





# “Influence of light and color of advertising photography on consumers’ purchase intention”

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# INFLUENCE OF LIGHT AND COLOR OF ADVERTISING PHOTOGRAPHY ON CONSUMERS’ PURCHASE INTENTION

## Abstract

With the rapid progress of information technology, short video advertising has flourished, and the performance of advertising images can stimulate consumers’ purchase behavior through short video platforms. Drawing on stimulus-organization-response (S-O-R) theory, this study explored the moderating role of short video platforms on the relationship between light and color of advertising photography and brand image and the mediating role of brand image between light and color and consumers’ purchase intention. The data were collected using a questionnaire focusing on consumers who purchased detergent products in major supermarkets in East China. The survey covered 200 respondents from different industries, genders, and education levels in various provinces and cities in East China. Collected data were analyzed using regression analysis. It was found that the light and color of advertising photography have a facilitating effect on consumers’ purchase intention. Furthermore, brand image mediates the relationship between light and color and consumers’ purchase intention. Finally, short video platforms can moderate the relationship between light and color and brand image. This study will encourage scholars to use the S-O-R model in academic research to investigate how advertising affects consumers’ purchase intention and guide companies to use short video platforms to advertise and increase product sales.

**Keywords** advertising photography, light, color, short video platform, brand image, willingness to buy, S-O-R model

**JEL Classification** M31, M37

## INTRODUCTION

With the rapid development of information technology, advertising has been deeply rooted in people’s hearts and affected people’s lives. Advertising affects the material concepts of most audiences in modern society and dominates the current culture’s popular and consumption trends. It has become the mainstay of today’s mass media industry. It not only appears in traditional media such as radio, television, newspapers, and magazines but also in social media such as the Internet and mobile communications. In modern society, a large amount of advertising information is poured into people every day, but not all advertisements can attract people’s attention. At this time, photographic advertisements with explicit images, visual appeal, and impact have become the focus of people’s eyes. Therefore, the performance of the advertising photography, especially the effect of the light and color performance of the advertising photography on the consumer’s vision, directly affects the consumer’s willingness to buy advertised products.

Research results on advertising on consumers’ purchase intention are rich. However, only a few scholars have conducted in-depth research on the influence of light and color on consumers’ purchase intention by applying the S-O-R model with the stimulus-organization-response theory.

## 1. LITERATURE REVIEW AND HYPOTHESES

Several scholars have developed more sophisticated scales for measuring consumers' purchase intentions. The scales developed by Ajzen and Fishbein (1977) and Bearden and Etzel (1982) included questions on the likelihood of buying the brand and plan to buy the brand, which consumers scored on a seven-point Likert scale. Dodds et al. (1991) enriched the scale by expanding the items to include the likelihood of buying the brand, "if I were to buy the brand," "if I were to buy, I would prefer this product," likelihood of buying the product, and willingness to buy the brand. Feng et al. (2006) summarized the previous research results and divided the scale topics into intense, strong, average, weak, and very weak.

Different methods of using light have different effects on the three-dimensionality and texture of the subject, as well as the shape of light and shadow, and thus the performance effect of advertising photography (Zheng, 2010). In addition, the use of light level, light intensity, and light decoration also profoundly affects the picture's visual expression.

Color is one of the essential elements of painting, and various objects show complex color phenomena depending on how much light they absorb and reflect (Ma, 2013). Advertising photography always uses color to express itself; thus, the color has been a long-term research subject and topic for art practitioners (Zheng, 2015). Although the world is composed of shape and color, color is destined to stimulate the human senses more strongly than form. Color is the most intuitive and eye-catching element in visual art and is the first of its kind (Sun, 2015).

Xie et al. (2019) argue that light and color in advertising photography facilitate consumers' purchase intention. However, there are very few empirical studies on these two topics, which requires more academic research.

The term "brand image" was introduced in the 1950s, and Ogilvy (2005) explains the concept of brand image in advertising, arguing that as the differences between similar products decrease, the products become more homogeneous, and con-

sumers use less rationality when choosing products. Therefore, it is more important to portray a brand's image than to emphasize a product's specific functional characteristics. It is not the tiny differences between a product but the overall personality of a brand that determines its final position in the market.

Guo et al. (2006) divided the evaluation factors of the brand image into four major parts: corporate image, product image, symbolic image, and communication image. Bi et al. (2019) concluded that 2017 could be defined as the "first year" of short video development for the mobile Internet category. This year a series of short videos represented by Jitterbug, Racer, Watermelon Video, Volcano Small Video, Weishi, and Seconds occupied the home pages of significant application downloads. Interactive experience brings a new visual stimulation feeling to the audience, overturning the original traditional bearing form of publishing with a combination of text, pictures, and information. Moreover, social interaction function, rich content expression, and more information-bearing capacity extensively mobilize the user's participation. According to Liao (2018), the user scale and usage length of short videos have grown explosively, and its market size share in the overall video content industry has expanded rapidly at the same time. This paper combines the findings of Bi et al. (2019) and Liao (2018), which will be defined as a platform that can shoot videos of up to five minutes in length distributed on new Internet media.

