Will That Color Bring Me Good Luck? The Effect of Package Color Saturation of Probabilistic Goods on Consumers’ Purchase Intention

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Abstract. Probabilistic goods are unique products or services that consumers obtain from sellers at a discounted price for any one of different goods. They are also common in everyday life, such as blind boxes and lucky bags. However, there are still many consumers unwilling to pay for them, and the current research on probabilistic goods fails to reveal the mechanism behind it, and cannot solve the marketing problem well. In this regard, based on construal-level theory, three empirical studies were conducted to investigate the effect of package color saturation of probabilistic goods on consumers’ purchase intention. The study found that compared with low saturation, high saturation packaging can significantly increase consumers’ purchase intention, which is mediated by subjective probability and moderated by transaction utility. Specifically, in the context of low transaction utility, the higher the saturation, the stronger the consumers’ purchase intention; in the context of high transaction utility, the effect of saturation is not significant. The conclusion of this paper expands the research on the visual effect of probabilistic goods packaging, and provides theoretical basis and practical guidance for marketers to consider probabilistic goods packaging design. Keywords: Probabilistic goods, Saturation, Probability, Purchase intention, Transaction utility.

1 Introduction

As a basic attribute of matter, color has become an important topic in psychology and marketing research [1]. Previous studies have found the role of color in attracting consumers’ attention, differentiating competitors, and inferring product attributes in the fields of advertising, product customization and design [2–4]. As one of the most important elements in visual performance, more and more sellers have adjusted the packaging color of their products. Observing the probabilistic goods industry in reality, it is found that the package color saturation of a large number of probabilistic goods is higher. POP MART, for example, offers a series of blind boxes with highly color-saturated packaging. Most of lucky bags launched by retailers are also displayed in highly saturated red packaging. So, as an important visual element of package design, will the change of color saturation of probabilistic goods packaging affect consumers’ cognition and behavior? If so, what are the underlying mechanisms of this effect?

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On this issue, probabilistic goods related research has not been explored. Most of the previous studies on probabilistic goods focused on how to price from the perspective of enterprises in order to keep low inventory and gain higher profits [5–7]. Although some scholars have studied probabilistic goods from the perspective of consumers, they still focus on how to price them to benefit both parties [8, 9]. However, it has not been studied by scholars whether the visual cues on the packaging of probabilistic goods will affect the cognition and behavior of consumers. As one of the important visual cues of package design, color has been proved by a large number of studies to have an impact on consumers’ purchase intention. For example, color affects consumers’ perception of product quality [10, 11]. The matching of package color and brand personality increases purchase intention [12]. Consumers perceive foods packaged in highly saturated colors as less healthy than those packaged in less saturated colors [13, 14]. Although color has been studied in many fields such as branding and food, few scholars have studied whether the package color of probabilistic goods have an effect on consumers.

The core point of probabilistic goods is that the product is unknown, that is, consumers may feel a certain probability subjectively. According to construal-level theory, people experience things beyond direct experience by forming abstract mental construal [15]. Psychological distance is the subjective experience of feeling the distance of something by taking the self here and now as the reference point. Bar-Anan Y et al. [16] found that people experience probability as a dimension of psychological distance. Wakslak C et al. [17] found that participants with high-level construals made lower probability assessments than participants with low-level construals. Moreover, many scholars have confirmed the correlation between color saturation and psychological distance. Therefore, this paper speculates that the color saturation of probabilistic goods packaging may also be related to the subjective probability of consumers, thus affecting consumers’ purchase intention.

Firstly, this paper takes the package color saturation of probabilistic goods as an independent variable and consumers’ purchase intention as a dependent variable to explore the direct impact of color saturation on purchase intention. Secondly, previous research has found that high saturation is perceived more closely than low saturation. This may be strongly related to probability. Therefore, this paper introduces the subjective probability of consumers as a mediating variable to examine the mediating path of the effect of color saturation on purchase intention. Finally, due to the discounting situation that can be seen everywhere in real life, the impact of color saturation of probabilistic goods packaging on consumers may be different in situations with different transaction utility levels. Therefore, this paper introduces the variable of transaction utility to explore the boundary of the effect of package color saturation on purchase intention. The conclusion of this paper can supplement the theory of visual effects of probabilistic goods and provide suggestions for the package design of sellers.

