Research on the influence of IP co-branding on consumers' purchase intention -- mediated by consumers' perceived value

Danmei Huang

Management School, Shenzhen University, 518000 Shenzhen Guangdong, China

Abstract: With the improvement of China's living standards and the development of digital economy, consumers are not only pursuing simple material consumption, but also need to obtain psychological and spiritual needs of consumption. The marketing promotion model of co-branded cooperation between enterprises and IP has gradually developed and expanded while meeting the needs of consumers and has become a new way of win-win cooperation between enterprises. This paper aims to explore the connection between client buying intentions and their perception of the value of IP co-branded items. This paper collects sample data through network questionnaire survey and utilizes the statistical tool SPSS to verify and validate the info. The findings showcase that IP co-branded items boost client buying decision indirectly through how they view worth. Moreover, co-branded IP goods enhance client impressions of worth, which in turn boosts buyer intentions. Theoretically, this article presents the content of the research for elements changing consumer opinions regarding worth and plans to shop and provides reference value and enlightenment for enterprises in business cooperation.

1 Introduction

Nowadays, with advances in social science and technology and the rapid development of the economy, the demand for spiritual consumption of consumers is also growing. Joint cooperation between enterprises and IP brands is an economic win-win form to promote corporate brand image, enhance visibility and market competitiveness [1]. In addition, this form can stimulate the perceived value of this market group, attract consumers to purchase, realize the common interests of enterprises and IP brands, and promote the expansion of related arts and creative sector and market economy [2,3]. As an emerging mode of cooperation, IP co-branding can not only promote the sales of related products and promote brand image of enterprises, but also meet the spiritual consumption needs of consumers for their favorite IP works, and even promote the development of related cultural industries and social economy. But at the same time, as the benefits of IP co-branding have been promoted, some industries which have a shallow understanding of IP co-branding cooperation are faced with problems such as being unable to maximize cooperation benefits, and even suffering cooperation cancellation due to unreasonable treatment of IP before co-branding.

In this context, this field is crucial in understanding the factors that affect consumers' purchasing intentions in this field to promote the development of this market and meet

Corresponding author: 2021040153@email.szu.edu.cn

the needs of consumers. The bulk of research have focused on how IP co-branding and marketing strategies affect customers' shopping plans, neglecting the effect on enterprise co-branding product attributes and IP itself on product value and market acceptance. In fact, a reasonable combination of these characteristics will also have a significant impact. Therefore, this article explores the impact of IP-branded products on consumer intent to buy through consumer perceived value. SPAS25.0 software is employed to verify and analyze sample data obtained through questionnaire designing and collecting samples. Considering the standpoint of empirical research, the current investigation seeks the implications of the economic advantages related to IP co-branded products and the intermediary benefits of consumers' perceived value on consumers' purchase intention, so as to practice-based guidance for enterprises to establish IP-brand cooperation and establish IP co-branded partnerships.

2 Theoretical basis and literature review

2.1 IP alliance

IP co-branding is a way for two or more companies or organizations to cooperate and win on intellectual property. Such cooperation, which can include trademark and patent co-branding, has now permeated a wide range of industries. According to the definition of Blackett T and Russell N, brand alliance is a form of cooperation between two or more brands with customer recognition [1]. Zhou Hongzui et al believe that good IP co-branded products can build an emotional bridge between products and consumers, promote social production and consumption, and achieve mutual benefit and win-win situation between enterprises and IP brands [2]. Zhang Tao believes that IP co-branded products are a combination of cultures. It connects IP culture and business culture, and consumers can quantify their love for IP by purchasing co-branded products. Moreover, it promotes the economic value of the cultural and creative industry, and its future market development potential is huge [3]. According to existing research, IP co-branded products mostly refer to a product that connects the unique connotation and advantage effect of different brands and has an impact. In this paper, IP co-branded products are divided into three dimensions: IP co-branded brand awareness, IP co-branded brand matching degree and IP co-branded product scarcity.