The direct expression of advertising information is more suitable for advertising search products, while the metaphorical expression of advertising information is more suitable for advertising experience products. Combining these product types and advertising message expressions can effectively improve consumers' purchase intention (Yang et al., 2022). The advertisement's video information has comprehensive coverage characteristics, strong pertinence, and remarkable effects. This positively impacts consumers' purchase intention (Liu et al., 2019).

Li and Zhong (2015) believe that light and color promote consumers' purchase intention. However, there are very few empirical studies on these two topics (light and color and consumer purchase in-

tion). Advertising is an essential means of building a brand image. Its direct, extensive, and controllable characteristics make it a fast and effective influence on all aspects of the brand image (Li & Zhong, 2015). The impact of advertising on brand image building is reflected in brand awareness, brand loyalty, brand culture, and brand association (Wang et al., 2020).

Brand authenticity is an asset. However, the interaction of perceived brand authenticity and advertising imagery is defined by overall brand evaluation (Loebnitz & Grunert, 2022). Advertising photography and brand image are more and more inseparable and complement each other. The closer they are combined, the better the effect and value will be. The ultimate purpose of brand image shaping is to influence consumers' purchasing decisions. In this process, the primary influence of the visual characteristics of advertising photography in brand image building is reflected in four aspects: the promotion of brand awareness, the rise of brand loyalty, and the strengthening of brand association and brand culture (Zhang & Wu, 2017). Therefore, advertising can influence brand image (Miller & Berry, 1998). Semaan et al. (2018) suggest that individuals have more favorable brand attitudes toward grooming ads when ads are disclosed grooming. Disclosed cosmetic ads utilize two-way persuasive power, thus leading consumers to evaluate the brand more favorably, enhancing the brand image.

Using convenience sampling techniques, Rehman and Al-Ghazali (2022) collected data from 288 respondents and analyzed the data by Smart PLS-SEM. The findings showed that social advertising and personal factors impact brand image. Furthermore, there is a significant positive correlation.

Brand image refers to the individual characteristics of a product formed in the minds of consumers that are different from other products. Brand image affects consumers' purchase intention to a certain extent (Huang et al., 2020). Establishing brand image is a long-term process, which can only be achieved after some time, but once it is formed, it will affect consumers' consumption activities for a long time (Gong, 2020).

Brand image of a product is the performance of the company's vision and corporate culture (Fang,

2015). It mainly includes brand awareness, brand reputation, brand responsiveness, and brand attention. Together they form the brand image of a product (Lai & Xu, 2016). In addition, corporate culture is another factor that affects the brand image, affecting consumers' willingness to buy (Ni & Zhu, 2019).

Brand image is a long-term accumulation process, and with the improvement of consumption concepts, consumers pay more attention to the products' image (Zhang, 2019). At the same time, brand image is also consumers' perception and attitude toward a particular brand, which directly affects the purchasing behavior of consumers (Gao, 2017). Therefore, brand image has a positive impact on brand attitude, brand attitude has a positive effect on brand preference, and brand preference has a positive impact on purchase intention (Wu & Jang, 2014).

Harsono et al. (2018) randomly surveyed consumers in the Surabaya and Sidoarjo regions of East Java, Indonesia, utilizing a questionnaire, multiple regression analysis, and multiple correlation coefficient analysis. It is concluded that the influence of brand image on consumers' purchase intention depends on the type of goods.

Lin et al. (2018) used purposeful sampling to distribute three hundred questionnaires to graduate students with experience in e-commerce procurement. The results verify the positive impact of brand image on e-commerce attitudes and prove that brand image affects consumers' purchasing moods.

With the advancement of mobile Internet and media technology, short browsing videos have gradually become a favorite way of entertainment for the public. The vertical screen, fragmentation, and socialization of short videos make quick video users sticky. Short video advertisements are used to expand the publicity effect of products. Douyin is a high-quality traffic base as the fast video industry's head software. The number of ads is extensive; short video advertisements show a blowout development trend (Chen, 2022).

