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The development of a product-layer perceived value scale for the online experience products of young Chinese consumers: take online apparel as an example

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Abstract: With the COVID-19 outbreak, more and more young Chinese consumers are using the internet as their primary way of purchasing. Studies have shown that consumers' perceived value (CPV), which is multidimensional, situational, and dynamic, is important for online purchases. However, there are few CPV scales specifically for experiential products, and most studies focus on post-purchase evaluation rather than purchasing process behaviour. Therefore, this study took clothing as example and considered all the factors online in purchasing process into the scope of the CPV commodity layer. Semi-structured interviews, exploratory factor analysis, and confirmatory factor analysis (CFA) were taken to establish a product-level CPV scale for online experience products of young Chinese consumers, including six dimensions: word of mouth value, service value, aesthetic value, cost value, quality value, and brand value. The findings can help online experience products, especially online clothing brands, improve their marketing strategy and attract consumer buying intentions.

Keywords: CPV; customer perceived value; experience products; online purchase decision; online apparel goods; Chinese young consumer.

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1 Introduction

Online shopping has become an essential way of consumption and life for modern Chinese consumers. According to the latest 54th Statistical Report on Internet Development in China (CNNIC, 2024), as June of 2024, China's online shopping users reached nearly 1.1 billion, and the scale of online shopping users reached 905 million. In the first half of 2024, China's online retail sales amounted to 7.9 trillion yuan, an increase of 9.8% year-on-year. Among them, the largest proportion of new internet users are teenagers aged 10–19 (49.0%), who are "Digital natives" (Prensky, 2001). In the post-COVID-19 era, due to social distance and restrictions, young Chinese online consumers not only purchase the search goods, but the experience goods as well for which quality cannot be sure when making decisions. Therefore, the factors that affect decision of young Chinese consumers on buying online experience goods are worthy of further study.

Customer perceived value (CPV) refers to the consumer's assessment of the overall value of goods during the shopping process (Babin et al., 1994; Zeithaml, 1988). It exerts a significant influence on purchasing decisions (Chiu et al., 2012) and effectively elucidates consumer preferences and behaviours in particular contexts (Holbrook, 2005). Moreover, CPV is recognised as a multidimensional construct (Sweeney and Soutar, 2001; Parasuraman, 1997; Ruiz et al., 2008) and is context-dependent (Miao et al., 2014). A key distinction between online experience products and search products is the temporal discrepancy between when consumers ascertain the actual value of experience products and when they make their purchase decisions (Nelson, 1974; Neelamegham and Jain, 1999; Luan et al., 2016). Due to the intangible nature of experience products, consumers are unable to physically interact with them. Consequently, when making online purchase decisions, they must rely on visual representations, text descriptions, consumer reviews, and other forms of information to estimate the true value of online experience products. However, most of the current research on CPV focuses only on offline purchase scenarios

or online search-based products, and most of the research on experience-based products focuses only on post-purchase evaluations (Cui et al., 2012; Previte et al., 2019) rather than impression factors during the purchase process. That is to say, the conclusions of post-purchase perceived value drawn from existing studies are not fully applicable to the purchase decision of experiential products. Therefore, this study will establish a product-level CPV scale specifically for online experiential goods in the purchase decision process. First, we re-organised the influencing factors when purchasing online experiential products through semi-structured interviews, questionnaire research and factor analysis, and finally came up with the composition of CPV of experiential products in the decision-making process of young Chinese consumers.

Therefore, given the growing population of young Chinese consumers and demand for online shopping in the post-COVID-19 era, as well as the fact that experiential products have become an important part of online consumption, further research on the CPV of online experiential products in the purchasing process is of great value to academic research and experiential product brands. Establishing a new scale for CPV of experiential products at the product level in the decision-making process of young Chinese consumers can fill the gap of CPV of online experiential products, in the same time, that can answer the question of how brands can improve the communication of online product attributes and the online shopping experience for young Chinese consumers in the online sales channel.

2 Literature review

2.1 Customer perceived value

Customer perceived value (CPV) is also known as “perceived value” or “customer value” , which is an important but complex subject at the intersection of management science, consumer behaviour and psychology, with the characteristics of ‘complex’ (Lapierre, 1999), ‘multi-faceted’ (Babin et al., 1994), ‘subjective’ (Zeithaml, 1988) and ‘dynamic’ (Woodruffand Gardial, 1996; Parasuraman and Grewal, 2000). There are various definitions, though there is still no unified version for the term.

