$, $t = -2.77$, $p = 0.007 < 0.01$). These results support H1.

4 Experiment 2: The Effect of Visual Novelty on Purchase Intention: Testing the Mediating Effects of Need for Uniqueness and Social Risk Perception

This experiment used a 2 (visual novelty: low vs. high) \times 2 (self-construal: interdependent vs. independent) between-subjects design to verify the mediating roles of consumer need for uniqueness and social risk perception (H2a, H2b) and to replicate H1. The experiment selected a wristwatch as the stimulus, with color images sealed in envelopes. Participants were 140 undergraduate students from Shandong University of Technology (83 females, aged 18-22, $M = 19.86$, $SD = 1.17$).

(1) Experimental Design

Self-Construal Manipulation. We used an instruction method to prime self-construal, following Trafimow et al. (1991). Instructions for independent self-construal (interdependent self-construal) were “Please think about expectations for yourself” (“Please think about expectations your family or friends have for you”). Participants had two minutes to reflect and write down their thoughts, priming independent (interdependent) self-construal.

Variable Measurement. Need for uniqueness measurement adapted the scale from Ruvio and Shoham (2008) with 12 items ($\alpha = 0.73$). Social risk perception measurement adapted the scale from Pueschel et al. (2017) with 6 items ($\alpha = 0.73$). Visual novelty ($\alpha = 0.83$) and purchase intention ($\alpha = 0.83$) measurements were identical to Experiment 1.

Experimental Procedure. Participants were randomly assigned to four groups: independent/low novelty, independent/high novelty, interdependent/low novelty, and interdependent/high novelty. After priming self-construal, participants answered two manipulation check questions: “The just-completed reflection made me think of myself” and “The just-completed reflection made me think of my friends/family” (Kühnen et al., 2001) on 7-point scales (1 = not at all, 7 = completely). They then viewed the image and completed the scales, receiving WeChat red packets as compensation.

(2) Results Analysis

Manipulation Check. ANOVA revealed that independent self-construal participants showed significantly higher independent self tendencies than interdependent self-construal participants ($M_{\text{independent}} = 5.44$, $M_{\text{interdependent}} = 3.47$, $F(1,138) = 56.57$, $p < 0.001$, $\eta^2 = 0.30$), and interdependent self-construal participants showed significantly higher interdependent self tendencies than independent self-construal participants ($M_{\text{interdependent}} = 4.60$, $M_{\text{independent}} = 3.37$, $F(1,138) = 24.23$, $p < 0.001$, $\eta^2 = 0.15$), indicating successful self-construal manipulation.

Purchase Intention. ANOVA on purchase intention showed significant effects of visual novelty ($F(1,136) = 9.15$, $p = 0.003 < 0.01$, $\eta^2 = 0.06$) and its interaction with self-construal ($F(1,136) = 95.79$, $p < 0.001$, $\eta^2 = 0.41$), but no significant main effect of self-construal ($F(1,136) = 0.46$, $p = 0.50 > 0.10$, $\eta^2 = 0.003$), as shown in Figure 3 [Figure 3: see original paper]. For independent self-construal consumers, high visual novelty products elicited stronger purchase intention than low novelty products ($M_{\text{low}} = 3.25$, $M_{\text{high}} = 5.18$, $F(1,136) = 88.81$, $p < 0.001$, $\eta^2 = 0.40$). For interdependent self-construal consumers, low visual novelty products elicited stronger purchase intention than high novelty products ($M_{\text{low}} = 4.62$, $M_{\text{high}} = 3.60$, $F(1,136) = 21.50$, $p < 0.001$, $\eta^2 = 0.14$). H1 was again supported.

Mediation Effect Test. Following Preacher et al. (2007) and Hayes (2013), we

used the moderated mediation model (PROCESS Model 8) with 5,000 bootstrap samples. At 95% confidence interval, with visual novelty as the independent variable, self-construal as the moderator, need for uniqueness and social risk perception as mediators, and purchase intention as the dependent variable, a confidence interval excluding 0 indicates successful mediation.