2.2 Consumer perceived value

People don't buy things, they buy expectations. The next source of competitive advantage for a company is customer perception value, as Woodruff points out. He holds the opinion that the theory of customer perceived value has not only made progress in enterprise marketing more effective, but also has the potential to create new ideas for enterprise core competitiveness [4]. Dodds et al believe that customer perceived value is a balance between consumers' perception of benefits and satisfaction with the utility brought by product purchase and use and their perception of costs generated by the price paid for obtaining the product [5]. Sweeney et al., on the other hand, analyzed the product from multiple dimensions and believed that not only consumers would evaluate the product based on its expected performance, cost performance and versatility, but also the emotional and social value of the product are evaluated and perceived by its users, as well as its perceived value to them, such as the social process and result of communicating with others [6]. This article makes the claim that the trade-off and overall evaluation between the utility and cost brought by the items or services offered by businesses after customers buy or enjoy them is what determines the estimated worth of consumers, in line with the findings of several experts.

2.3 Consumers' willingness to buy

Order intent, defined by Wu et al., is the likelihood that customers anticipate or are prepared to pay for a particular product or service in the near future [7]. As stated by Erik et al., the purchase intention of social commerce, which includes personal consumption characteristics, appraised convenience and usability, and personal intake characteristics, is the driving force behind consumers' reaction to social commerce [8]. Purchase intention is a reaction that consumers create depending on these drives. Shao Biao and Jiang Bingjie believe that purchase intention indicates whether users are willing to pay the corresponding currency and value for a product to obtain the product [9]. In this paper, purchase intention refers to whether consumers are willing to pay a price in exchange

for co-branded products according to their own experience and judgment, combined with the impact of IP co-branded brands and products on them.

3 Research hypothesis and methodology

3.1 Research hypothesis

3.1.1 IP co-branded products and consumer purchase intention

Identify or remember a brand and its products is what IP co-branded brand awareness is all about for potential buyers. Alex et al. think that brand awareness of airlines is an important driving factor for brand selection. Faster brand recognition, faster consumer identification, the easier the choice [10]. Amal and Karine think that the improvement of brand awareness will lead to higher offline purchase intention of consumers [11]. IP co-branded brand matching refers to the degree of fit between two or more co-branded brands or IP. Lin Junyi believes that customers with a positive attitude have a higher willingness to consume brands with higher matching degree of product features [12]. Fan Gongguang analyzed from the perspective of product involvement degree and pointed out that joint matching degree would positively affect the main effect of brand co-operation [13]. The scarcity of IP co-branded products refers to the limited nature of the product, which can refer to the limited time for consumers to obtain the product or the limited number of available products. Belinda et al. think that scarcity factors usually have a strong influence and can positively influence consumers' purchase intention by combining different scarcity cues [14].

This paper is proposing a hypothesis that states:

H1: IP co-branded items greatly impact customers' propensity to buy

H1a: IP co-brand awareness profoundly impacts customers' plan to buy

H1b: Consumers' intentions to shop vary considerably by how closely IP co-branded brands resemble each other

H1c: Customers' inclination to purchase is significantly influenced by the lack of IP co-branded items

3.1.2 IP co-branded products and consumer perceived value

Alex et al. think that airlines with high brand awareness would significantly affect travelers' attitude toward the perceived value of airline brands, and give back to the purchase behavior, ultimately affecting consumers' attitude toward the frequent flyer programs of airlines [10]. The simpler it is for customers to understand altruistic motivations, the better the perceived trustworthiness, and the more favorable views about advertising may be formed, the more closely the spokesperson matches the business's image [15]. Heeju et al. believe that limited-edition shoes will affect consumers' perceived value and enable consumers to express more self-efficacy than ordinary shoes [16].

As such, this document proposes the following hypothesis:

H2: Products with IP co-branding are improving consumers' perceptions of price

H2a: the customer's impression of value is greatly impacted favorably by IP co-brand awareness.

H2b: How consumers think of value is considerably affected by the degree to which IP co-branded brands match.

H2c: Customer views of value are significantly impacted by the absence of IP co-branded items.