Initially, unidimensional research streams (Sánchez-Fernández and Iniesta-Bonillo, 2007) represented by Zeithaml (1988) believe that ‘value’ as: ‘the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given’. The author also divides the attributes of a product or service into intrinsic cues (attributes of the physical components of the product) and extrinsic cues (other attributes related to the product). Subsequently, however, more scholars believe that the concept of unidimensional research streams is too narrow, while CPV is a multidimensional and complex overall concept (Huber et al., 2000; Mattsson, 1991; Sheth et al., 1991a; Sweeney and Soutar, 2001; Williams and Soutar, 2000; Parasuraman, 1997; Ruiz et al., 2008). Among them, Sheth et al. believe that consumer perception is a multidimensional function that will change differently in different consumption situations. They also proposed structure of CPV: social value, affective value, functional value, cognitive value, and conditional value. Then, Sweeney and Soutar (2001), based on their analysis of durable goods, concluded that CPV includes four dimensions of emotion, society, price and function. Later, some scholars added brand value (Berry, 2000), safety value (Yonggui et al., 2004) and green value (Chwialkowska et al., 2024) respectively.

In line with the means-ends theory posited by Rokeach (1973) and further developed by Gutman (1982), Woodruff and Gardial (1997) have linked consumer values to their behaviours, constructing the 'value hierarchy model'. This model suggests that consumer decision-making is shaped by three interconnected elements: consumption goals (reflecting consumers' personal values), consequences (the perceived outcomes of consumption), and attributes (the characteristics of the product). This integration bridges unidimensional and multidimensional research approaches. Within this tripartite framework, personal values are subjective and vary from individual to individual; perceived consequences of consumption are the post-purchase evaluations; and product attributes represent a more concrete and certain aspect in the context of consumer purchasing decisions. Furthermore, Mort and Rose (2004) have noted that the manifestation of the "value hierarchy model" is not static and may adapt to different product types. There are two main classifications of product level attributes, the more common being tangible attributes (inches, colour, weight, price, etc.) and abstract attributes (quality, brand reputation, etc.) (Overby et al., 2004). Another approach is to categorise attributes into external attributes (brand, product reputation, etc.) and internal attributes (product quality, value, etc.) (Belk, 1988). However, both of these division methods cannot fully reflect the product-level attributes presented by online experiential goods, because it is difficult for consumers to perceive product attributes only through online pictures and presentations before purchasing, and therefore, the perceived value of different types of products will have their own unique attributes; however, the current research on CPV of means-ends chains focuses mainly on search products with explicit attributes (cell phones and washing machines) and rarely deals with online experience-based products. In recent years, there have been fewer studies on the establishment of scales for perceived value, especially for online experience-based products. Only Sevilmis et al. (2024) enriched the dimensions of the perceived value scale by establishing a perceived value scale applicable to fitness services.

Furthermore, more scholars believe that perceived value is situational dependence and dynamic (Mattsson, 1992; Parasuraman, 1997; Sheth et al., 1991a; van der Haar et al., 2001; Zeithaml, 1988). Woodruff and Gardial (1996) emphasise that customer value judgement comes from customer cognition, preference and evaluation and is determined under the constraints of specific situations. Parasuraman (1997) pointed out that CPV had multiple dimensions and was highly dependent on the situation, emphasising that the evaluation criteria and weight of customer perceived value would change over time. More researchers (Sanchez, 2006; Brady and Robertson, 1999) believe that perceived value is subjective and varies with customers, culture, and time. They see perceived value as a dynamic variable that changes before, during, and after purchase. Based on the above studies, although there is a lot of research on post-purchase perceived value, there is little research on the measurement of perceived value during the purchase process.

As the status and interaction of consumers in the consumption process are constantly improving, CPV has become a core factor affecting purchase decisions and buyback behaviours in the online shopping environment (Chiu et al., 2014). Bourdeau et al. (2002) identified five value factors about using the internet: social, utilitarian, hedonic, learning, and purchasing. In the study of online shopping customers' perceived value, Lee and Overby et al. (2004) identified two types of online shopping value which are utilitarian value and experiential value. Almost contemporaneously, Chen and Dubinsky (2003) established a theoretical framework which included four elements of experience value, perceived product quality, product price and perceived risk. Meanwhile, among

researches in China, Dong Dahai (2008) divided consumers' perceived value (CPV) in the network environment into three categories: results value, procedural value, and emotional value. Wang et al. (2011) proposed that e-commerce visibility, perceived product quality and product brand are also very important influencing factors for consumers' decision-making. After analysing a large sample of Taobao.com, Li et al. (2017) pointed, in online shopping, However, again, some of the above studies focus on perceived post-purchase value, some focus on the advantages of online platforms, and most focus primarily on online search-based products, but there is almost no research on the perceived value of online experiential products at the time of consumer purchase decisions.

In summary, CPV contains many different dimensions, including multiple characteristics, subjective, complex, dynamic, and situational dependence. Meanwhile, the internet provides consumers with all kinds of information besides the product itself has led to a huge expansion of the range of attributes of experience goods. In this context, the CPV of young Chinese consumers may have new characteristics and They may think differently and have different influences when deciding to purchase an online experience product, but few studies focus on this field. Therefore, With the surge in online shopping data among Chinese youth this field urgently needs to be further explored and analysed.