The remainder of the paper is organized as follows. In Sect. 2, the model is given; in Sect. 3, the research methodology is proposed; in Sect. 4, this paper makes a summary to illustrate the contributions, limitations and future research directions.

2 Conceptual Background

2.1 Probabilistic Goods and Subjective Probability

Consumers are increasingly buying probabilistic goods. For example, Fanta and Oreo both introduced mystery flavors, which can only be known after consumers have purchased them [18]. In 2016, POP MART developed Molly Zodiac series blind boxes, which were launched in China and became an instant hit. Japanese companies will offer consumers lucky or mystery bags called “fukubukuro” on New Year’s Day, where consumers don’t know what’s
inside the bag until they buy it. Why can such a commodity, which is considered as a gamble by Fay S et al. [5], still exist in the market and sell well? Some scholars believe that probabilistic goods have advantages for marketers. Because they can help enterprises maintain low inventory and gain higher profits [5]. Some scholars argue that probabilistic goods are attractive to consumers because they are often discounted and offered for a limited time [19, 20]. But none of these explanations captures the core point that the product is unknown. Thus, contrary to Gneezy et al.’s hypothesis in 2016 that consumers avoid uncertainty and prefer certainty, Buechel proposed in 2022 that consumers prefer uncertainty over certainty in the context of probabilistic goods. Therefore, contrary to the assumption made in 2016 that consumers avoid uncertainty and prefer certainty [21], Buechel E et al. [18] proposed in 2022 that consumers prefer uncertainty to certainty in the context of probabilistic goods. They argue that the uncertainty aversion of probabilistic goods is different from that of gambling, because it is characterized by horizontal uncertainty: possible outcomes differ in the nature of the product (e.g., product design, flavor) rather than objective advantages (e.g., objective quality, quantity or item value). Although all uncertainties are not equal. Why consumers may hate the uncertainty of gambling or lottery, but prefer the uncertainty of some probabilistic goods? This paper speculates that it may be because consumers perceive risks with different probabilities.

The probability of risk may be high or low. For example, a company might launch a probabilistic good that could be a sweater of any color that is not different in any way other than the color. After purchasing, consumers may be pleasantly surprised to find that the color of the sweater is very nice. Although they may think the color of the sweater is plain, the quality of the sweater itself is guaranteed, so they may be willing to buy it. However, the probability of winning a lottery ticket is very small, and the possibility of profit from it is very low, so many risk-averse people do not want to buy. Uncertainty, as the core of probabilistic goods, can make some consumers feel pleasantly surprised, but also make some consumers loathe losses. If consumers can increase their perception of the probability of getting the products they like, can they reduce their perception of risk and thus increase their willingness to buy them?

2.2 The Effect of Package Color Saturation on Purchase Intention

Color is represented from three dimensions: hue, saturation and lightness [22, 23]. Saturation represents the purity of the color, that is, the proportion of gray light mixed in the color. The smaller the proportion of gray light mixed in the color, the purer the color, and the more vivid the color. As one of the most important elements in visual performance, color is not only a persuasive heuristic processing clue for consumers with less motivation, but also has an impact on consumers’ psychology and behavior. For example, ads with high saturation can induce excitement, which in turn increases consumer affection [12]. Increasing the color saturation of a product increases the perception of size, which in turn affects consumers’ evaluation of the product and their willingness to pay [22].