Results showed that the interaction between self-construal and visual novelty significantly affected need for uniqueness ($\beta = -1.35$, $SE = 0.19$, $t = -7.01$, $p < 0.001$) and social risk perception ($\beta = 1.06$, $SE = 0.25$, $t = 4.32$, $p < 0.001$), which in turn significantly affected purchase intention (need for uniqueness: $\beta = 0.31$, $SE = 0.13$, $t = 2.34$, $p = 0.02 < 0.05$; social risk perception: $\beta = -0.23$, $SE = 0.10$, $t = -2.24$, $p = 0.03 < 0.05$). The mediating effect of need for uniqueness was significant (LLCI = -0.80, ULCI = -0.07, excluding 0), with an effect coefficient of -0.41. The mediating effect of social risk perception was also significant (LLCI = -0.53, ULCI = -0.02, excluding 0), with an effect coefficient of -0.24. When these mediating effects existed, the direct effect interval did not include 0 (LLCI = -2.98, ULCI = -1.61), with an effect coefficient of -2.30, indicating that both need for uniqueness and social risk perception have partial mediating effects, as shown in Figure 4 [Figure 4: see original paper]. Therefore, H2a and H2b were supported.

5 Experiment 3: The Moderating Effect of Product Type

This experiment used a 2 (visual novelty: low vs. high) \times 2 (self-construal: interdependent vs. independent) \times 2 (product type: hedonic vs. utilitarian) between-subjects design to verify the moderating effect of product type (H3a) and simultaneously test the mediating effects of need for uniqueness and social risk perception (H3b). The experiment selected a desk lamp as the stimulus, with 302 undergraduate participants (165 females, aged 17-20, $M = 18.28$, $SD = 0.35$).

(1) Pretest

Before the formal experiment, we conducted a pretest on product type manipulation. First, we introduced concepts of utilitarian and hedonic products and asked participants to read experimental materials interpreting product type (Crowley et al., 1992). The utilitarian product interpretation was “This is a very practical reading lamp with uniform and extensive lighting, adjustable brightness, and appropriate color temperature.” The hedonic product interpretation was “This is a very fashionable lamp with color adjustment, music playback, and intelligent voice assistance, providing a very interesting experience.” Participants then answered: “Do you think this product is hedonic or utilitarian?” on a 7-point scale (1 = hedonic, 7 = utilitarian). Results confirmed successful product type manipulation ($M_{\text{utilitarian}} = 5.02$, $M_{\text{hedonic}} = 2.98$, $F(1,300) = 161.39$, $p < 0.001$, $\eta^2 = 0.35$).

In another pretest, we verified whether product type descriptions would create

differential perceptions of “functional novelty” and “visual novelty.” To avoid order effects of the novelty measurement questions, we designed a 2 (visual novelty: low vs. high) \times 2 (product type: utilitarian vs. hedonic) \times 2 (scale order: functional novelty first vs. visual novelty first) between-subjects experiment to verify whether product type descriptions created differential perceptions. The experiment used the desk lamp images as stimuli. Each questionnaire contained lamp images (low vs. high novelty), product type description (utilitarian vs. hedonic), and items for visual and functional novelty. To avoid interference from scale order, we reversed their sequence, creating eight questionnaire versions.

Variable Measurement. Functional novelty measurement adapted Stock and Zacharias (2013) with three items: “This product’s functions are ordinary,” “This product’s functions are novel,” and “This product differs significantly from existing products in functional novelty.” Visual novelty measurement used the same scale as other experiments, also adapted from Stock and Zacharias (2013): “This product’s appearance design is ordinary,” “This product’s appearance design is novel,” and “This product differs significantly from existing products in visual novelty.” All scales used 7-point Likert scales (1 = strongly disagree, 7 = strongly agree).

Experimental Procedure. This pretest also used Wenjuanxing, with research team members sharing links via WeChat groups and class QQ groups. We distributed all eight questionnaire versions simultaneously. Data collection lasted one day, yielding 93 valid questionnaires.

Results Analysis. ANOVA on functional novelty perception showed no significant differences for visual novelty ($F(1,85) = 0.06$, $p = 0.81 > 0.05$), product type ($F(1,85) = 2.27$, $p = 0.14 > 0.05$), scale order ($F(1,85) = 0.03$, $p = 0.87 > 0.05$), or their three-way interaction ($F(1,85) = 0.28$, $p = 0.60 > 0.05$). The interaction between visual novelty and product type was not significant ($F(1,85) = 0.22$, $p = 0.64 > 0.05$), nor were other two-way interactions (all $p > 0.05$). Thus, visual novelty level, product type, and scale order did not create differential perceptions of functional novelty.