Table 1 summarises the main factors in the product layers of CPV in the existing literature and their research perspectives and limitations, as well as the main innovations of this paper.

Table 1 Main factors of CPV in references

Factors	*Definitions in the reference*	*Reference*	*Perspectives and limitation*	*Innovation of this study*
Quality value	Customer perceptions of product safety, reliability, stability, and superiority	Sheth (1991) Woodruff (1997) Parasuraman (1997) Lapierre et al. (1999) Sweeney and Soutar (2001) Wu et al. (2014)	Focus on post-purchase feelings and offline scenarios	Construct a new description of online experience product decision-making process through interview
Aesthetic value	design aesthetics of product	Holbrook (2005) Gallarza and Gil (2006) Huang et al. (2019) Chen and Yang (2020)	Focus only on the product itself	Added to the online platform and product pages characteristics description
Brand value	The brand of product	Parasuraman (1997) Berry (2000) May Plumlee and Little (2006) Wang et al. (2011)	Most of the literature focus only on the brand name of the product	Added to the online platform characteristics description

Table 1 Main factors of CPV in references (continued)

Factors	*Definitions in the reference*	*Reference*	*Perspectives and limitation*	*Innovation of this study*
Cost value	Time cost, energy cost, the cost of money	Sweeney and Soutar (2001) Sweeney and Soutar (2001) Overby and Lee (2006) Kang and Ju (2014)	Involved three kinds of costs	Explore whether these three costs are perceived by consumers in the online scenario
Service value	Shopping experience, timely and convenient service	Sheth (1991) Chen and Dubinsky (2003) Boshoff and Gray (2004) Kim et al. (2009)	Focus on the offline scenarios	Added to the online platform characteristics description
Perceived risk	A chance that there will be something wrong with productor or not work properly	Chen and Dubinsky (2003) Chiu et al. (2014)	Mainly refers to product quality risk	Explore whether there is perceived risk when buying online experience goods in China
Experience value	Relevant information and Ease of use of the website	Chen and Dubinsky (2003) Lee and Overby (2004)	Focus on platform ease of use	Explore Chinese young consumers' other description of the experience value

2.2 Experience products

Nelson (1970) divided products into search products and experience products. Search products are items whose attributes can be confirmed basically before purchase but the attributes of experience products can only be accurately evaluated after experience (Neelamegham, 1999). Therefore, consumers mostly rely on their own subjective feelings and personal purchasing experience when buying experiential goods. The initial scholars think search product is more suitable for online sales, but the emergence of online comment system make consumers can pass the comment about product information and experience to other potential customers after receiving experience goods, which reduces the risk of subsequent purchases by consumers. Sentecal and Nantel (2004) found that reviews of experience products were more influential than those of search products. Cui et al. (2012) found that the polarity of comments has a greater impact on search-type products, while the number of comments is more important for experience-type products. At the same time, many domestic scholars have proved that the product comment online, especially the image comment, has a great influence on the judgement of product value by consumers (Yan and Meng, 2013; Du et al., 2016; Wang et al., 2016; Diao et al., 2017). Compared to search-based products, personal reviews have a greater impact on the perceived value of experiential products than overall reviews (Jin et al., 2023), but

creative personal reviews have a negative impact on experiential products (Kumar et al., 2024). Picture accuracy and relevance both have a positive effect on the usefulness of reviews of experiential products, while consistency has a negative effect (Yang and Zhao, 2023).

To sum up, most of the current researches on online experience goods focus on the single study of customer comments or the simply comparison of product types as moderating variables, while there is a lack of comprehensive research specifically on the perceived value of experience goods. Therefore, it is necessary to construct a product layer CPV scale of experience products that need consider all the information consumers see on the webpage and reflects the factors that affect their decision-making in the process of purchasing.

3 Methodology

The primary objective of this study is to find the dimensions of CPV at the product layer for online experience products. The intention is to enhance the theoretical understanding of the situational characteristics associated with CPV. This investigation employs a combination of semi-structured interviews, text mining analysis, and factor analysis as its main research methods.

According to the 2024 report by the China Internet Network Information Center (CNNIC), individuals aged 18–25 represent the largest demographic of online consumers in China. With respect to occupational categories, students constitute the predominant group of internet users. This demographic aligns with the definition of Young Chinese consumers. Consequently, this study targeted individuals aged 18–25, with a focus on college students, as the primary subjects for the survey. The findings from this cohort provide insights into the behavioural and psychological patterns of young Chinese consumers engaging in online shopping.

