Reassessing Customer Experience in Fashion Livestreaming: A Scale Development and Validation Study

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ABSTRACT

This study develops a measurement scale for fashion livestreaming customer experience (FLS-CX). Although research on livestreaming commerce is expanding, the context of customer experience (CX) within the fashion sector – its primary selling category – remains underexplored. CX elicits psychological responses to a wide range of external factors and is a decisive element in driving consumer decisions. Drawing on uses and gratification (U&G) theory, we propose a scale comprising four dimensions: interactivity, personalisation, price benefit and parasocial interaction. Continuance intention was selected as the sole CX outcome variable.

Data was collected from 304 Chinese livestreaming consumers who purchased sportswear and cosmetics. We estimated the validity of the FLS-CX scale using partial least square structural equation modelling (PLS-SEM). Among the four CX dimensions, personalisation had the strongest influence on continuance intention, followed by parasocial interaction, price benefit and interactivity. A comparative model evaluation between the FLS-CX (Model 1) and an existing CX scale (Model 2) indicated that the newly developed scale provides stronger explanatory and predictive power.

These findings have important theoretical and practical implications. Theoretically, we establish a context-specific CX scale tailored to fashion livestreaming, capturing both the impact of marketing stimuli and the influence of other viewers. The validation of these four dimensions shows how personalisation, parasocial interaction, price benefit, and interactivity shape consumers' shopping experience. Fashion researchers can employ this scale to investigate the effects of diverse marketing strategies. Moreover, our results highlight the critical role of personalisation in determining CX and viewers' continuance intention.

From a practical standpoint, fashion retailers can leverage the FLS-CX scale to craft actionable strategies on the livestreaming channel. By creating more personal, engaging, and socially rich environments, businesses can foster stronger customer satisfaction.

INTRODUCTION

Livestreaming commerce has rapidly expanded in China, where its gross merchandise value (GMV) accounted for 31.9 per cent of total online shopping GMV in 2023. It has also begun taking off in other regions and is projected to represent 20 per cent of global e-commerce sales by 2026 (Baird, 2023). In the United States, the livestreaming commerce market size is forecast to reach USD 68 billion in 2026 (VogueBusiness, 2024). Fashion products – including clothing and cosmetics – are the primary segments driving this growth. For instance, 83 per cent of Singapore consumers watched beauty livestreams in 2022 to learn more about featured brands or products, and 35.4 per cent of them made purchases as a result, exceeding the conversion rates for other product categories. On *Taobao*, a leading livestreaming commerce platform in China, clothing and cosmetics accounted for nearly 60 per cent of total livestreaming sales (Lu and Chen, 2021).

Livestreaming commerce is highly viewer-centric, located at the intersection of retailing and entertainment. Compared to conventional e-commerce types (e.g., website stores), it differs significantly in communication, interaction, product evaluation, and purchase decision (Zeng et al., 2023). Livestream anchors synchronically showcase products, respond to the viewers' comments, and offer entertainment and personalised customer service. This unique shopping environment suggests that CX's formation and influencing mechanisms in livestreaming commerce may differ from what is described in existing online shopping literature.

However, no study has yet investigated CX specifically within the fashion livestreaming context, nor has a specialised CX scale been developed for this emerging format. Kulbyte (2020) noted that CX has overtaken price and product as a key brand differentiator and a catalyst for business model innovation. CX is a critical factor influencing consumers' decision-making (Lemon and Verhoef, 2016) and marketing performance (Gauri, 2021). Bianchi F (2020) further underscored the gap between limited research insights and growing industry demands for CX-enhancement approaches.