The rapid development of short video social networking platforms provides opportunities to carry

out health-related advertisements and recommendations (Zhao & Wang, 2020). Zhao and Wang (2020) found that consumers' perception of the ease of use of health-related short video advertisements did not significantly predict users' attitudes toward ads. This new finding in social media-oriented advertising offers recommendations for how advertisers and marketers can promote health-related short video ads. Luo and Zeng (2022) concluded that when enterprises put short video advertisements, they should adopt communication strategies such as increasing advertising creativity, establishing brand personality, combining popular advertising content, increasing brand and audience stickiness, and accurately targeting users. Huang (2020) researched the concept and current situation of short video advertising marketing, analyzed the advantages of short video advertising marketing in the new media era, explored the innovative strategies of short video advertising marketing in the new media era, and proposed a new media era. Advertisers need to consider the actual needs of different audiences and formulate precise advertising and marketing strategies by providing personalized services to enhance the effect of short video advertising marketing.

With the rapid development of new media, the construction of the brand image is no longer limited to traditional media such as TV and radio. Still, it has achieved innovation in short videos (Zhao, 2020). Wang (2020) took Linyi, a city with a profound historical and cultural heritage and revolutionary traditions, as an example to study the composition of Linyi's city image in the short video platform represented by Douyin. Moreover, the study analyzed its communication characteristics. Fan and Xu (2020) took annual Douyin Beautiful Life Festival as an example. They combined the advantages of the two and proposed a marketing communication strategy that combines online and offline approaches. The "TikTok + City" marketing model not only meets users' needs but also achieves the effect of short video precision marketing and actively promotes the construction and dissemination of the city's brand image. Zhu (2018) believes that the foundation of brand communication is the establishment of corporate brands. To spread brand information through short video advertisements, it is necessary to establish strategic awareness, fully

consider its product characteristics, and determine the brand tone and development direction. There are many kinds of short video advertisements: promotion form, direct traditional short video advertising promotion form; such promotions can more freely shape the brand image in the video content.

Based on the literature review and combining the findings of Semaan et al. (2018), Rehman and Al-Ghazali (2022), and Harsono et al. (2018), advertising can promote the brand image of goods, which in turn affects consumers' purchase intentions. In addition, considering the findings of Zhao and Wang (2020), Luo and Zeng (2022), Wang (2020), Fan and Xu (2020), and Zhu (2018), short video platforms can moderate the relationship between light and color of advertising photography and brand image.

Scholars have conducted rich research on the effect of advertising on consumer's purchase intention. At the same time, the S-O-R model has also been studied in depth. However, only some scholars have used the S-O-R model to study the effects of advertising photography characteristics on consumers' purchase intentions. Therefore, this study uses the S-O-R model to study the effects of advertising photography on consumers' purchase intentions.

Therefore, the purpose of this study is to use the S-O-R model to explore the relationship between light and color of advertising photography, consumer purchase intention, brand image, and short video platforms through an empirical research method.

Moreover, it checks the mediating effect of brand image on the relationship between light and color of advertising photography and consumers' purchase intentions and the moderating effect of short video platforms in the relationship between light and color and brand image. The hypotheses of this study are as follows:

- H1: *Light and color of advertising photography promote consumers' purchase intention.*
- H2: *Light and color of advertising photography promote brand image.*



- H3: *Brand image promotes consumers' purchase intention.*
- H4: *Brand image plays a mediating role in the relationship between light and color of advertising photography and consumers' purchase intention.*
- H5: *The short video platform has a moderating role in the relationship between light and color of advertising photography and brand image.*

## 2. METHODOLOGY

To achieve the purpose of this study, a quantitative research method was used, and a questionnaire was employed as the research instrument. The population of this study was consumers in East China who purchased detergent products by perceiving the light and color of advertisements through short video platforms. According to Anderson and Gerbing (1988), the data from 200 questionnaires were identified as the research sample for this study. Non-probability purposive sampling was employed.

The data were collected using a Google Forms questionnaire on social media platforms. The current study used four five-point Likert scales to measure the relationship between the variables. As suggested by Feng et al. (2006), the study classified consumer purchase intention into five levels according to the intensity of purchase intention: intense, strong, average, weak, and very weak. The five-point Likert scale for light use was adopted from Gu (2016). The Likert scale of color use was adapted from Zhang (2014). The Likert scale of the brand image was adapted from Guo et al. (2006); the short video platform was based on Bi et al.'s (2019) Likert scale.

The questionnaire is divided into two parts. The first part is a brief introduction to the questionnaire containing nine essential pieces of information about the surveyed consumers. The second part is an evaluation of the factors that influence the performance of advertising photography on consumers' willingness to buy, containing five questions about the use of light, four questions

about the use of color, one question about short video platforms, and four questions about brand image (Appendix A).

## 3. RESULTS

In this study, five experts were searched for item-objective congruence evaluation. As a result, the IOC values of the three first-level indicators relative to consumers' purchase intention are 1, 0.8, and 0.8, all of which are greater than 0.5. Therefore, the three first-level indicators passed the project goal consistency test.