When evaluating products, consumers rely on visual packaging cues to infer their attributes. For example, when evaluating foods, consumers rely on visual cues on packaging to infer whether the food is healthy and tasty [24–26]. In reality, many probabilistic goods are presented to consumers in highly saturated color packaging. Therefore, this paper assumes that the package color saturation of probabilistic goods can be used as a visual cue to convey information to consumers, thus influencing their purchase intention. According to the above, this paper proposes the following hypothesis:

H1. Compared with lower saturation, probabilistic goods with higher package color saturation will enhance consumers’ purchase intention.
2.3 The Mediating Role of Subjective Probability

People want to experience things other than direct experience must form an abstract psychological explanation. Taking the self here and now as the reference point, feeling the distance of something, this subjective experience is psychological distance. Bar-Anan Y et al. [16] found that people experience probability as a dimension of psychological distance. While possible events are explained at a lower level of construal by their concrete and superficial characteristics, impossible events are explained at a higher level of construal by their abstract and essential characteristics [27]. The connection between probability and abstraction is bidirectional. Waksłak C et al. [27] also found that participants with high-level construals made lower probability assessments than those with low-level construals. Probability judgment is not only influenced by people’s general cognition, but also by their emotional state. Wright W et al. [28] found that priming negative emotions can improve the judgment of the probability of negative events.

At present, there is no research showing the correlation between color saturation and probability, but probability, as one of the four dimensions of psychological distance, is interrelated with the other three dimensions (time, space and social distance) [29]. For example, an impossible event is distant in temporal distance, spatial distance, and social distance. In the past, many scholars have confirmed the relationship between color saturation and temporal and spatial distance. Lee H et al. [30] found that when events are close in time, people carry out low-level construals to capture more information about colors. However, with the increase of temporal distance, people pay less attention to color for high-level construals. Some scholars have also found that foods with high saturation look fresher than foods with low saturation [31, 32]. In visual design, designers often use different saturation colors to represent different depth of field: low saturation colors are often used for distant background colors, while high saturation colors are used for foreground colors that are closer to the viewer in spatial structure. As early as the beginning of the last century, Bullough suggested that reducing vivid colors in artwork would make the viewer feel further away from the work. All of this confirms the correlation between color saturation and psychological distance. Therefore, this paper guesses that compared with low saturation, probabilistic goods packaged in highly saturated colors will bring consumers closer psychological distance, and the greater the subjective probability of obtaining their preferred goods, the more willing to buy. Accordingly, this paper proposes the following hypothesis:

$H2$. Subjective probability mediates the relationship between package color saturation of probabilistic goods and consumers’ purchase intention.

2.4 The Moderating Effect of Transaction Utility

The perceived value of goods includes acquisition utility and transaction utility [33]. In marketing research, acquisition utility refers to the use value of the product itself when consumers obtain products or services. Transaction utility refers to the perception of psychological satisfaction and pleasure obtained from the transaction, which depends on the difference between the price paid by the consumer for the commodity and the reference price of the commodity, that is, whether the transaction is preferential compared with the reference price [34].

Whether it is China’s Singles’ Day, Black Friday in the United States, or the usual promotional activities of major merchants, the price advantage of these discounted goods improves the transaction utility felt by consumers when buying goods. Moreover, compared with the purchase scenario without promotional activities, the price advantage of promotional purchases makes consumers feel more favorable and improves their satisfaction, which also highlights the important role of transaction utility in the discount purchase scenario [35, 36].
The more time and cognitive processing resources of rational consumers’ decision-making, the less likely it is to produce the purchase behavior based on transaction utility. But the irrational consumer psychology easily makes people ignore the use value of the commodity itself, and be influenced by promotional information and emotional stimuli [37]. And transaction utility is likely to be the cause of this irrationality. Previous studies have shown that the higher the transaction utility, the easier it is for consumers to make irrational purchase decisions [38]. Given that consumers are generally price sensitive, they are easily attracted by promotional activities. Therefore, this paper proposes the following hypothesis:

**H3.** The effect of package color saturation of probabilistic goods on consumers’ purchase intention is moderated by the transaction utility.

**H3.a** In the context of low transaction utility, the higher the saturation, the stronger the consumers’ purchase intention.

**H3.b** In the context of high transaction utility, the influence of saturation on consumers’ purchase intention is not significant.

Based on the above research assumptions, the study model of this paper is proposed, as shown in figure 1.

### 3 Experimental Materials and Methods

#### 3.1 Study 1

In study 1, an online experiment was used to test the validity of H1. The stimuli used in the experiment did not have any information about the brand, in order to eliminate the potential interference that the brand might cause.