ANOVA on visual novelty perception showed significant differences for visual novelty ($F(1,85) = 50.53$, $p < 0.001$), indicating successful manipulation. No significant differences emerged for product type ($F(1,85) < 0.001$, $p = 0.99 > 0.05$), scale order ($F(1,85) = 0.42$, $p = 0.52 > 0.05$), or their three-way interaction ($F(1,85) = 1.09$, $p = 0.30 > 0.05$). The interaction between visual novelty and product type was not significant ($F(1,85) = 0.23$, $p = 0.63 > 0.05$), nor were other two-way interactions (all $p > 0.05$). Thus, viewing product images with different visual novelty levels allowed consumers to clearly perceive visual novelty differences, consistent with the initial pretest results, while product type descriptions did not cause differential perceptions of functional novelty.

In summary, we confirmed the effect of visual novelty descriptions on visual novelty perception, excluded potential effects of product type on visual novelty perception, and ruled out the possibility that visual novelty descriptions and

product type might create differential perceptions of functional novelty, ensuring that functional novelty would not affect subsequent formal experiment results.

(2) Formal Experimental Design

Self-Construal Manipulation. This experiment used the pronoun-circling method to prime self-construal, following Gardner et al. (1999). Participants read materials about traveling to the countryside, imagining traveling alone (independent self-construal) or with family/friends (interdependent self-construal). Materials were described in first-person singular (“I,” “my”) or plural (“we,” “our”), with participants circling the pronouns.

Variable Measurement. Scales for visual novelty ($\alpha = 0.75$), need for uniqueness ($\alpha = 0.85$), social risk perception ($\alpha = 0.80$), and purchase intention ($\alpha = 0.78$) were identical to Experiment 2.

Experimental Procedure. Participants were randomly assigned to eight groups. Other procedures followed Experiment 2. After self-construal priming, participants answered two manipulation check questions: “The just-read description made me think of myself” and “The just-read description made me think of my friends/family” (Kühnen et al., 2001) on 7-point scales (1 = not at all, 7 = completely).

(3) Results Analysis

Manipulation Check. ANOVA confirmed successful self-construal priming: independent self-construal participants showed significantly higher independent self tendencies than interdependent self-construal participants ($M_{\text{independent}} = 4.72$, $M_{\text{interdependent}} = 3.10$, $F(1,300) = 59.10$, $p < 0.001$, $\eta^2 = 0.17$), and interdependent self-construal participants showed significantly higher interdependent self tendencies than independent self-construal participants ($M_{\text{interdependent}} = 4.62$, $M_{\text{independent}} = 2.48$, $F(1,300) = 97.59$, $p < 0.001$, $\eta^2 = 0.25$).

Need for Uniqueness. ANOVA on need for uniqueness showed a significant three-way interaction between visual novelty, self-construal, and product type ($F(1,294) = 14.39$, $p < 0.001$, $\eta^2 = 0.05$). For utilitarian products, the interaction between visual novelty and self-construal was significant ($F(1,294) = 5.35$, $p = 0.02 < 0.05$, $\eta^2 = 0.02$). For independent self-construal consumers, high visual novelty products triggered stronger need for uniqueness than low novelty products ($M_{\text{low}} = 3.18 < M_{\text{high}} = 3.78$, $F(1,294) = 10.06$, $p = 0.002 < 0.01$, $\eta^2 = 0.03$). For interdependent self-construal consumers, no significant difference existed between low and high novelty ($M_{\text{low}} = 3.31$, $M_{\text{high}} = 3.35$, $F(1,294) = 0.07$, $p = 0.79 > 0.05$). For hedonic products, although the interaction between visual novelty and self-construal was significant ($F(1,294) = 9.44$, $p = 0.003 < 0.01$, $\eta^2 = 0.03$), high visual novelty products triggered stronger need for uniqueness than low novelty products for both self-construal types (independent: $M_{\text{low}} = 3.64 < M_{\text{high}} = 4.31$, $F(1,294) = 14.77$,

$p < 0.001$, $\eta^2 = 0.05$; interdependent: $M_{\text{low}} = 3.31 < M_{\text{high}} = 4.73$, $F(1,294) = 70.65$, $p < 0.001$, $\eta^2 = 0.19$).