3.1 First stage: interview and text mining analysis

The existing online product CPV scales ignore the exploratory research on the commodity attribute layer of online experience products. Most of them do not fully describe the attributes of the commodity layer of experience goods. Therefore, the first step of this study is to understand which information or attributes on the website make consumers feel high perceived value and decide to purchase online experience products. Because many scholars (Luan et al., 2016; Huang et al., 2014; Chung and Rao, 2012) chose clothing as the representative of experience products in their studies and clothing is also the highest online shopping frequency experience product among young Chinese consumers. Thus, this study will choose clothing as representative of experience products.

First, 42 college students majoring in clothing, divided into seven groups of six, were interviewed intensively for their process of online clothing purchasing. Students majoring in clothing are not only consumers, but also professionals, so they will enrich the description text. The interview was completed in September 2023, of which 27% were

male and 73% were female. This ratio is like the proportion of young Chinese consumers who purchase clothes online. In the interview, interviewees were asked to assume they were in the decision-making stage of buying clothes online, and then answered 9 semi-structured questions (Table 2). Finally, a total of 413 descriptions of text were collected from seven groups.

Table 2 Main questions of semi-structured interview

Please answer the following questions based on your experience of recently buying clothing online	
1	What kind of online clothing will make you feel it has a higher sense of value? Why?
2	Among these factors, which one do you deem the most important?
3	Why do you consider this/these factor(s) are the most important?
4	What factors did you consider at the point of you paying for clothing online? Why?
5	Among these factors, which one do you deem the most important?
6	Why do you consider this/these factor(s) are the most important?
7	Which information website provided helps you biggest when you decide?
8	Among the information you mentioned, which one do you deem the most important?
9	Why do you consider this information is the most important?

In this study, since the descriptive meanings of each group were roughly similar, the research team revised and improved the dimensional categorisation of the existing literature after two rounds of discussion based on the principles of simplicity, clarity, and avoidance of ambiguity. In the end, we refined the original items to 61 items after deletion and merging. Next, the team invited six graduate students as expert consumers to further simplify the test items based on the same principles, and finally identified 45 items. Finally, we invited six more experts to initially categorise and evaluate these items, paying particular attention to measuring the content validity of the items (e.g., item wording, language, etc.). Among the items, the content of online reviews, especially picture-video reviews, which were repeatedly mentioned by consumers as the main basis for their consideration of online experiential goods, this study incorporated word-of-mouth value into the internal factors of perceived value of experiential goods from the previous external factors. In addition, most consumers believe that current online shopping platforms in China have good return and exchange mechanisms and are not too worried about the risk of purchasing products, thus deleting the perceived risk mentioned in many previous scales. Finally, we extended the aesthetic value from previous studies from only the aesthetics of the product to the aesthetics of the entire shopping page. Through this process, we extracted 30 attribute descriptions from the seven main dimensions (see Table 3 for details), which will form the core content of the subsequent questionnaire.

Interestingly, none of the 7 groups of interviewees mentioned the perceived risk dimension in the literature. The main reason given is that they have accepted the inherent risk attribute of the experience products, and the return insurance provided by most online platforms in China enables them to return the commodities at a low cost if they are not satisfied. In addition, they all have some experience and most of them buy from platforms or stores they trust.

Table 3 Attribute description of perceived value of experience goods after classification

Factors based on literatures	*No*	*Items from interview*
Word of mouth value	1	Rating of the seller
	2	The evaluation of the total number of goods (sales)
	3	Bad review on the evaluation of the product and the number of additional comments
	4	Whether there is a picture or video evaluation
	5	Evaluation of specific text content
Service value	6	Customer service attitude
	7	The timeliness of customer service communication
	8	With or without after-sale service
	9	The effectiveness of customer service communication
	10	Personalised customisation
Aesthetic value	11	Whether this product tie-in proposal
	12	The design of the goods or whether in line with the current popular trend
	13	Store the overall visual image
	14	The shop goods style is unified degree or professional degrees
Cost value	15	Whether the postage for free
	16	Goods' selling price
	17	Whether there is a discount promotion
	18	Whether the waiting time for receiving goods is too long
	19	Whether there is a return postage insurance
Quality value	20	Observed the practicability of goods in the page
	21	Goods details, materials, and display
	22	Products limited release
Experience value	23	Concise and clear product information
	24	Is there a video display of the product
	25	Product live broadcast explanation
	26	Whether display the goods' use effect
	27	Whether the use effect display of goods is in good condition
Brand value	28	Store level or grade
	29	Brand/store/shop owner's ranking or fame
	30	The ranking or popularity of goods in platform

3.2 Second stage: exploratory factor analysis and factor nomenclature

This stage carries out an online and offline survey, and the related questionnaire also contains two parts. The first part is the question of perceived value, which uses the Likert seven-point scale and contains 30 questions from the first stage. The second part is a survey of consumer demographic information. The questionnaires were distributed in three forms. First, online questionnaires were distributed through targeted students' WeChat and QQ groups. A total of 241 questionnaires were collected, of which 204 were valid. Secondly, questionnaires were sent out during the break of clothing-related majors,

and students were required to fill them out and return them to the researchers. A total of 64 valid questionnaires were collected by this method. Finally, the questionnaire was filled out by random interviews with young consumers around the big shopping mall, and a total of 38 questionnaires were collected. In the end, a total of 306 valid questionnaires were collected from the above three methods, which were used as exploratory factor analysis data to establish a primary scale of a product- layer perceived value for online experience products. Finally, six factors containing 23 descriptive statements were extracted.