The present study aims to develop a CX scale customised for fashion livestreaming (FLS-CX), guided by the uses and gratification (U&G) theory. U&G theory provides an appropriate lens for developing scale as it emphasises consumers' motivations and the gratifications they seek in a consumption environment. We validate the proposed scale and compare its effectiveness against an existing CX measure designed for conventional e-commerce (Bleier et al., 2019). The remainder of this paper is

organised as follows: Section 2 reviews the relevant literature; Section 3 introduces the proposed CX measurement framework and research methodology; Section 4 details the data analysis and evaluation results; Section 5 discusses the key findings, highlighting their theoretical and practical implications; and Section 6 presents the conclusions and limitations.

LITERATURE REVIEW

To propose the FLS-CX scale, this study first critically reviewed the CX concept, and existing CX scales. Subsequently, it examined previous livestreaming commerce studies related to consumer behaviour and fashion products.

Customer Experience (CX) and CX Scales

Since its introduction into the marketing field by Pine and Gilmore (1998), CX has evolved in parallel with the emergence of retailing formats. For example, De Keyser et al. (2015) conceptualised CX as resulting from direct and indirect interactions with various market actors. The advent of social commerce formats, such as livestreaming commerce, has enabled consumers to synchronically interact not only with retailers but also with other consumers (Bilgihan et al., 2016). As a result, the scope of CX stimuli has broadened from purely business offerings (e.g., Zomerdijk and Voss, 2010) to a complex network featuring multilateral interactions among the business, focal customer, other consumers, products, and services (e.g., Dhaigude and Mohan, 2023). In livestreaming commerce, retailers (e.g., the anchor) can only partially influence the CX. Thus, CX is multifaceted and personalised, reflecting individual consumer perceptions in social commerce settings. Each phase of the shopping journey yields distinct CXs, from the phases of inspiration, evaluation, possible return, post-shopping, to show and share their reviews. Hence, CX is more interconnected and holistic compared to conventional e-commerce types. In other words, livestreaming consumers navigate their online journeys in a socially rich context, not an isolated vacuum. It is necessary, therefore, to reassess CX in a more specific research setting, rather than relying on scales developed for universal commerce formats or general product categories.

Kuppelwieser and Klaus (2021) reviewed 28 existing CX scales (e.g., Ali et al., 2014, Garg et al., 2014) and concluded that the Customer Service Experience (EXQ) scale developed by Klaus and Maklan (2013) is the most frequently applied (see Figure 1). The EXQ's 19 items were designed for universal retailing context, measuring product experience, outcome focus, moments-of-truth and peace of mind. Bleier et al. (2019) adapted a four-dimensional CX construct for online retailing, originally based on Rose et al. (2012), incorporating cognitive, affective, social and sensory. Approximately half of the existing CX scales are customised for specific industries (e.g., the travel