3.1.3 Consumer perceived value and consumer purchase intention

The correlation between sense value and customers' plans to buy has been established, and sense value decisively impacts consumers' buying intentions in the favor, as demonstrated by Ana et al. [17]. When assessing the influencing variables of online game players' consumption intention, Hong Anqi also pointed out that customers' sense of worth has a considerable positive influence on game consumption intention [18]. Guo Tingting and Li Na think that cultural and creative products have a stronger awakening effect on the positive emotions of people with high involvement, and the emotional value of perceived value can stimulate their purchase intent [19].

As consequently, this essay puts forward the following theory:

H3: Consumers' buying choices are profoundly influenced favorably by how they evaluate worth

3.1.4 The mediation effect of consumer perceived value

Xu Xiaopeng and Wang Yijie think that on the impact of green cognition on consumers' willingness to participate in supporting agriculture that perceived worthiness, such as the values of functionality, services, and the environment all greatly mediate the relationship between agricultural pollution cognition, green agricultural product cognition, green policy cognition and consumers' willingness to participate in supporting agriculture [20]. Zhang Lixia believes that consumer perception values such as quality worth, economic worth, entertainment worth, informational worth and altruistic worth have a complete intermediary effect between live streaming and consumers' online shopping intent [21].

Hence this paper posits the hypothesis as follow:

H4: Mediating the relationship between IP co-branded products and consumers' purchase intention is the perceived value of consumers.

3.2 Research model

Taking the prior assumptions, the article constructs a specific theoretical model as shown in Figure 1.

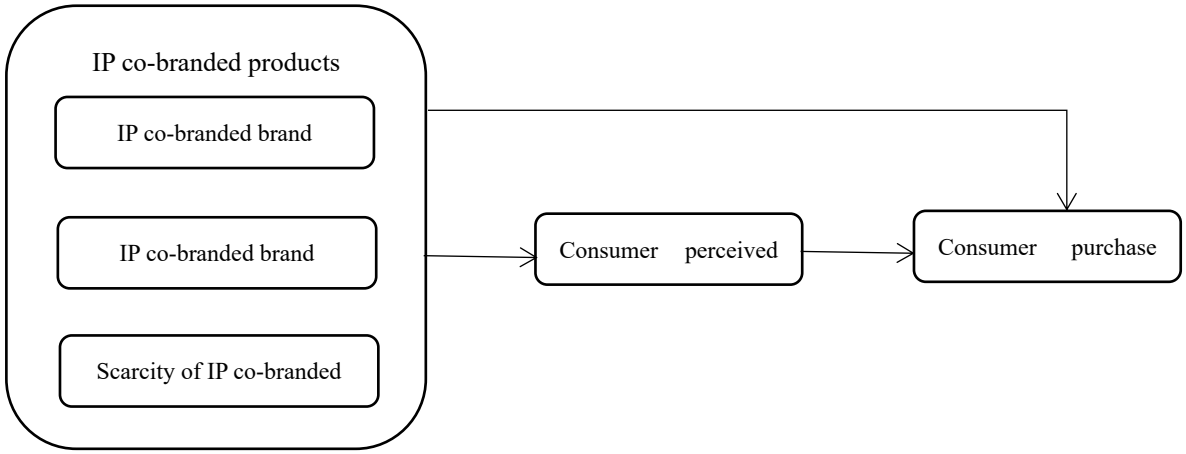

Fig. 1. Theoretical model diagram.

4 Study approach

4.1 Questionnaire creating and info gather

The measurement methods and scales adopted in this study are all from mature scales domestically and overseas. The questionnaire is scored on the Likert five-point scale, with 1-5 indicating quite disagree to quite agree.

IP co-branded products' IP co-branded brand awareness, IP co-branded brand matching degree and IP co-branded product scarcity measurement scale from the study of Yang Miao and Qiaowei Ruohan [22]. The buyer's intent and their subjective value assessment scales rely on Zhuang Cuiyao et al.'s research [23]. In Table 1, the specific measurement scale is presented.