(1) Method

The experiment used a single factor (package color saturation: high vs. low) between-group design. A total of one hundred and eighteen subjects were recruited, including forty-seven males and seventy-one females. After completing the experiment, they received monetary compensation.

After being randomly assigned to high or low saturation conditions, participants first read a material, assuming that their preferred product was randomly placed in a blind box. After reading the instructions, participants viewed images of the blind box. In order to avoid the influence of the brand, the blind box does not have any information about the brand. Participants in the low saturation condition were shown a blind box in low color-saturated packaging, while participants in the high saturation condition were shown a blind box in high color-saturated packaging. The two images are identical except for the manipulation.
of package color saturation. After viewing the picture, participants were asked to express their purchase intention on a 3-item, 7-point semantic differential scale of purchase intention adapted from previous research [39]: “If I have the ability, I am willing to buy the blind box”, “If I have the ability, I have the preference to buy the blind box”, “If I have the ability, I want to buy the blind box” ($\alpha = 0.916$). At the end of the online study, participants provided demographic data (i.e. age and gender). The experiment of each participant lasted for a total of 1-2 minutes.

(2) Results

This paper used SPSS 26 to conduct a one-way ANOVA for the main effect of saturation on purchase intention.

The results show that there is a significant difference in purchase intention between the high saturation group and the low saturation group ($F(1,116) = 10.863, p < .01$). And there is a linear relationship between saturation and purchase intention. In other words, the higher the saturation, the stronger the purchase intention. As this paper expected, participants who watched high color-saturated blind box packaging had higher purchase intention ($M = 5.86, SD = 0.75$) than those who watched low color-saturated blind box packaging ($M = 5.10, SD = 1.60$), supporting H1.

(3) Discussion

In Study 1, the stimulus without brand name is used to verify H1, and the conclusion shows that the package color saturation of probabilistic goods will significantly affect consumers’ purchase intention. As an important visual element of product packaging, the color saturation of probabilistic goods packaging will be noticed by consumers and affect their purchase behavior.

However, there are still two defects in Study 1: first, it fails to explore the psychological mechanism of this effect. Second, the stimulus does not have any brand information, which is inconsistent with the actual situation in reality. The conclusions need to be verified repeatedly using virtual brand stimuli or real brand stimuli. Study 2 will focus on solving the above two problems.

3.2 Study 2

Study 2 will use virtual brand stimuli to further verify H1. Although the objective probability of probabilistic goods itself cannot be changed, people’s subjective probability assessment can be affected. There is a wide correlation between color saturation and people’s psychological distance, whether in real situations or artistic creations. Therefore, as one of the four dimensions of psychological distance, whether consumers’ subjective probability mediates the process in which the package color saturation of probabilistic goods affects purchase intention will be discussed in Study 2.

(1) Method

In the design of experimental stimuli, this paper redesigned the blind box packaging to make it closer to the most common style in daily life. To eliminate the influence of brand familiarity, this paper adopted the virtual brand “FUTURE”. The experiment used a single factor (package color saturation: high vs. low) between-group design. A total of one hundred and twenty subjects were recruited, including forty-seven males and seventy-three females.

Participants were randomly assigned to one of two experimental conditions (package color saturation: low vs. high). Then, participants watched an image of a blind box with a virtual brand named “FUTURE” in either low or high color-saturated packaging. The image is identical except for the processing of color saturation. Next, participants were asked to report their purchase intention and subjective probability. As in study 1, consumers’ purchase intention was measured using the 3-item 7-point semantic difference scale ($\alpha = 0.911$). The
measurement of subjective probability draws on Wakslak C et al. [17]: “When you look at this blind box, how likely do you think you will get your favorite toy from it?”