experience scale by Olsson et al., 2012), particular stages of the shopping journey (e.g., post-purchase by Kumar and Anjaly, 2017), or specific perspectives on business offerings (e.g., financial performance by Klink et al., 2021). However, none of the published CX scales was tailored to livestreaming commerce or fashion products such as apparel or cosmetics.
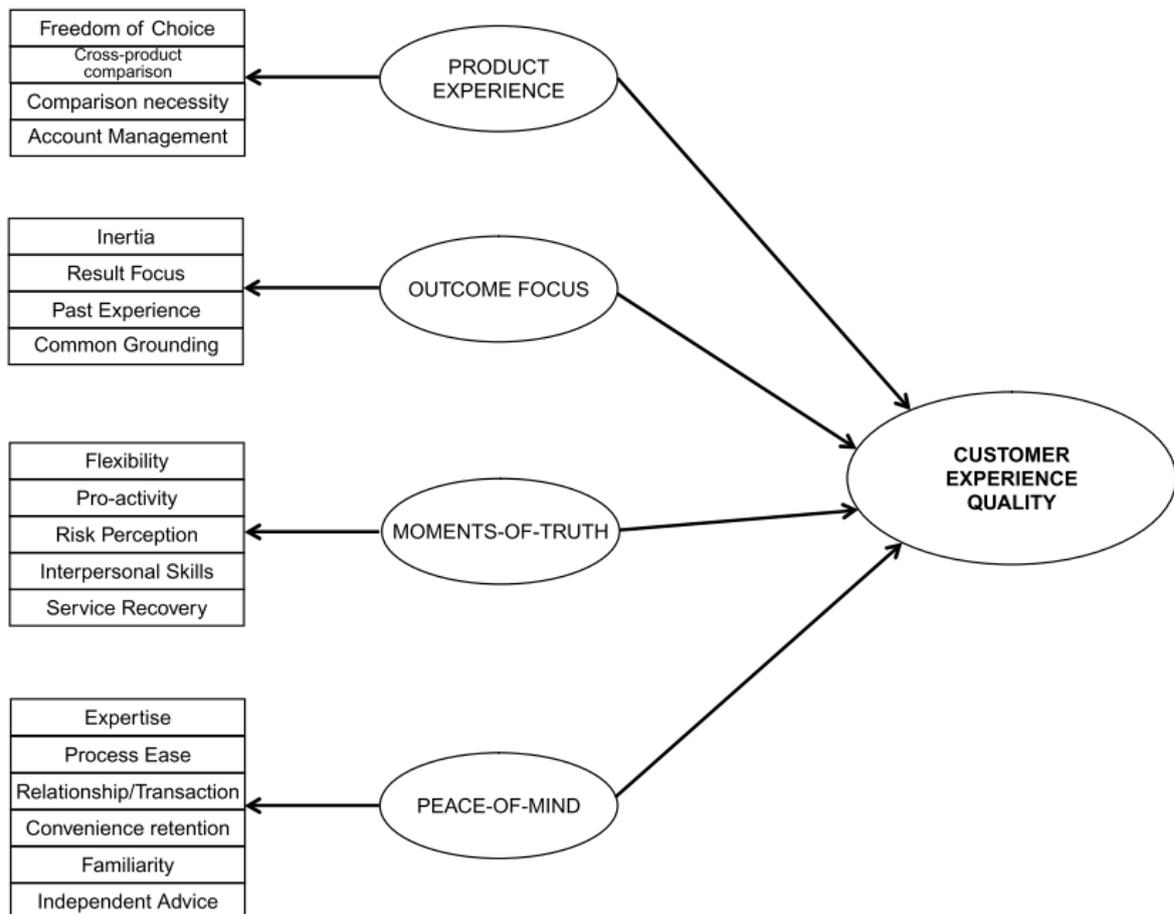

Fig. 1 Customer Service Experience (EXQ) scale developed by Klaus and Maklan (2013)

CX in Livestreaming Commerce

Livestreaming commerce integrates real-time audio-visual elements to present product information, thereby enhancing authenticity and content richness compared to conventional e-commerce types (Bao and Zhu, 2023). The anchor serves as an expert, showcasing product details, providing purchase recommendations, and actively engaging with viewers (Bao and Zhu, 2023). Research on livestreaming commerce has proliferated in recent years. We designed the following search string to search for the livestreaming literature published between 2015 and 2023: 'live streaming' OR 'livestream' OR 'live selling' OR 'interactive shopping' OR 'real-time shopping' OR 'live retail' OR 'live broadcast'. As illustrated in Figure 2, 218 journal articles were found, with 177 published in 2021 or later. Most existing studies focus

on the Chinese context, with only a few conducted in other regions such as Thailand and Taiwan. Only Chen and Yang (2023) have explicitly examined CX, focusing on what factors determine an overall satisfied CX. Their study tested a CX structural model comprising website convenience, website relationship service, and customer cost, all of which do not encompass the influence of other consumers. Among the rest studies, 11 examined CX-related concepts but nine of these focused on consumers' flow experience– the moment of CX. It is not the CX investigated in current research, which links to continuous interaction (Botschen and Wegerer, 2017).