Table 1. Variable measurement scale.

variable	Measurement item	reference
IP co-branded brand awareness	I can identify the IP among many other IP addresses	Yang Miao and Qiaowei Ruohan [22]
	I trust the brand very much	
	I can recall the image of the brand quickly	
IP co-branded brand matching degree	I think the design of the joint product is satisfactory	
	I think the IP is very complementary to the co-brand	
	I think the joint effect of the IP and the brand is greater than the product launched by a single IP/ brand	
	I think the co-branded product fits the positioning of the IP/ brand	
Scarcity of IP co-branded products	When the product is limited/limited time purchase, I consider the possibility of buying the product is high	

	When the product is limited/limited time bought, I feel it is worth the money	
	Compared to other co-branded models, limited edition models are more attractive to me	
Consumer perceived value	I want the co-branded products to remain at the same level as the rest of the brand	Zhuang Cuiyao et al [23]
	I think today's co-branded products are reasonably priced	
	I think co-branded products are more unique and novel	
Consumer purchase intention	I will buy IP co-branded products and peripheral	
	When buying products, co-branded products are my preference over regular products.	
	I tend to share the products jointly launched by IP and the use of feelings to others	

4.2 Questionnaire survey and samples

In order to obtain effective information, the questionnaire design is split into two plates based on research content: background information about respondents and their experience buying common brand products. At the same time, the questionnaire was filled out anonymously and distributed on different network platforms at different times. 223 questionnaires were collected on third-party platforms such as wechat and Weibo and in target population gathering areas. The number of valid questionnaires was 181, with an actual rate of 81.17%.

Through descriptive statistical analyzing the collected results of this questionnaire, it can be found (Table 2) that the respondents are mostly women aged 17-28, most of whom have bachelor's and college degrees. Among them, IP co-branded food and beverage products are the most popular among consumers.

Table 2. Descriptive statistics of the samples.

variable	category	frequency	percent（%）	Cumulative percentage（%）
gender	female	146	80.7	80.7
	male	35	19.3	100.0
age	16 and below	9	5.0	5.0
	17-28	162	89.5	94.5
	29-50	9	5.0	99.4
	over 50	1	.6	100.0
School record	below junior high school	8	4.4	4.4
	Secondary technical education and high school	32	17.7	22.1
	collegiate and postgraduate	136	75.1	97.2
	Master degree or more	5	2.8	100.0
Monthly disposable income	≤1500	64	35.4	35.4
	1501-3000	81	44.8	80.2
	3001-5000	16	8.8	89.0
	>5000	20	11.0	100.0
IP co-branded product type	apparel	98	20.6	20.6
	Beauty	74	15.5	36.1
	Catering	146	30.7	66.8
	entertainment	79	16.6	83.4
	toys	79	16.6	100.0

5 Empirical investigations

5.1 Validity and reliability assessment

The SPSS25.0 tool served in this study to check the scale's

dependability, and Cronbach's alpha was employed to verify the scale's dependability inside. Per the majority of academics, scales with α greater than 0.9 are often said to have high intrinsic reliability. The scale design with α coefficient less than 0.7 has great problems, and the questionnaire should be redesigned.

The analysis's outputs reveal that the scale's point is 0.791, which implies that it has a reliable reference value. Then, the α coefficient of the subscale after a certain assessment item is put forward is further analyzed, and Table 3 shows that the coefficient decreases following removal, displaying that the instrument's scale is reliable.

Table 3. Reliability test of variables.

variable	dimensionality	item	Cronbach's Alpha coefficient after deleting the item	Cronbach's Alpha coefficient
IP co-branded products	IP co-branded brand awareness	A1	.758	.758
		A2	.653	
		A3	.620	
	IP co-branded brand matching degree	B1	.738	.777
		B2	.726	
		B3	.725	
		B4	.701	
	Scarcity of IP co-branded products	C1	.772	.819
		C2	.776	
		C3	.698	
Consumer perceived value	Consumer perceived value	D1	.556	.602
		D2	.522	
		D3	.430	
Consumer purchase intention	Consumer purchase intention	E1	.563	.713
		E2	.636	
		E3	.666	

This study examines the accuracy of the Bartlett and KMO checks used to create the questionnaire. The KMO test uses a coefficient whose value spans via 0 to 1, and the nearer it gets to 1, the greater the questionnaire's structural validity is. If the likelihood ratio of the Bartlett test is below 0.05, The factor analysis can help figure out whether the questionnaire has powerful structural validity.