The IOC values of the two secondary indicators relative to the color of advertising photography are 0.8 and 1, respectively, which are greater than 0.5. Therefore, the two secondary indicators passed the project goal consistency test. The IOC value of the secondary indicator relative to the short video platform is 0.8, which is greater than 0.5. Therefore, this secondary indicator passed the project goal consistency test.

The IOC values of the four secondary indicators relative to the brand image are 1, 0.8, 0.8, and 1, which are all greater than 0.5. Therefore, the four secondary indicators passed the project goal consistency test. The IOC values of the five tertiary indicators relative to the use of light are 0.8, 0.8, 0.8, 0.8, and 1, which are all greater than 0.5. Therefore, the five tertiary indicators passed the project goal consistency test.

The IOC values of the five tertiary indicators relative to the color use are -0.4, 0.8, 1, 0.8, 0.8, the IOC value of B1 is -0.4, which is less than 0.5, and the IOC values of the other four tertiary indicators are all greater than 0.5. Among the five three-level indicators of the questionnaire in this study, the B1 index failed the project goal consistency test and was deleted from the questionnaire; other indicators passed the project goal consistency test.

After passing the consistency test of the project objectives, the questionnaire was readjusted according to experts' suggestions, and then the data of 39 consumers were randomly selected and recovered. By testing the reliability of the five items in the dimension of the use of light, Cronbach's  $\alpha$  value is

0.779, which is greater than 0.7. Therefore, the use of light dimension passes the reliability test. By testing the reliability of the four items in the color use dimension, Cronbach's alpha value is 0.821, which is greater than 0.7. Therefore, the color use dimension passes the reliability test.

By testing the reliability of nine items in the dimension of light and color, Cronbach's alpha value is 0.871, which is greater than 0.7. Therefore, the light and color dimension passed the reliability detection. By testing the reliability of the four items in the dimension of brand image, Cronbach's alpha value is 0.879, which is greater than 0.7. Therefore, the dimension of brand image passed the reliability test. By testing the reliability of the 14 items of the questionnaire, Cronbach's alpha value was 0.879, which was greater than 0.7. Therefore, the entire questionnaire passed the reliability test.

In this study, ten experts were searched for content validity evaluation. Experts with a score of 3 or 4 were filled with 1, and experts with a score of 1 or 2 were filled with 0. The evaluation results of the ten experts were added up and divided by the number of experts to obtain the I-CVI value. If all expert evaluations are 1, the UA value of the item is 1; otherwise, the UA value is 0. The study adds the I-CVI values and divides them by the number of items to get the S-CVI/Ave value; it adds the UA values and divides them by the number of items to get the S-CVI/UA value. The expert scores are as follows.

The I-CVI of the five items in the use of light was all greater than 0.78, the S-CVI/AVE was 0.96, greater than 0.9, and the S-CVI/UA was 0.8, indicating that the content validity of the five items of the scale was excellent.

Among the five items in the color use, the I-CVI of the B2-B5 item is greater than 0.78, the I-CVI of the B1 item is 0.6, less than 0.78, and the S-CVI/AVE of the five items is 0.92, greater than 0.9, S-CVI/UA is 0.8. This indicates that among the five items of the scale, B2-B5 items have excellent content validity, and B1 items have average content validity, so they should be deleted.

Among the ten items in light and color dimension, the I-CVI of B1 item is 0.6, less than 0.78, the

I-CVI of other items is greater than 0.78, and the S-CVI/AVE of 10 items is 0.94, greater than 0.9, S-CVI/UA is 0.8. This indicates that among the ten items of the scale, the content validity of the B1 item is average and should be deleted. The content validity of other items is excellent.

One item I-CVI in the short video platform is greater than 0.78, S-CVI/AVE is 1, greater than 0.9, and S-CVI/UA is 1, indicating that the content validity of one item of the scale is excellent. In addition, the I-CVI of the four items in the brand image are all greater than 0.78, the S-CVI/AVE is 1, greater than 0.9, and the S-CVI/UA is 1, indicating the content validity of the four items is excellent.

Among the 15 items of consumer purchase intention, the I-CVI of B1 item is 0.6, less than 0.78, the I-CVI of other items is greater than 0.78, and the S-CVI/AVE of 15 items is 0.97, greater than 0.9, S-CVI/UA was 0.83. This indicates that among the 15 items, the content validity of the B1 item was average and should be deleted, and the content validity of other items was excellent.