Fashion products in Livestreaming Commerce

The fashion category is the most often showcased segment in livestreaming commerce. Its synchronous interaction enables viewers to obtain product details related to fit, comfort, and style. Compared to other categories, the clothing/apparel categories often achieve larger sales volumes and sell higher-priced products on livestream (Chen et al., 2022). Livestreaming can boost apparel sales by a noteworthy 22 per cent compared to other categories (e.g., groceries) (Chen et al., 2020). Zeng et al. (2023) also confirmed the influence of product type on purchase intention in livestreaming commerce. Despite the prominence of fashion products, few empirical studies have examined consumers' attitudes towards these items in livestreaming. For instance, Hewei (2022) conceptualised 'fashion involvement' as the consumer's strong perceived bond with fashion products, which may drive impulse buying behaviour. Similarly, Djafarova and Bowes (2021) found that the visual appeal of fashion products influences Gen Z's impulse buying tendencies in livestreams. Focusing on the specific apparel, Chandrruangphen et al. (2022) found that the intention to watch a livestream and the subsequent purchase intentions stemmed from the results of seller image, product quality, price transparency, and livestream timing announcement. Additionally, Li et al. (2023) focused on luxury fashion and highlighted the positive impact of an anchor's influence (e.g., anchor profile) on purchase behaviour.
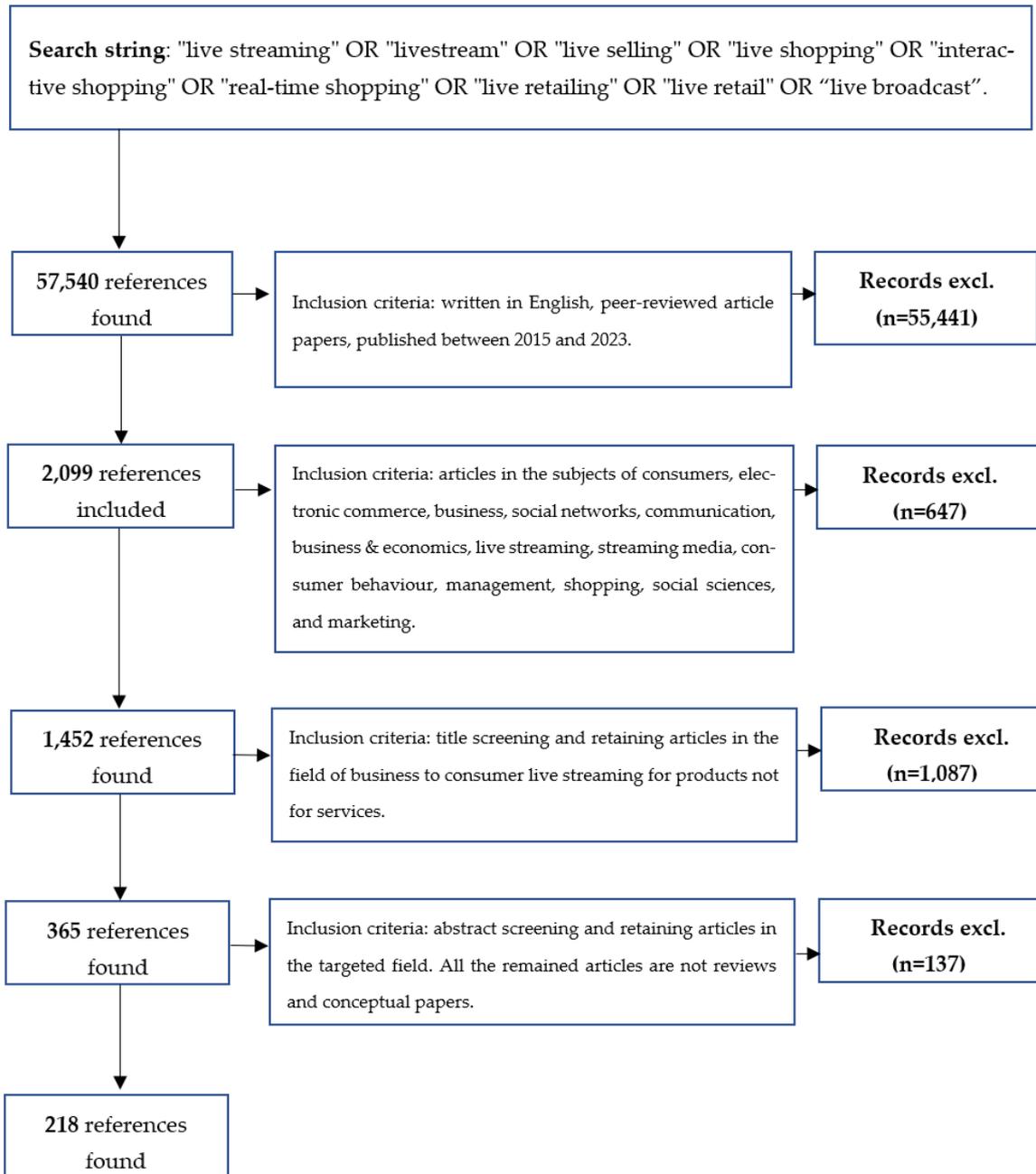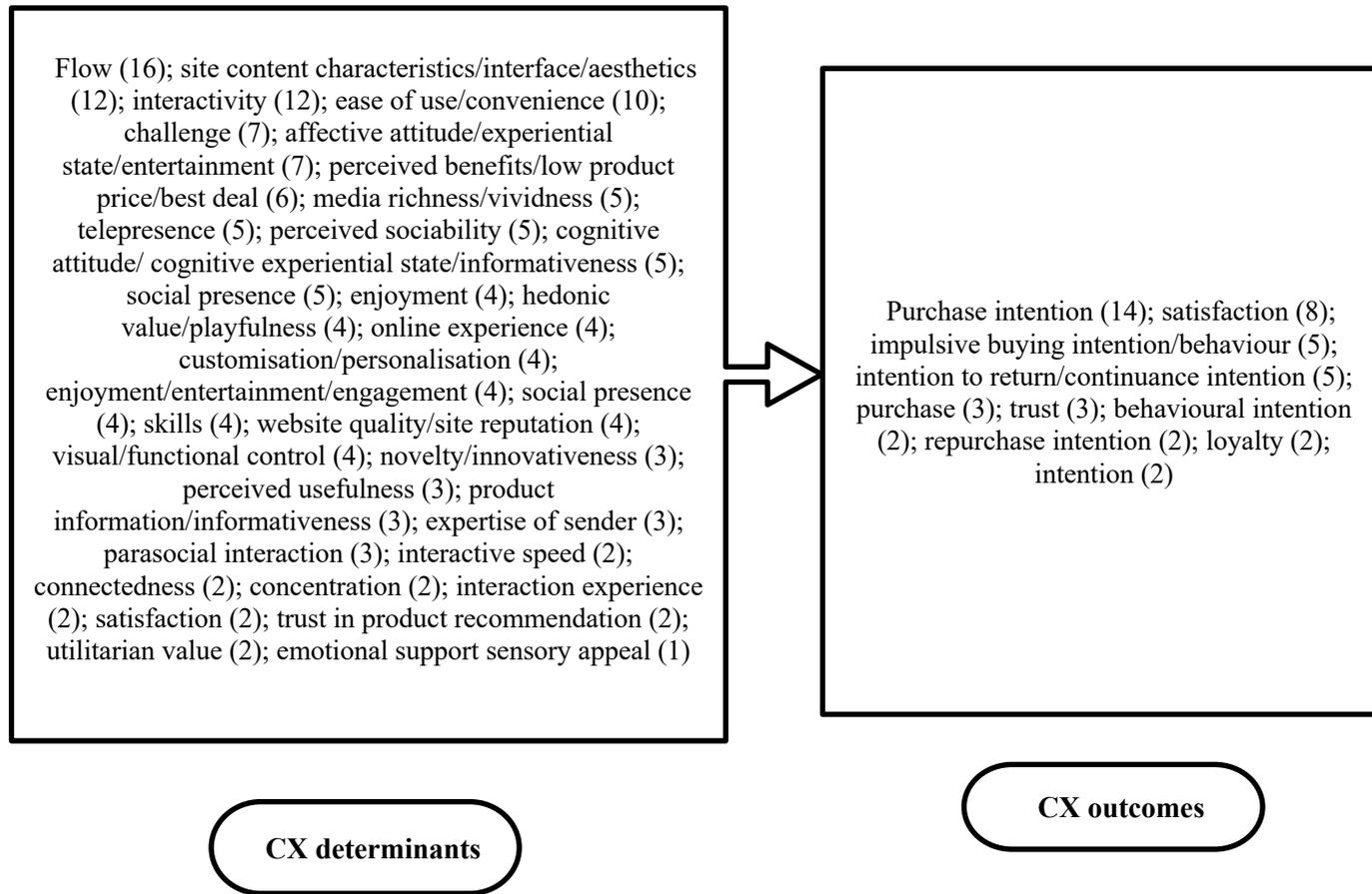
Fig. 2 Reviewed livestreaming commerce articles in the period from 2015 to 2023