The accuracy of the measure was examined in this study using SPSS25.0, and the experiment's results are displayed in Table 4. KMO was calculated overall at 0.784, and The Bartlett sphericity score was beneath 0.05 and infinitely near to 0, rejecting the null hypothesis. Further factor analysis could be performed on the data obtained from the questionnaire, and the validity of the scale was acceptable.

Table 4. KMO sampling and Bartlett sphericity test.

Measure of KMO sample suitability		.784
Assessment of Bartlett's sphere	Approximate chi-square	256.750
	Degree of freedom	10
	significance	<.001

5.2 Evaluation of theories

5.2.1 Main effect test

According to the test results (Table 5), the probability P-values of the F-test statistics between IP co-branded brand awareness, IP co-branded brand matching degree, IP co-branded product scarcity and consumers' purchase intention are all less than 0.05, and the probability P-values of the regression coefficient significance T-test are all less than 0.05, indicating that H1a, H1b and H1c are

all valid.

According to the above three hypotheses, it can be concluded that IP co-branded products and their dimensions positively affect consumers' purchase intention, so hypothesis H1 is valid.

Table 5. Main effect test.

Consumer purchase intention				
	M1-1	M1-2	M1-3	M1-4
gender	-.084	-.079	-.081	-.061
age	-.173**	-.174**	-.179**	-.099
Educational background	-.146	-.143	-.104	-.066
Monthly disposable income	.150	.098	.109	.093
IP co-branded brand awareness		.376***		
IP co-branded brand matching degree			.430***	
Scarcity of IP co-branded products				.586***
F-number	2.451**	8.277***	10.733***	21.991***
R2	.031	.168	.213	.368
Δ R2	.053	.138	.182	.333

Note: The table contains standardized regression coefficients for each and every rate of regression; *.P<0.1, **.P<0.05, ***.P<0.01.

5.2.2 The path test of IP co-branded products to consumers' perceived value

According to the test results (Table 6), the probability P-values of the F-test statistics between IP co-branded brand awareness, IP co-branded brand matching degree, IP co-branded product scarcity and consumer perceived value are all less than 0.05, and the probability P-values of the regression coefficient significance T-test are all less than 0.05, indicating that hypothesis H2a, H2b and H2c are all valid.

According to the above three assumptions, it can be concluded that IP co-branded products and their dimensions positively affect consumers' perceived value, so hypothesis H2 is valid.

Table 6. Test of the impact of IP co-branded products on consumers' perceived value.

Consumer perceived value				
	M1-1	M1-2	M1-3	M1-4
gender	-.043	-.039	-.041	-.029
age	-.057	-.057	-.062	-.010
Educational background	-.099	-.097	-.057	-.050
Monthly disposable income	.105	.057	.063	.069
IP co-branded brand awareness		.343***		
IP co-branded brand matching degree			.438***	
Scarcity of IP co-branded products				.362***
F-number	.765	5.356***	9.059***	5.904***
R2	-.005	.108	.183	.120
Δ R2	.017	.116	.189	.127

Note: The table offers standard coefficients of regression for every single degree of regress; *.P<0.1, **.P<0.05, ***.P<0.01.

5.2.3 The path test of consumer perceived value and customer deciding to purchase

On the heels of the test findings (Table 7), hypothesis H3 is correct since the likelihood between value as viewed by customers and their willingness to make a pay (P-score of the F-test statistic) is under 0.05 and the P-point of the T-score probability of the relevance of a regression coefficient is beneath 0.05.

Table 7. The effect of a customer's perceived worth on buyer decision.