3.3 Third stage: confirmatory factor analysis

Confirmatory factor analysis (CFA) was conducted on the obtained 23 measurement items. The formal questionnaire is divided into two parts. The first part is the basic information of the interviewees, which is used for the basic description of the sample. The second part is about the investigation of latent variables, which still uses the Likert 7 scale. The questionnaire was distributed in two main ways: first, 183 questionnaires were distributed in three different universities and 162 were valid; secondly, random interviews were also conducted around large shopping malls to randomly interview young consumers to fill out the questionnaire, and a total of 83 questionnaires were collected. A total of 245 valid questionnaires were collected in these two ways. Worthington and Whittaker (2006) believed that the ratio of sample size to item was acceptable at 10 : 1. Therefore, 245 samples are sufficient for this stage. Meanwhile, the Mardia test had been used to assess skewness and kurtosis values to test the multivariate normality of the data. The results showed a skewness statistic of 0.45 ($p = 0.654$) and a kurtosis statistic of –0.17 ($p = 0.786$), both with p-values greater than 0.05. This indicated that the data did not significantly deviate from the characteristics of a normal distribution, thus supporting our assumption of multivariate normality. Therefore, subsequent data analysis and interpretation can be effectively carried out. In the end, the final modelling was successful and all reliability and validity tests had been passed, then the product-layer perceived value scale for the online experience products was obtained.

4 Analysis and results

4.1 Results of exploratory factor analysis

According to the 30 items in the first stage, SPSS 23 is used as an exploratory factor analysis. Cronbach ‘s 0.921. The KOM value is 0.887, so the questionnaire is reliable and suitable for factor analysis. Then, using the principal component analysis (PCA), in accordance with the standards of eigenvalues greater than 1, and orthogonal rotation using the method of maximum variance or extraction factor, Straub (1989) proposed a single measurement item of the load is not lower than 0.5, all measurement of each item of the average load factor not less than 0.6, and no cross load. Thus, 4 items were eliminated: ‘products limited release’, ‘is there a video display of the product’, ‘whether the waiting time for receiving goods is too long’, ‘Product live broadcast explanation’. In addition, ‘Concise and clear product information’, the 1 item falls on two different factors. ‘Personalised customisation’, ‘with or without after-sale service’ 2 item falls on

one factor alone, is not enough to support a factor. Finally, these 3 items were also removed.

Remaining items did exploratory factor analysis again, in accordance with the above standard, finally, according to the results of KMO value of 0.893, Bartlett ball test, shows that scale is suitable for family factor extraction. The result of the factor analysis was that a total of 6 factors with eigenvalues greater than 1 were extracted, which explained 68.173% of the total variation of the original project. At this point, the remaining 23 items clearly load on the six factors (Table 4), and each factor loading is greater than 0.6 (0.632–0.845), and the variation explained by each factor was basically more than 10%.

Table 4 The maximum load factor variance rotated matrix

		Factors					
Factors	*Items*	*Factor1*	*Factor2*	*Factor3*	*Factor4*	*Factor5*	*Factor6*
Word of mouth value	WV1	0.659					
	WV2	0.753					
	WV3	0.701					
	WV4	0.699					
	WV5	0.706					
Service value	SV1		0.822				
	SV2		0.845				
	SV3		0.823				
Aesthetic value	AV1			0.618			
	AV2			0.688			
	AV3			0.760			
	AV4			0.755			
Cost value	CV1				0.632		
	CV2				0.753		
	CV3				0.798		
	CV4				0.674		
Quality value	QV1					0.641	
	QV2					0.711	
	QV3					0.685	
	QV4					0.678	
Brand value	BV1						0.739
	BV2						0.792
	BV3						0.725
Eigenvalue		3.201	2.711	2.615	2.552	2.361	2.240
Explanatory variance percentage%		13.916	11.787	11.368	11.094	10.267	9.741
Cumulative interpretation variance%		13.916	25.703	37.071	48.165	58.432	68.173

At the same time, based on the meaning of each item, the definition, and items of each factor in the current study was proposed (see Table 5). The first factor is defined as 'word of mouth value (WV)', is mainly about the content of the evaluation for all the goods from the pages. The second factor is defined as the 'Service value (SV)' mainly for consumers to purchase the commodities in the process of online Service quality. The third factor is defined as 'Aesthetic value (AV)' which is mainly about the platform for the goods from the customers and their overall design and Aesthetic feeling. The fourth factor is defined as 'Cost value (CV)' primarily with consumers to buy the goods from the need to pay the cost of related. The fifth factor is defined as 'Quality value (QV),' is mainly about the use of the goods for consumer utility. The sixth factor is defined as 'Brand value (BV)' in addition to the commodity itself is mainly about the goods Brand, platform, shops, or celebrities bring additional value.