Uses and Gratification Theory

Given the scarcity of research on fashion-related CX, the burgeoning body of livestreaming commerce literature, and the central role of fashion products in this growing e-commerce type, a clear research gap emerges: the need to understand CX specifically within fashion livestreaming context.

Uses and gratification (U&G) theory is the most frequently applied framework in CX-related studies within the social commerce context (Dhaigude and Mohan, 2023), and livestreaming commerce is one social commerce format. Originally introduced by Blumer and Katz in 1974 (Ma, 2021), U&G theory examines the extent to which a

given medium satisfies customers' desires and interests. In the current research setting, the 'medium' refers to fashion livestreaming, while the 'desires or interests' relate to the resulting CX. We reviewed the literature published from 2000 to 2023 and identified 39 empirical studies examining the causal factors related to CX. These examined factors are summarised in Figure 3. U&G theory can help determine what motivates consumers to use a particular media, not why and how such motivations originate. Consequently, for the purpose of developing the FLS-CX scale, it is appropriate to not distinguish between CX stimuli and components in the conceptual framework.

Flow (16); site content characteristics/interface/aesthetics (12); interactivity (12); ease of use/convenience (10); challenge (7); affective attitude/experiential state/entertainment (7); perceived benefits/low product price/best deal (6); media richness/vividness (5); telepresence (5); perceived sociability (5); cognitive attitude/ cognitive experiential state/informativeness (5); social presence (5); enjoyment (4); hedonic value/playfulness (4); online experience (4); customisation/personalisation (4); enjoyment/entertainment/engagement (4); social presence (4); skills (4); website quality/site reputation (4); visual/functional control (4); novelty/innovativeness (3); perceived usefulness (3); product information/informativeness (3); expertise of sender (3); parasocial interaction (3); interactive speed (2); connectedness (2); concentration (2); interaction experience (2); satisfaction (2); trust in product recommendation (2); utilitarian value (2); emotional support sensory appeal (1)

Purchase intention (14); satisfaction (8); impulsive buying intention/behaviour (5); intention to return/continuance intention (5); purchase (3); trust (3); behavioural intention (2); repurchase intention (2); loyalty (2); intention (2)

CX determinants

CX outcomes

Note: (n): the number in the parentheses represents the times that this variable has been examined by empirical studies

Fig. 3 Examined CX determinant and outcome factors among the literature (2000-2023)