Consumer purchase intention		
	M1-1	M1-2
gender	-.084	-.062
age	-.173**	-.145**
Educational background	-.146	-.095
Monthly disposable income	.150	.097
Consumer perceived value		.507***
F-number	2.451**	15.365***
R2	.031	.285
Δ R2	.053	.252

Note: The table comprises standardized statistical coefficients for all of the rate of regression; *.P<0.1, **.P<0.05, ***.P<0.01.

5.2.4 Intermediate effect test

This paper adopts the mediation effect test method proposed by scholars such as Chen Rui and uses the Process plug-in in SPSS25.0 software to investigate the mediation impact, that is, to evaluate the mediating effect of consumer perceived value (M) between IP co-branded products(X) and customers' anticipated orders(Y) [24]. The regression equation depicted in (1), (2), and (3) is established using the validation technique.

$$Y=cX+e1 \quad (1)$$

$$M=aX+e2 \quad (2)$$

$$Y=c'X+bT+e3 \quad (3)$$

The test of mediating effect should confirm whether the mediating path exists, that is, whether a*b is significant. The transitional path in the research premise occurs if a*b is crucial. The transitional path in the study premise won't exist if a*b is not noteworthy. The appropriateness of a*b was investigated via the bootstrap methodology. Table 8 illustrates the a*b test's outcomes.

Table 8. Details of trials on the mediation function of consumer opinion regarding worth.

	Effect	Boot SE	LLCI	ULCI
a*b	.146	.043	.065	.233
c’	.465***	.023	.119	.209

Note: All regression coefficients in the table are standardized regression coefficients; *. P<0.1, **. P<0.05, ***.P<0.01.

On the foundation of the experiment's discoveries, the intermediary impact of consumer perceived value is significant, the interval (LLCI=.065, ULCI=.233) does not contain 0, and the size of the intermediary effect (a*b) is.146, indicating that the intermediary path proposed in the hypothesis exists, that is, hypothesis H4 is valid. Then, the direct influence of independent variable IP co-branded products on the purchase intention of dependent variable consumers is studied, that is, whether c 'is significant. According to the test results, after controlling the intermediary variable of consumer perceived value, the independent variable IP co-branded products (contrast control group) have a substantial direct effect on the response variable consumer purchase intention. The interval (LLCI=.119, ULCI=.209) does not contain 0, and the size of the direct effect is.465, indicating that there may be other intermediary paths. Further analysis is needed.

Table 9. Results of mediation effect test.

Regression equation	Dependent variable	Independent variable		Normalized regression coefficient	SE	t	F-number	R2-sq
（1）	Y	X	c	.611***	.021	10.334	106.800***	.374
（2）	M	X	a	.496***	.022	7.634	58.284***	.246
（3）	Y	X	c’	.465***	.023	7.199	69.694***	.439

		M	b	.295***	.068	4.559		

Note: *.P<0.1, **.P<0.05, ***.P<0.01.

Upon the grounds of the test outcomes (Table 9), the value of a*b*c 'is.496*.295*.465, which is obviously positive, indicating that a complementary mediating variable that is consistent with the direction of the mediating effect assumed by the model in this paper may be omitted.

6 Survey outcome and forecasts towards the future

6.1 Recherche finalization

IP co-branded products will stimulate the perceived value generation and bias of relevant audience groups and consumers' purchase intention. This is because co-branding with well-known brands will promote consumers to generate trust value and perceived benefits, thus positively promoting consumers' purchase intention; At the same time, when the joint IP or brand matching degree is high, it can improve the perceived value of consumers, and produce more interlocking feelings. And product scarcity can cause consumers' exclusive perceived value, stimulate consumers' impulse purchase, and thus promote consumers' purchase intention.

Furthermore, IP co-branded goods have a beneficial impact on consumers' feeling of value, which in turn influences their desire to make purchases. The study's data demonstrate that the mediation effect of customer perceived value is key. It also plays an instrumental function between IP co-branded items and consumers' decision to purchase them. Customers' perceived value also has a mark on buying motives, even though IP co-branded items themselves do. Moreover, there is an intermediary path in the same direction as the assumptions in the model of this study.