Table 5 The factors and definition of a product layer CPV scale for online experience products

Factor	*Items*		*Definition*
Word of mouth value	WV1	Rating of the seller	Consumers perceive the preference and evaluation of commodity quality, store credit and information credibility from the evaluation page
	WV2	The evaluation of the total number of goods (sales)	
	WV3	Bad review on the evaluation of the product and the number of additional comments	
	WV4	Whether there is a picture or video evaluation	
	WV5	Evaluation of specific text content	
Service value	SV1	Customer service attitude	Consumers perceive the preference and evaluation of online customer service quality
	SV2	The timeliness of customer service communication	
	SV3	The effectiveness of customer service communication	
Aesthetic value	AV1	Whether this product tie-in proposal	Consumers perceive the preference and evaluation of products and store design aesthetics, popularity and style image from online pages
	AV2	The design of the goods or whether in line with the current popular trend	
	AV3	Store the overall visual image	
	AV4	The shop goods style is unified degree or professional degrees	
Cost value	CV1	Whether the postage for free	Consumers perceive the preference and evaluation of payment cost and discount strength provided in the online page
	CV2	Goods' selling price	
	CV3	Whether there is a discount promotion	
	CV4	Whether there is a return postage insurance	
Quality value	QV1	Observed the practicability of goods in the page	Consumers perceive the practicality and quality preference and evaluation of the products themselves from the online pages
	QV2	Goods details, materials and display	
	QV3	Whether display the goods' use effect	
	QV4	Whether the use effect display of goods is in good condition	

Table 5 The factors and definition of a product layer CPV scale for online experience products (continued)

Factor	*Items*		*Definition*
Brand value	BV1	Store level or grade	Consumers perceive the preference and evaluation of the quality of goods from the brand, platform, shop or owner of the goods but not the goods themselves
	BV2	Brand/store/shop owner's ranking or fame	
	BV3	The ranking or popularity of goods in platform	

4.2 Results of confirmatory factor analysis

In order to further test scale stability, this paper uses AMOS software and secondary survey data for CFA. Results show that only 'page can be observed the practicability of goods' item of standardised factor loading below 0.7, combined with theoretical analysis, again that while the data is a bit poor, but this item factor after deleting item description would not be complete, so remain. Other CFA results are shown in Table 6. The results of CFA showed that the scale of the overall fitting is good, the scale by the CFA test.

Table 6 Model test of goodness of fit

Indicators	*χ2/df*	*GFI*	*PGFI*	*RMSEA*	*SRMR*	*TLI*	*CFI*
The fitting values	1.6676	0.8953	0.6780	0.0523	0.0562	0.9505	0.9591
Proposed standard	<3.0	>0.80	>0.5	<0.08	<0.08	>0.9	>0.9

Subsequently, reliability tests, convergence validity tests and discriminant validity tests are conducted. The Cronbach's α values of each dimension of the scale were all greater than 0.7, indicating good reliability of the scale. Factor loads of the scale were all greater than 0.5 except item 1, which was 0.45, and AVE were all greater than 0.5, meeting the requirements (Table 7). The scale had good convergence validity. Meanwhile, the internal consistency of the six constructs is tested. The Cronbach's α coefficients of the six constructs were all higher than the critical value 0.7 (0.763–0.939), indicating that the six constructs had high internal consistency.

Harmon single-factor test and unmeasured latent common method factor (ULCMF) were used in this study to assess common method variance (Podsakoff et al., 2003). The first factor of scale to explain the total variance of 13.916% < 40%. Moreover, CFA of the single-factor model of the scale indicated that the fitting degree of the single-factor model was significantly worse than that of the original 6-factor model (Table 8), and the fit indices of the six-factor model did not differ from those of the measurement model with ULCMF (ΔCFI=0.01, ΔTLI=0.02), these were all below the 0.05 standard (Bagozzi and Yi, 1990). Consequently, the effect of common method variation on this study is not significant.