Social Risk Perception. ANOVA on social risk perception showed a significant three-way interaction ($F(1,294) = 14.75$, $p < 0.001$, $\eta^2 = 0.05$). For utilitarian products, although the interaction between novelty and self-construal was significant ($F(1,294) = 17.69$, $p < 0.001$, $\eta^2 = 0.06$), high visual novelty products triggered stronger social risk perception than low novelty products for both self-construal types (independent: $M_{\text{low}} = 2.32 < M_{\text{high}} = 2.70$, $F(1,294) = 6.34$, $p = 0.02 < 0.05$, $\eta^2 = 0.02$; interdependent: $M_{\text{low}} = 2.44 < M_{\text{high}} = 3.87$, $F(1,294) = 53.45$, $p < 0.001$, $\eta^2 = 0.15$). For hedonic products, neither visual novelty ($F(1,294) = 3.11$, $p = 0.08 > 0.05$), self-construal ($F(1,294) = 0.31$, $p = 0.58 > 0.05$), nor their interaction ($F(1,294) = 0.61$, $p = 0.44 > 0.05$) were significant.

Purchase Intention. Analysis on purchase intention showed a significant three-way interaction ($F(1,294) = 10.82$, $p = 0.001$, $\eta^2 = 0.04$). For utilitarian products, although the interaction between visual novelty and self-construal was significant ($F(1,294) = 6.46$, $p = 0.01$, $\eta^2 = 0.02$), low visual novelty products elicited stronger purchase intention than high novelty products for both self-construal types (independent: $M_{\text{low}} = 5.18 > M_{\text{high}} = 3.23$, $F(1,294) = 99.54$, $p < 0.001$, $\eta^2 = 0.25$; interdependent: $M_{\text{low}} = 4.69 > M_{\text{high}} = 3.40$, $F(1,294) = 56.15$, $p < 0.001$, $\eta^2 = 0.16$). For hedonic products, although the interaction between visual novelty and self-construal was significant ($F(1,294) = 4.37$, $p = 0.04 < 0.05$, $\eta^2 = 0.02$), high visual novelty products elicited stronger purchase intention than low novelty products for both self-construal types (independent: $M_{\text{low}} = 3.27 < M_{\text{high}} = 4.83$, $F(1,294) = 79.16$, $p < 0.001$, $\eta^2 = 0.21$; interdependent: $M_{\text{low}} = 3.59 < M_{\text{high}} = 4.67$, $F(1,294) = 51.36$, $p < 0.001$, $\eta^2 = 0.15$). H3a was supported.

Mediation Effect Test. Following Preacher et al. (2007) and Hayes (2013), we used the moderated mediation model (PROCESS Model 12) with 5,000 bootstrap samples. At 95% confidence interval, with visual novelty as the independent variable, self-construal as moderator 1, product type as moderator 2, need for uniqueness as mediator 1, social risk perception as mediator 2, and purchase intention as the dependent variable, results verified the indirect effect from visual novelty through need for uniqueness to purchase intention ($\beta = 0.18$; LLCI = 0.03, ULCI = 0.44) and through social risk perception to purchase intention ($\beta = 0.18$; LLCI = 0.03, ULCI = 0.41). The three-way interaction significantly affected need for uniqueness ($\beta = 1.34$; LLCI = 0.65, ULCI = 2.04) and social risk perception ($\beta = -1.19$; LLCI = -1.81, ULCI = -0.58), which in turn significantly affected purchase intention (need for uniqueness: $\beta = 0.14$; LLCI = 0.02, ULCI = 0.25; social risk perception: $\beta = -0.15$; LLCI = -0.28, ULCI = -0.02). The direct effect of the three-way interaction on purchase intention was significant ($\beta = -1.50$; LLCI = -2.20, ULCI = -0.79, excluding 0), as shown in Figure 5 [Figure 5: see original paper], indicating partial mediation by need for uniqueness and social risk perception.

Separate mediation tests for utilitarian and hedonic products revealed that for utilitarian products, the indirect effect through social risk perception was negative ($\beta = -0.30$; LLCI = -0.56, ULCI = -0.12), while the indirect effect through need for uniqueness was not significant (LLCI = -0.07, ULCI = 0.15). For hedonic products, the indirect effect through need for uniqueness was positive ($\beta = 0.23$; LLCI = 0.09, ULCI = 0.46), while the indirect effect through social risk perception was not significant (LLCI = -0.13, ULCI = 0.02). H3b was supported.

6.1 Research Conclusions

Based on self-construal theory, this paper explores the internal mechanisms and boundary conditions through which visual novelty affects consumer purchase intention across three experiments. The main conclusions are as follows:

Experiment 1, by measuring participants' chronic self-construal levels, verified the interactive effect of self-construal and visual novelty on purchase intention. Experiment 2, using one self-construal priming method, replicated this interactive effect and confirmed the internal mechanism through which the interaction affects purchase intention via need for uniqueness and social risk perception. Experiment 3, using another self-construal priming method and manipulating product type, again verified this mediating mechanism and identified the moderating role of product type.