6.2 Research inspiration

Reasonable joint name, adaptive IP address selection. Enterprises should first clarify their own suitability and consumer preferences when choosing IP co-branded brands, clarify the audience market of the IP, select products with high matching degree, respect IP copyright, give a fair price, and develop personalized plans and appropriate promotion. After the joint promotion, enterprises should properly deal with the problems caused by the heat and wave of IP joint branding and find the right time to increase the promotion to attract customers.

This paper verifies the intermediary effect of consumer perceived value, and enterprises should also consider this point when co-branding with IP. They should not only pay attention to the co-branding effect but should improve the quality of co-branded products and the perceived value brought by the products. Only by reasonably using their own advantages and marketing strategies, can the 1+1>2 effect be brought about.

6.3 Deficiency

The respondents in this study are mostly female undergraduates and college students aged 17 to 28. Although they are more in line with the audience who often buy co-branded products, there are also senior age and male groups in the market, which is a shortcoming of this study. Likewise, this study's sample scope is somewhat restricted, limited to the social group of the researcher, while the consumer groups and scope of the co-branded product market are more diverse and broader, which also leads to the small number of samples collected, which cannot fully reflect the relevant attributes. Finally, the model of this study is relatively simple, and it does not further study the role and effect of other relevant factors on the relationship between IP co-branded products and consumers' purchase intention.

6.4 Future prospect

With the increase of social development, as well as the rise and vigorous development of the IP co-branding market, IP co-branding is increasingly valued by enterprises. To encourage the implications and consumption of IP co-branding, future research can suitably broaden the focus of the research group to explore the variables driving the shopping plans of non-audience groups. Future research could focus on the implications on extra relevant elements including perceived mood, or study the value brought by consumers' consumption

behavior to IP co-branded products, so as to further improve the research model of this paper.

References

1. T. Blackett, N. Russell, J Brand Manag **7**, (2000)
2. H. Z, Y. Li, J. Zhou, Beauty Times (Part 1) **952**, 8 (2022)
3. T. Zhang, China Busi Daily **5**, (2022)
4. R.B. Woodruff, JAMS **25**, 2 (1997)
5. W.B. Dodds, J Marketing Res **28**, 3 (1991)
6. C.S. Jillian, N.S. Geoffrey, J Retailing **77**, 2 (2001)
7. C.S. Paul, G. Wu, Y.Y. Yeh, C.R. Hsiao, AMJ **19**, 1 (2010)
8. E.V. Erik, C. Patel, S. Alvidrez, L. Siliceo, J Retail Consum Serv **74**, (2023)
9. B. Shao, B. Jiang, Logis Tech **46**, 13 (2023)
10. K.K. Alex, S. Buyle, R. Macário, J Air Trans Manag **107**, (2023)
11. A. Dabbous, A.B. Karine, **53**, (2020)
12. J. Lin, J Retail Consum Serv, Busi Econ Res **808**, 21 (2020)
13. G. Fan, China's Circul Econ **29**, 3 (2015)
14. B. Barton, N. Zlatevska, H. Oppewal, J Retailing **98**, 4 (2022)
15. Y. Liu, Xiamen Uni, (2021)
16. H. Chae, S. Kim, J. Lee, K. Park, J Busi Res **120**, (2020)
17. P.G. Ana, D.T. Deonir, S.M. Gabriel, L. Eberle, J Retail Consum Serv **55**, (2020)
18. A. Hong, Zhejiang Uni Commu, (2023)
19. T. Guo, N. Li, Econ Forum **629**, 12 (2022)
20. X. Xu, Y. Wang, J China Agri Uni **28**, 7 (2023)
21. L. Zhang, Commer Econ Res **869**, 10 (2023)
22. M. Yang, W. Qiao, J Tech Econ **42**, 5 (2019)
23. C. Zhuang, H. Sun, Y. Wu, J Sci Tech Entrep **36**, 1 (2019)
24. R. Chen, Y. Zheng, W. Liu, J Marketing Sci **9**, 4 (2013)