(2) Results

Firstly, one-way ANOVA was performed for gender as a control variable. The results showed that gender had no significant effect on purchase intention [M_{male} = 5.44, SD=1.47; M_{female} = 5.14, SD=1.41; F(1,118)=1.238, p = .268]

This paper used the Process macro for mediation analysis [40]. The bootstrap sample size was 5000, in which consumers’ purchase intention was the dependent variable, package color saturation was the independent variable (low saturation coded as 1, high saturation coded as 2), and subjective probability was the mediating variable. The results showed that the subjective probability completely mediated the relationship between package color saturation and consumers’ purchase intention. The results are shown in figure 2. The 95% confidence interval of the indirect effect (0.1294 to 0.7650) of the experimental conditions excluded zero, and the direct effect (-0.5041 to 0.3293) contained zero, in support of H2. That is, participants who viewed the highly color-saturated image perceived higher probability (M = 4.97, SD = 1.041) than those who viewed the less color-saturated image (M = 4.43, SD = 1.140). And the higher the subjective probability, the higher the purchase intention. The results are shown in table 1.

(3) Discussion

Study 2 tested the mediating path of package color saturation of probabilistic goods affecting consumers’ purchase intention. The conclusion shows that the level of color saturation of probabilistic goods packaging will first affect consumers’ subjective probability, and then affect consumers’ purchase intention. For probabilistic goods in highly color-saturated packaging, consumers will visually perceive that they are more likely to obtain their preferred products, thus affecting their purchase intention, which is consistent with H2.

However, there are still two defects in study 2: First, in the selection of stimuli, both study 2 and study 1 only choose the blind box in the category of probabilistic goods, but the forms of probabilistic goods in real life are diverse. Therefore, whether other forms of probabilistic

![Figure 2. Mediating model](image)

Table 1. Total effect, direct effect, and indirect effect

<table>
<thead>
<tr>
<th></th>
<th>Effect</th>
<th>se</th>
<th>t</th>
<th>p</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.35</td>
<td>0.261</td>
<td>1.3411</td>
<td>0.1824</td>
<td>-0.1668</td>
<td>0.8668</td>
</tr>
<tr>
<td>Direct</td>
<td>-0.0874</td>
<td>0.2104</td>
<td>-0.4155</td>
<td>0.6786</td>
<td>-0.5041</td>
<td>0.3293</td>
</tr>
<tr>
<td>Indirect</td>
<td>0.4374</td>
<td>0.1664</td>
<td>/</td>
<td>/</td>
<td>0.1226</td>
<td>0.771</td>
</tr>
</tbody>
</table>
goods still have the effect in the above research conclusions needs to be further answered. Second, some probabilistic goods often appear in the form of promotion. Then, whether the transaction utility brought by this form of promotion will regulate the effect in the above study is not answered in study 2. Study 3 will focus on solving the above two problems.

3.3 Study 3

Study 3 has two purposes: one is to verify H1 and H2 again by using lucky bags, another form of probabilistic goods, as stimulus; the second is to test the moderating effect of transaction utility.

(1) Method

There were 136 subjects in total. After deleting the invalid questionnaire, 120 valid answers were obtained, including 39 males and 81 females. A total of one hundred and thirty-six subjects. After deleting invalid questionnaires, one hundred and twenty valid answers were obtained, including thirty-nine males and eighty-one females.

Study 3 utilized a 2 (package color saturation: high vs. low) × 2 (transaction utility: high vs. low) between-groups design. In the reading material of the experiment, transaction utility is manipulated by describing the difference between the expected price of the commodity and the actual selling price [41]. The high transaction utility group is described as follows: “A store is selling a lucky bag, which has the probability to get the goods you like. You find that the store is on sale. The whole store is 50% off, and the lucky bag is 150 yuan after discount.” The low transaction utility group is described as follows: “A store is selling a lucky bag, which has the probability to get the goods you like. But you hear friends say that the store was having a promotion yesterday, ‘all 50% off’, but today it is over, the lucky bag is now priced at 150 yuan.”

In order to manipulate transaction utility, this paper used the 3-item 7-point scale to measure [42]: “I think the lucky bag is very affordable”, “I think the lucky bag is very fair”, “I think the lucky bag is very cost-effective” (α = 0.941). Then let the participants fill in the subjective probability and purchase intention scale, and fill in the basic demographic information at the end.