After passing the reliability and content validity test, the questionnaire was distributed to the target group. Anderson and Gerbing (1988) suggested that there should be at least 150 samples when constructing the model. Therefore, two hundred questionnaires were distributed in this survey; 200 were distributed through the questionnaire star system, 200 were recovered, 36 invalid questionnaires were removed, and the remaining were 164 valid questionnaires, with an effective rate of 82%.

SPSS analyzed the data from 164 valid questionnaires collected in this study, and the results were as follows. By testing the reliability of the 5 items in the dimension of the light use, Cronbach's  $\alpha$  value is 0.856, which is greater than 0.7. Therefore, the data pass the reliability test. By testing the reliability of the four items in the color use dimension, Cronbach's  $\alpha$  value is 0.847, which is greater than 0.7. Therefore, the data pass the reliability test. By testing the reliability of the four items in the dimension of brand image, Cronbach's alpha value is 0.881, which is greater than 0.7. Therefore, the data pass the reliability test. Finally, by testing

the reliability of the 14 items of the questionnaire, Cronbach’s alpha value is 0.908, which is greater than 0.7. Therefore, the data of the whole questionnaire pass the reliability test.

The basic conditions of the surveyed consumers mainly include gender, age, educational background, and location. The statistical results are shown in Table 1. From the perspective of consumer gender, women account for 56.1%; from the perspective of age, 51-60 years old group accounts for 30.49%. From the perspective of regions, the consumers in this survey involve Shanghai city, Jiangsu province, Zhejiang province, Anhui province, Jiangxi province, Fujian province, and Shandong province, in addition to six provinces and one municipality, covering the entire East China. In general, the sample involves consumers from different regions, educational backgrounds, ages, and industries, which can roughly reflect consumers’ purchase intentions in East China for washing and chemical products.

**Table 1.** Sample distribution

Item	Quantity	Percent
<b>Gender</b>		
Male	72	43.9%
Female	92	56.1%
Missing	0	0%
Total	164	100%
<b>Age</b>		
Under 20 years old	39	23.78%
20-30 years old	27	16.46%
31-40 years old	19	11.59%
41-50 years old	27	16.46%
51-60 years old	50	30.49%
Over 60 years old	2	1.22%
Missing	0	0%
Total	164	100%
<b>Academic qualifications</b>		
High School and below	43	26.22%
Specialty	33	20.12%
Undergraduate	42	25.61%
Master’s Degree	26	15.85%
Doctoral students	20	12.20%
Missing	0	0%
Total	164	100%
<b>Location</b>		
Shanghai	26	15.85%
Jiangsu	25	15.24%
Zhejiang	25	15.24%
Anhui	23	14.02%
Jiangxi	20	12.21%

Item	Quantity	Percent
Fujian	22	13.42%
Shandong	23	14.02%
Missing	0	0%
Total	164	100%
<b>Years of work</b>		
Not working	41	25%
1-5 years	30	18.29%
6-10 years	32	19.51%
11-15 years	35	21.35%
15 years or more	26	15.85%
Missing	0	0%
Total	164	100%
<b>Career</b>		
Civil servant	21	12.80%
Career staff	25	15.24%
Enterprise workers	39	23.78%
High school student	45	27.44%
Others	34	20.74%
Missing	0	0%
Total	164	100%
<b>Nature of the unit</b>		
Government agency	21	12.81%
Business unit	40	24.39%
State-owned enterprises	25	15.24%
Private enterprise	22	13.41%
Private enterprise	23	14.02%
Individual business	11	6.71%
Foreign-invested enterprises	11	6.71%
Others	11	6.71%
Missing	0	0%
Total	164	100%
<b>Monthly income range</b>		
Less than 3000 RMB	33	20.12%
3000-5000RMB	53	32.32%
5001RMB-10,000RMB	54	32.93%
10000RMB or more	24	14.63%
Missing	0	0%
Total	164	100%
<b>Number of times to buy detergent products per year</b>		
Less than 5 times	15	9.15%
5-10 times	26	15.85%
11-15 times	24	14.63%
16-20 times	51	31.10%
More than 20 times	48	29.27%
Missing	0	0%
Total	164	100%

Consumer purchase intention, brand image, short video, and light and color all have significant positive correlations ( $\beta = 0.858, p < 0.01$ ;  $\beta = 0.566, p < 0.01$ ;  $\beta = 0.275, p < 0.01$ ). There is a significant positive correlation between video and consumer purchase intention ( $\beta = 0.763, p < 0.01$ ;  $\beta = 0.554, p$



**Table 2.** Mean, variance and Pearson correlation coefficient of main variables

Variable	Light and color	Consumer purchase intention	Brand	Short video
Light and color	1			
Consumer purchase intention	0.858**	1		
Brand	0.566**	0.763**	1	
Short video platform	0.275**	0.554**	0.285**	1

Note: n = 164; \*\* p < 0.01, \* p < 0.05.