6.2 Theoretical Contributions

This research makes four main theoretical contributions. First, it supplements and improves the theoretical system of visual novelty research. As noted earlier, existing literature offers conflicting views on how visual novelty affects consumer purchase intention and lacks explanation of its underlying mechanisms. This paper's primary theoretical contribution lies in introducing the concept of self-construal to study the mechanisms through which visual novelty affects purchase intention, yielding a dichotomous conclusion: self-construal moderates the effect of visual novelty. Specifically, high visual novelty generates stronger purchase intention among independent self consumers, while low visual novelty is more effective for interdependent self consumers.

Second, this research introduces uniqueness and risk theories to the study of visual novelty effects, constructing a mediating model through which visual novelty influences need for uniqueness and social risk perception, thereby affecting purchase intention. This provides both theoretical and empirical exploration of how visual novelty affects purchase intention, verifying the internal mechanisms and addressing gaps in existing research.

Third, this research introduces product type into the framework, identifying boundary conditions for visual novelty effects. The study finds that product type moderates the interactive effect between visual novelty and self-construal.

Specifically, for utilitarian products, all consumers show stronger purchase intention for low visual novelty products, while for hedonic products, all consumers show stronger purchase intention for high visual novelty products. This establishes boundary conditions for the main effects and mediating mechanisms, creating a clearer and more in-depth theoretical and applied framework.

Fourth, as a fundamental way of understanding the self and its relationship with others, self-construal can explain cross-cultural differences in various consumer aspects. Therefore, this study's results provide reference for future broader cross-cultural research on visual novelty. Moreover, self-construal offers new perspectives for exploring cognitive styles, social comparison, personal autonomy, and self-regulation, laying foundations for future expanded research on design innovation based on individual psychological characteristics.

6.3 Managerial Implications

First, companies must attach greater importance to visual innovation. Research shows that visual novelty can enhance consumer purchase intention through certain mechanisms. To improve product attractiveness and competitiveness, novel appearance plays a vital role, particularly in industries where product differences are shrinking (Chitturi et al., 2008) and technological innovation is becoming increasingly “difficult” and “expensive” (Bloom, 2018). Therefore, firms must 高度重视并善于运用外观创新手段.

Second, companies need to make appropriate visual novelty decisions based on product type. For hedonic products, high visual novelty is undoubtedly the best choice to highlight hedonic experiences. For utilitarian products, avoiding visual innovation or using low visual novelty to emphasize functionality and practicality is an effective approach.

Third, for products with neither clear hedonic nor utilitarian features, visual novelty decisions should be targeted. For collectivist cultures or consumer groups with salient interdependent self features, products with low visual novelty should be launched. For individualist cultures or consumer groups with salient independent self features, products with high visual novelty should be launched.

Finally, for products with different visual novelty levels, companies can use advertising, games, and social media communication to temporarily prime consumers' self-construal types to achieve effective matching with visual novelty levels.

6.4 Limitations and Future Directions

Despite meaningful conclusions, this study has several limitations. First, research was conducted in experimental settings using only images rather than actual products. Although we strictly controlled the experimental environment and process and validated stimulus materials, participants' experiences may differ substantially from real-world product usage. Second, all participants were

university students. Although the products used were familiar to them, differences in age, consumption level, and product experience from other consumer groups may limit the generalizability of findings.

Future research can proceed in several directions. First, studies can be conducted in real-world environments with more general consumer samples, such as testing interested customers at product exhibitions, to improve generalizability. Second, while this study verified the mediating effects of need for uniqueness and social risk perception, future research can explore other potential mechanisms such as social exclusion, social connection, emotion, and perceived reward. Third, this study discovered mechanisms affecting consumer innovation adoption. Since the interaction between technological and design innovation determines how consumers evaluate innovative product value and costs, thereby determining adoption (Creusen & Schoormans, 2005; Rindova & Petkova, 2007), future research should introduce radical/incremental innovation into the framework for deeper investigation. Fourth, factors affecting visual novelty effectiveness are complex, requiring further exploration of other potential factors such as country-of-origin effects, consumer goal orientation, product knowledge, and exposure frequency. Fifth, while this study categorized products as utilitarian or hedonic, consumption context (private vs. public use) and other factors may affect visual novelty decisions, warranting future exploration.

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

Source: ChinaXiv – Machine translation. Verify with original.