(2) Results

First, to exclude the possible interference of gender, a one-way ANOVA is needed for this factor. The results showed that gender had no significant effect on purchase intention [M_male = 5.69, SD = 1.11; M_female = 5.21, SD = 1.42; F(1,118) = 3.532, p = .063].

The results of one-way ANOVA showed that the color saturation of probabilistic goods packaging has a significant effect on consumers’ purchase intention [F(1,118) = 7.146, p < .01]. Moreover, compared with low saturation, high saturation leads to higher purchase intention (M_high saturation = 5.68, SD = 1.04; M_low saturation = 5.04, SD = 1.53), which supports H1 again. At the same time, the color saturation of probabilistic goods packaging significantly affects consumers’ subjective probability [F(1,118) = 11.773, p < .01]. Specifically, compared to low saturation, high saturation allows consumers to perceive a higher subjective probability of getting their preferred items (M_high saturation = 5.20, SD = 1.375; M_low saturation = 4.35, SD = 1.338).

As for the moderated mediation effect, a moderated mediation model is constructed in Study 3 after the moderating variable of transaction utility is introduced (see figure 3). According to the Bootstrap method, package color saturation of probabilistic goods was taken as the independent variable, subjective probability as the mediating variable, purchase intention as the dependent variable, and transaction utility as the moderating variable. The confidence interval was set as 95%, and the sample size was selected as 5000 to conduct the moderated
Table 2. Total effect, direct effect, and indirect effect

<table>
<thead>
<tr>
<th>Subjective Probability (M)</th>
<th>Purchase Intention (Y)</th>
</tr>
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<tbody>
<tr>
<td><strong>β</strong></td>
<td><strong>t</strong></td>
</tr>
<tr>
<td>Package Color Saturation of Probabilistic Goods (X)</td>
<td>.85***</td>
</tr>
<tr>
<td>Subjective Probability (M)</td>
<td>/</td>
</tr>
<tr>
<td>Transaction Utility (W)</td>
<td>-.30*</td>
</tr>
<tr>
<td>Package Color Saturation of Probabilistic Goods × Transaction Utility</td>
<td>/</td>
</tr>
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</table>

mediation effect test. When the subjective probability is controlled, the level of color saturation of probabilistic goods packaging has a significant impact on purchase intention (p < .01, confidence interval CI = [0.2386, 2.4628] excluding zero). The above results again support H2, that is, subjective probability mediates the influence of the package color saturation of probabilistic goods on the purchase intention.

More importantly, the results of the moderated mediation effect test show that there is a significant interaction between the color saturation of probabilistic goods packaging and transaction utility (β = −0.781, SE = 0.356; t = −2.20, p < .05), which proves that the main effect of the mediation model is moderated by transaction utility. Similarly, there is also a significant interaction effect between transaction utility and subjective probability (β = −0.299, SE = 0.137; t = −2.17, p < .05), which indicates that the second stage of the mediation model is moderated by transaction utility. Since transaction utility is a categorical variable, two-way ANOVA and further simple effect analysis are used. The results show that in the context of low transaction utility, the higher the saturation, the stronger the consumers’ willingness to buy (M_{high saturation} = 5.422, M_{low saturation} = 4.222, F = 15.904, p < .01). However, in the context of high transaction utility, the color saturation of the lucky bag packaging has no significant impact on purchase intention (M_{high saturation} = 5.944, M_{low saturation} = 5.867, F = 0.067, p > .1).

(3) Discussion

Study 3 used the lucky bag, a different type of stimulus than Studies 1 and 2, to test the moderating effect of transaction utility. The results show that transaction utility moderates the effect of package color saturation of probabilistic goods on consumers’ purchase intention. Specifically, in the context of low transaction utility, the higher the saturation, the stronger

Figure 3. Moderated mediation model
the consumers’ purchase intention; in the context of high transaction utility, saturation has no significant effect on consumers’ purchase intention. This result confirms the moderating effect of transaction utility. In addition, study 3 retested H1 and H2, which again verifies the mediating role of subjective probability and provides robust support for it.