**Table 3.** VIF values

Variable	VIF	1/VIF
Short video platform	1.43	0.700862
Brand	1.66	0.600942
Light and color	1.56	0.642167
Mean VIF	1.55	

< 0.01), and between short video and brand image ( $\beta = 0.285, p < 0.01$ ). Based on the data in Table 3, it can be seen that the VIF values for each variable are less than 2, indicating that the regression analysis process in this study does not suffer from multiple severe co-linearity problems.

Regression analysis was carried out with the color and light as the independent variable and consumers' purchase intention as the dependent variable, as shown in Table 4.

Table 4 shows that the Beta coefficient of light application is 0.910, and the significance is 0; it shows that the influence of light and color on consumers' purchase intention is positive and significant. Thus, H1 is verified.

**Table 4.** Linear regression coefficients of the relationship between light and color and consumers' purchase intention

Model		Unstandardized coefficients		Standardized coefficient	t	Salience
		B	Standard error	Beta		
1	(constant)	0.432	0.101		4.267	0.000
	Light and color	0.874	0.031	0.910	27.920	0.000

Note: a. Dependent variable: Consumers' purchase intention.

**Table 5.** Linear regression coefficients of the relationship between light and color and brand image

Model		Unstandardized coefficients		Standardized coefficient	t	Salience
		B	Standard error	Beta		
1	(constant)	1.137	0.260		4.369	0.000
	Light and color	0.703	0.080	0.566	8.731	0.000

Note: a. Dependent variable: Brand image.

Taking light and color of advertising photography as an independent variable, brand image as an intermediary variable, and consumers' purchase intention as a dependent variable, the regression analysis was carried out, and the coefficients in Tables 5-8 were obtained.

Table 5 shows that the Beta coefficient of light use is 0.566, and the significance is 0, indicating that the influence of light and color on brand image is positive and significant. Thus, H2 is verified.

Table 6 shows that the Beta coefficient of brand image is 0.810, and the significance is 0, indicating that the influence of brand image on consumers' purchase intention is positive and significant. Thus, H3 is verified.

**Table 6.** Linear regression coefficients of the relationship between brand image and consumers' purchase intention

Model		Unstandardized coefficients		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	(constant)	1.096	0.123		8.895	0.000
	Brand	0.626	0.036	0.810	17.556	0.000

Note: a. Dependent variable: Consumers' purchase intention.

**Table 7.** Linear regression coefficients of the relationship between light and color and consumers' purchase intention

Model		Unstandardized coefficients		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	(constant)	0.432	0.101		4.267	0.000
	Light and color	0.874	0.031	0.910	27.920	0.000

Note: a. Dependent variable: Consumers' purchase intention.

**Table 8.** Linear regression coefficients of the relationship between light and color, brand image, and consumers' purchase intention

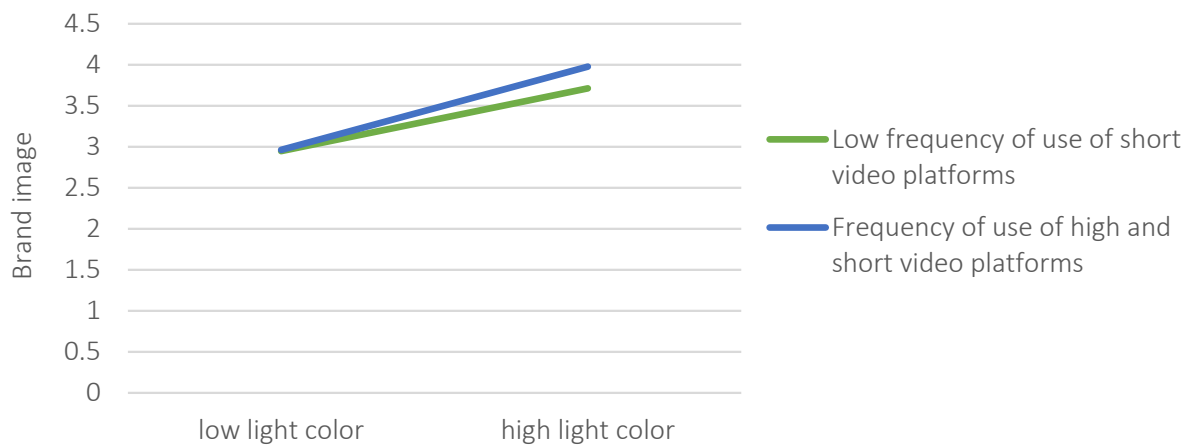
Model		Unstandardized coefficients		Standardized coefficient	t	Saliency
		B	Standard error	Beta		
1	(constant)	0.432	0.101		4.267	0.000
	Light and color	0.874	0.031	0.910	27.920	0.000
2	(constant)	0.051	0.054		.931	0.353
	Light and color	0.638	0.019	0.665	33.093	0.000
	Brand	0.335	0.016	0.434	21.595	0.000

Note: a. Dependent variable: Consumers' purchase intention.