Table 7 Convergent validity test of scale

Factor	*No. of items*	*Std*	*Unstd*	*S.E*	*T-value*	*P*	*SMC*	*CR*	*AVE*	*AVE square root*
QV	X1	0.457	1.000				0.209	0.791	0.505	0.711
	X2	0.523	1.398	0.201	6.963	***	0.274			
	X3	0.873	1.972	0.279	7.073	***	0.761			
	X4	0.882	2.059	0.289	7.133	***	0.778			
AV	X5	0.589	1.000				0.347	0.848	0.588	0.767
	X6	0.711	1.018	0.099	10.274	***	0.506			
	X7	0.889	1.323	0.135	9.816	***	0.79			
	X8	0.843	1.257	0.133	9.475	***	0.711			
BV	X9	0.853	1.000				0.728	0.877	0.704	0.839
	X10	0.839	0.939	0.072	13.116	***	0.705			
	X11	0.824	0.985	0.083	11.889	***	0.679			
WV	X12	0.752	1.000				0.565	0.860	0.552	0.743
	X13	0.771	1.101	0.097	11.386	***	0.595			
	X14	0.691	0.961	0.093	10.382	***	0.477			
	X15	0.808	1.133	0.094	12.025	***	0.653			
	X16	0.684	1.057	0.107	9.913	***	0.467			
CV	X17	0.738	1.000				0.545	0.830	0.552	0.743
	X18	0.714	0.786	0.089	8.873	***	0.51			
	X19	0.669	0.820	0.087	9.395	***	0.447			
	X20	0.840	1.326	0.118	11.258	***	0.705			
SV	X21	0.915	1.000				0.837	0.944	0.849	0.922
	X22	0.950	1.072	0.041	26.078	***	0.903			
	X23	0.899	1.004	0.045	22.533	***	0.809			

Table 8 Six-factors model and one-factor model confirmatory factor analysis

Model	*χ2/df*	*TLI*	*CFI*	*RMSEA*	*SRMR*
Standard	**<3.0**	**>0.9**	**>0.9**	**<0.08**	**<0.08**
Six factors model	2.0598	0.9139	0.9277	0.071	0.0607
One factor model	4.4002	0.7236	0.7619	0.1272	0.1002

In this paper, Fornell and Larcker's (1981) method was used to test the discriminant validity of constructs. If the AVE of constructs is greater than the square of correlation coefficients between constructs and other constructs, the discriminant validity is good. All factors in the scale meet the requirements of the square root value of AVE of this dimension. Therefore, this model has discriminative validity (Tables 9). The composite reliability values based on AMOS were all greater than 0.7, showing statistical significance. It can be shown that the measurement scale of perceived value has passed various reliability and validity tests.

Table 9 Discriminant validity test of scale

	CV	*WV*	*BV*	*AV*	*QV*	*SV*
CV	0.7284					
WV	0.6342	0.7450				
BV	0.3798	0.5535	0.8150			
AV	0.4836	0.6538	0.7376	0.7656		
CV	0.4598	0.5600	0.5033	0.6641	0.7038	
SV	0.4989	0.5288	0.4973	0.5031	0.4924	0.9229

In short, the product-layer perceived value scale for the online experience products was developed after careful reading and sorting of existing research literature through interviews and a strict empirical process. Some studies believe that a detailed and comprehensive literature analysis is helpful to ensure the content validity of the scale development (Ahire et al., 1996). During the interview process, face-to-face interviews were conducted with college students majoring in fashion to gather measurement items, ensuring that the data collected was direct and authentic consumer feedback. The dual role of these students as both consumers and scholars allowed for in-depth discussions that clarified the meaning and scope of the variables under investigation. Moreover, the study employed an expert review process to refine and enhance the scale's items. Drawing on their extensive professional knowledge and practical expertise, marketing specialists were well-equipped to discern the interplay between the measured variables and their corresponding items, thereby refining the scale's measurement items. To sum up, the scale development process in this study strictly followed the standardised scale development steps proposed by Churchill and Iacobucci (2006). Professionals in related fields participate and control in the process of theoretical deduction, construct expansion, dimension identification, etc. Therefore, the scale proposed in this paper has good content validity. After a strict scale development process, this paper finally obtained a product-layer perceived value scale for online experience products containing six factors and 23 items (Table 5).

5 Discussion

According to the mean-end chain theory, this study focuses on the product layer of online experience products' CPV without involving the emotion layer and the value layer. The research object is mainly Chinese young consumers, and the research period is the moment when consumers make decisions, rather than their consideration and post-purchase evaluation period. Within the scope of the above research, the six factors obtained this research not only confirm previous studies on the dimension of online CPV, but also integrate all factors in webpages into the scope of CPV for online experience products. Thus, this study completes the product layer attributes of online experience products' CPV.

First, this research adds a dimension to the CPV of online experience products: word of mouth value. It was frequently mentioned in the interview stage, and it was also the first factor among the six factors in this study with the largest weight, which confirmed its important position in CPV. Previous studies ascribe it to the external attributes of

goods, but this study confirms that, considering the particularity of online environment and experience products, word of mouth value is a necessary part for consumers to browse the web, judge the CPV of goods and make decisions. In addition, studies on online comment have found that it has a significant positive impact on consumer trust and satisfaction (Liu and Lioa, 2013; Huang, 2021; Chen, 2022), although the comments are suspected of artificial operation, such as evaluation cashback, brushing, etc. (Shi, 2020). But meanwhile, most of shopping platforms in the world have tried to provide consumers with more authentic comment information in various ways, such as: question and answer, judgement usefulness and other functions. Therefore, it is necessary for this study to bring 'word of mouth value' into the CPV of experience products, and businesses should also pay attention to the management and response of webpage comment information.