4 General Discussion

Through three studies, this paper draws a consistent conclusion: package color saturation of probabilistic goods will significantly affect consumers’ purchase intention (Study 1, Study 2 and Study 3). In this process, subjective probability plays a mediating role (Studies 2 and 3). In addition, this paper also finds that transaction utility moderates the process by which color saturation of probabilistic goods packaging affects consumers’ purchase intention (Study 3). Specifically, in the context of low transaction utility, the higher the package color saturation of probabilistic goods, the stronger the consumers’ purchase intention; in the context of high transaction utility, the effect of package color saturation on purchase intention is not significant.

4.1 Theoretical Contribution

The theoretical contribution of this paper mainly has three aspects.

First, this paper discusses the influence of package color saturation of probabilistic goods on consumers’ purchase intention from the perspective of probability, and expands the research on visual effect of probabilistic goods. Probabilistic goods have developed rapidly in recent years, but most of the previous studies on them were limited to the pricing. However, the core of probabilistic goods is that the product is unknown. No scholars have explored how probabilistic goods affect consumers’ purchase intention from the perspective of probability. Previous studies have found that people experience probability as a dimension of psychological distance, and have proved that there is a correlation between color saturation and psychological distance, but have not proved whether there is a correlation between color saturation and subjective probability, nor have they explored the influence of color saturation of probabilistic goods packaging on consumers’ psychological perception. Based on construal-level theory, this paper finds that package color saturation, as a visual cue of probabilistic goods, will guide consumers to purchase through the influence of subjective probability, which provides a supplement to the visual effect of probabilistic goods.

Second, probabilistic goods often attract consumers by means of price promotion. For example, a merchant selling scarves in the same style but in different colors might offer an additional “probability scarf” at a promotional price, which can be any color. This not only helps merchants maintain low inventory, but also allows consumers without color preferences to buy products at lower prices. Therefore, this paper takes the factor of transaction utility into the study, and finds that the visual effect of color saturation of probabilistic goods packaging is not significant in the context of high transaction utility. This conclusion makes the visual effect boundary of color saturation of probabilistic goods packaging clearer.

4.2 Management Implications

First, enterprises should pay attention to the role of color saturation when designing the package of probabilistic goods. As an important visual cue, color saturation can enable consumers to unconsciously increase their willingness to purchase probabilistic goods. The rational use of the design and adjustment of package color saturation helps consumers to be closer to
probabilistic goods psychologically, and then guide the purchase behavior. Therefore, as an important visual element, enterprises should fully understand and pay attention to the role of color saturation, and make full use of it to influence consumers’ subjective probability, so as to enhance consumers’ purchase intention of probabilistic goods.

Second, merchants selling probabilistic goods should have different package designs and marketing activities for different situations. During the holidays, sellers of probabilistic goods may promote the prices of their products, hoping to attract more consumers with lower prices. Moreover, this paper finds that in the context of low transaction utility, the higher the package color saturation of probabilistic goods, the stronger the purchase intention. Therefore, merchants who have lower prices for the probabilistic goods should pay more attention to the role of color saturation in the package design.

4.3 Limitations and Future Research

First of all, the stimuli used in this paper to represent probabilistic goods only include two forms: blind box and lucky bag. There are many other rich forms of probabilistic goods that have not been used in this paper. Therefore, the categories of probabilistic goods are not fully covered. Moreover, the stimuli designed in this paper are all virtual stimuli, and no real stimuli are used for hypothesis testing, which may lead to the limitation of the applicability of the research conclusions. Therefore, future research can be carried out by using a wider range of probabilistic goods and using real stimuli to show the applicable environment of the conclusions of this paper more accurately and intuitively.

Secondly, the gender ratio in the data collected in this paper is not balanced, which may affect the applicability of the research conclusions in terms of gender. Moreover, the data collection sample is not large enough, so it needs to be further expanded.

Finally, this paper only examines the impact of color saturation of probabilistic goods packaging on consumers in a single environment. However, in the actual commercial environment, probabilistic goods packaging is often not presented to consumers alone, but appears in front of consumers together with brand logos and advertisements. Then, in such a multi-element business environment, whether the color saturation of probabilistic goods packaging will conflict with brand personality and advertising text, which also provides a valuable research direction for subsequent research.

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