**Table 9.** Moderating effect coefficients

Model		Unstandardized coefficients		Standardized coefficient	t	Saliency	Collinearity Statistics	
		B	standard error	Beta			Tolerance	VIF
1	(constant)	3.364	0.051		65.549	0.000		
	Zscore (light and color)	0.449	0.051	0.566	8.731	0.000	1.000	1.000
2	(constant)	3.364	0.051		66.243	0.000		
	Zscore (light and color)	0.419	0.053	0.527	7.904	0.000	0.925	1.082
	Zscore (short video)	0.112	0.053	0.141	2.109	0.037	0.925	1.082
3	(constant)	3.330	0.051		64.673	0.000		
	Zscore (light and color)	0.382	0.054	0.480	7.095	0.000	0.863	1.158
	Zscore (short video)	0.140	0.053	0.176	2.634	0.009	0.889	1.125
	Short video X-ray color	0.126	0.047	0.176	2.674	0.008	0.919	1.089

Note: a. Dependent variable: Brand image.



**Figure 1.** Line chart of moderating effect

The Beta coefficient of light and color in Table 7 is 0.910, and the significance is 0, indicating that the influence of light and color on consumers' purchase intention is positive and significant. Table 8 shows that the Beta coefficient of light use is 0.910, and the significance is 0 in Model 1, while in Model 2, the Beta coefficient of light use is 0.665, and the importance is 0. The Beta coefficient of the brand image is 0.434, and the significance is 0. It can be seen that in Tables 5-7, each significant coefficient is less than 0.05. In Model 2 of Table 8, the Beta coefficient is weakened, indicating that the brand image is between color and light and the willingness of consumers to buy. Thus, there is a partial mediation effect, and H4 is verified.

It can be seen from Model 3 in Table 9 that the Beta coefficient of the Z score of light and color is 0.480, and its significance coefficient is 0. The Beta coefficient of the Z score of the short video is 0.176, and its significance coefficient is 0.009. The Beta coefficient is 0.047, and its significance coefficient is 0.008, less than 0.05. To further show the adjustment effect of the short video platform on the relationship between the light and color of advertising photography and the brand image, through excel, according to the data in Table 9, a line chart of the adjustment effect was drawn, as shown in Figure 1.

The following conclusions can be drawn from the data in Figure 1 and Table 9: a short video has an adjustment effect between light and color and brand image, and H5 passes the verification.

## 4. DISCUSSION

The study results show that the light and color of advertising photography affect consumers' purchase intention. The significance of light and color is 0.000, which means that light and color can promote consumers' purchase intention. In addition, according to the results, light and color can influence the product's brand image, and the product's brand image can promote consumers' purchase intention.

Brand image influences how light and color impact consumers' purchase intention. The results show that the value of the relationship between light and color and consumers' purchase intention was recalculated after adding a brand image as a mediating variable (standardized coefficient = 0.665, significance 0). This implies that brand image influences how light and color influence consumers' purchase intention. These results are consistent with Semaan et al. (2018), Rehman and Al-Ghazali (2022), and Harsono et al. (2018).

In the context of the increased sophistication of short video technology, the short video platform was able to moderate the relationship between light and color and brand image. Furthermore, the results showed that the value of the relationship between light and color and brand image was recalculated after adding the short video platform as a moderating variable (standardized coefficient = 0.176, significant at 0.008, less than 0.01). This means that the short video plat-

form moderated the relationship between the light and color of advertising photography and brand image. These results are consistent with the findings of Zhao and Wang (2020), Luo and Zeng (2022), Wang (2020), Fan and Xu (2020), and Zhu (2018).

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## CONCLUSION

This study aims to verify the direct effect of light and color of advertising photography on consumers' purchase intentions, the mediating effect of brand image in the relationship between light and color and consumers' purchase intentions, and the moderating effect of short video platforms in the relationship between light and color and brand image. The results of the study confirmed the five hypotheses of the research model. In addition, the findings suggest that light and color and brand image can promote consumers' purchase intentions.

In addition, brand image is an essential intermediary between the light and color of advertising photography and consumers' willingness to buy. In other words, when companies promote their products through advertising photography, they need to pay attention to the light and color of advertising photography, which can improve the brand image of products and thus promote consumers' willingness to buy. In addition, short video platforms, to strengthen the supervision of corporate advertising photography, can better regulate the relationship between light and color and brand image, which can better establish the brand image of products for enterprises and ultimately promote consumer purchase.