Service value and aesthetic value are in the second and third factors, respectively, and their weights are very similar. In terms of service value, in the preliminary group discussion, the factors such as website usability and friendliness (Chen and Dubinsky, 2003) mentioned in literature were not mentioned by the subjects. Chinese e-commerce platforms where consumers often shop has developed relatively mature, so these factors may be no longer for young consumers to judge the CPV of goods. Instead, they are more valued timeliness and effectiveness of online services. As seen from results, young Chinese consumers judge the CPV of goods by the overall image, style, professionalism, and unity of the store except whether the goods conform to the fashion trend. This also proves that young Chinese consumers are more likely to be attracted by aesthetic atmosphere rather than text information about product attributes when buying online experience products.

The cost value emerged as the fourth most significant factor. Notably, the cost of time and energy, a frequently cited aspect of CPV in offline contexts, was entirely absent from the interview discussions. Virtually all participants viewed browsing and selecting clothing online as a relaxing activity akin to shopping in physical stores. Consumers predominantly focused on the monetary cost. Furthermore, due to the varying policies on shipping and return shipping fees among different e-commerce platforms and merchants in China, consumers generally hold the belief that vendors who assume the cost of shipping, particularly return shipping, are more likely to offer products of higher quality.

The quality value Factor was ranked fifth, which deviates somewhat from the findings of previous studies conducted in an offline context. However, these results align closely with the inherent characteristics of experience products. According to our findings, beyond the description of product details and materials, the "display" effect emerges as a primary criterion for consumers when assessing the CPV. This further corroborates, from an alternative perspective, the significance of aesthetic value in evaluating the CPV of experience products. Consequently, it is imperative for merchants to enhance the online display of their products, ensuring that there is minimal discrepancy between the virtual presentation and the actual goods. Failure to do so may result in increased product returns, ultimately impacting the store's reputation and sales.

The factor of brand value was unexpectedly ranked as the least significant, with two potential explanations for this outcome. Firstly, the primary demographic targeted in this study comprised young consumers, a group that typically lacks a stable income and a well-developed brand consciousness. For this demographic, the purchase of experience products is largely driven by a pursuit of high value-for-money or the desire to follow trends, rather than by brand loyalty. Indeed, some within this group may even perceive brand-name products as indicative of lower cost-performance ratios. Secondly, the

example of clothing used in this study highlights the homogeneity of brands catering to the youth market in China, which further diminishes the importance of brand recognition among this consumer segment. Consequently, it is of greater urgency for merchants to focus on developing brands with distinct personalities and cultural resonance, in order to differentiate themselves within the crowded marketplace and secure consumer attention and loyalty.

6 Conclusion

In conclusion, this research builds upon an extensive review of the literature and employs in-depth group interview analysis and text mining techniques. Utilising SPSS23 and AMOS software for factor analysis, the study culminates in the development of a scale for assessing the perceived value of experience products among young Chinese consumers, with a focus on the pre-purchase decision-making process rather than post-purchase evaluation. The scale is tailored to the unique characteristics and context of online purchasing behaviour for experience products. The analysis yielded six factors: word-of-mouth value, service value, aesthetic value, cost value, quality value, and brand value, sequentially. These findings contribute to the enhancement and broadening of the conceptualisation of CPV in the realm of online commodities. Furthermore, by using apparel as a case study, this research updates our understanding of CPV for experience products among young Chinese consumers and provides a foundation for subsequent investigations into CPV and online marketing strategies.

7 Limitations and future direction

While the preliminary findings of this study offer theoretical enrichments and practical insights into the perceived value of online experiential goods, there remains a need for further investigation in this area. One of the limitations of the current research is the restricted sample size, which is partly due to the constraints imposed by the COVID-19 pandemic, resulting in a combination of limited offline and online surveys. Consequently, the scale for assessing CPV of online experience products would benefit from validation through a broader and more diverse sample.

Moreover, due to time constraints, this study only focuses on consumers' perceptions of the product value experience layer. In addition, although this study focuses on college and postgraduate students, which to a large extent represent the mainstream trends and characteristics of young Chinese consumers, the large size and diversification of China's market means that there are significant differences in consumers' psychology and behaviours between different regions, so a more detailed study of the consumption outcome layer, especially the value layer, of Chinese young generation online consumers in different regions is also a direction for further research in the future. In addition, the online shopping population of the elderly has increased significantly in China in recent years, and future research should pay more attention to the online shopping behaviour of this group.

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