However, this study has the following areas for improvement. First, the sample of this study was East China, and future studies could consider the whole of China or the whole world. In addition, future research could consider studying the relationship between other factors of advertising photography presentation and consumers' purchase intention. For example, consumers appreciate advertising photography not only through two factors of light and color, but may evaluate products from other aspects of advertising photography presentation according to the nature of different products, thus making final purchase decisions.

## AUTHOR CONTRIBUTIONS

Conceptualization: Fenglei Chen, Khunanan Sukpasjaroen, Thitinan Chankoson.

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Formal analysis: Fenglei Chen.

Investigation: Fenglei Chen, Khunanan Sukpasjaroen, Thitinan Chankoson.

Methodology: Fenglei Chen.

Resources: Thitinan Chankoson.

Software: Fenglei Chen.

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Writing – review & editing: Fenglei Chen, Thitinan Chankoson.

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## APPENDIX A. A questionnaire on the performance of advertising photography of washing products and consumers' purchase intention

Dear consumer,

I am a Ph.D. student at the Rajamangala University of Technology Tawan-ok, and I am conducting academic research on the influence of the advertising photographic performance of washing products on consumers' purchase intention. To this end, I have designed this questionnaire and invite you to help fill it out.

This questionnaire has multiple-choice questions; please fill it in according to your situation. Your answers are fundamental to our research; I promise that all information will be used for academic research only, and your information will be kept strictly confidential. Thank you very much for taking the time to participate in the survey; I appreciate your participation!

### Part 1: Basic information (please tick "v" at the corresponding option)

#### 1. Gender

Male  
Female

D. 11-15 years  
E. Over 15 years

#### 2. Age

Under 20 years old  
20-30 years old  
31-40 years old  
41-50 years old  
51-60 years old  
Over 60 years old

#### 6. Profession

A. Civil servant  
B. Business unit staff  
C. Corporate staff  
D. College student  
E. Other

#### 3. Education

A. High middle school and below  
B. Specialist  
C. Undergraduate  
D. Postgraduate  
E. Ph.D. Student

#### 7. Type of organization

A. Government agency  
B. Business Unit  
C. State-owned enterprise  
D. Private enterprise  
E. Self-employed  
F. Foreign company  
G. Other

#### 4. Location

A. Shanghai city  
B. Jiangsu province  
C. Zhejiang province  
D. Anhui province  
E. Jiangxi province  
F. Jiangxi province  
G. Shandong province

#### 8. Monthly income

A. Below 3000 yuan  
B. 3000-5000 yuan  
C. 3000-5000 yuan  
D. Over 10000 yuan

#### 5. Working experience

A. No experience  
B. 1-5 years  
C. 6-10 years

#### 9. The number of times you buy laundry products per year

A. 5 and below  
B. 5-10 times  
C. 11-15 times  
D. 16-20 times  
E. Over 20 times

## Part 2: Evaluation of the influencing factors of the performance of advertising photography on consumers' purchase intention

Please judge how strongly each description affects you, and tick “√” below the corresponding option.

### Use of light

1. The brighter lighting of the advertising photography affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

2. The low light of the advertising photography will affect the attractiveness of this wash-off product.

Intense  Strong  Medium  Weak  Very weak

3. The light position of the advertising photography affects the attractiveness of this wash-off product.

Intense  Strong  Medium  Weak  Very weak

4. The photographic photograph of a washable product in the artificial light environment affects the attractiveness of this washable product.

Intense  Strong  Medium  Weak  Very weak

5. The photographic photograph of a cleaning product in the natural light environment affects the attractiveness of this cleaning product.

Intense  Strong  Medium  Weak  Very weak

### Use of color

1. The bright color of the washed product in the advertising photography affects the attractiveness of this washed product.

Intense  Strong  Medium  Weak  Very weak

2. The dark color of the washing product in the advertising photography will affect the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

3. The color of the washing product in the advertising photography is cold (cold means that the color is bluish, giving the viewer a cold visual feeling), which affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

4. Warm color affects the attractiveness of the products you buy.

Intense  Strong  Medium  Weak  Very weak

### Short video platform

1. Advertising photography is disseminated through short video platforms (such as Douyin, Kuaishou, Xiaohongshu, WeChat video accounts, etc.) to influence the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

### Brand image

1. The brand corporate image affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

2. The brand's product image affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

3. The brand's symbolic image (product trademark) affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

4. The brand's communication image affects the attractiveness of this washing product.

Intense  Strong  Medium  Weak  Very weak

This is the end of the questionnaire. Thank you again for your support and help!