METHODOLOGY

CX conceptual framework

To develop the FLS-CX framework, we began by conducting preliminary interviews with 18 fashion consumers and 5 industry experts experienced in Chinese livestreaming commerce. They were asked to rank the factors shown in Figure 3, identifying those most important for creating a satisfactory CX in a fashion livestreaming context. Based on the interview results and a thorough literature review, the proposed conceptual model of FLS-CX includes four dimensions: interactivity, personalisation, parasocial interaction and price benefit (see Figure 4). Interactivity reflects the degree to which users can control the medium and modify its form & content in real-time (Zhang et al., 2022). Personalisation represents customers' perceptions that sellers can adapt offering content to meet his or her preferences (Kumar and Benbasat, 2006). Parasocial interaction pertains to one-sided emotional bonds that consumers form with public figures such as celebrities or influencers (Xiang et al., 2016). Liu et al. (2023) revealed that parasocial relationship affects consumer loyalty in livestreaming commerce. Price benefits refer to discounts, sales, or price promotions. From the consumer perspective, price benefit conveys a sense of receiving good value for the money they spend (Khan et al., 2015). Continuance intention was defined by Bhattacherjee (2001), indicating how likely the consumer will shop again. It demonstrates the effectiveness of business marketing strategies (Hsu and Lin, 2023).

To assess the reliability of the proposed FLS-CX scale, the current study selected the CX measurement developed by Bleier et al. (2019) in the competing model – Model 2 (see Figure 5). Rose et al. (2012) pioneered CX measurement in online shopping, identifying that CX encompasses social experience (cognitive and affective states). Bleier et al.'s (2019) study further refined CX by separating social elements from cognitive and affective dimensions and adding a sensory dimension. Notably, their study did not focus on any specific social commerce format.
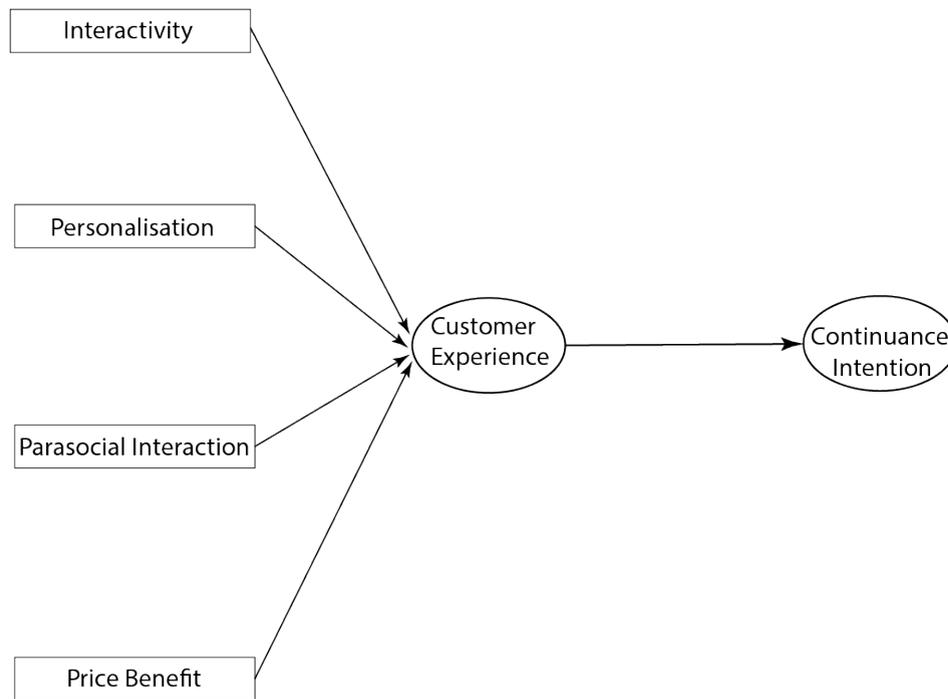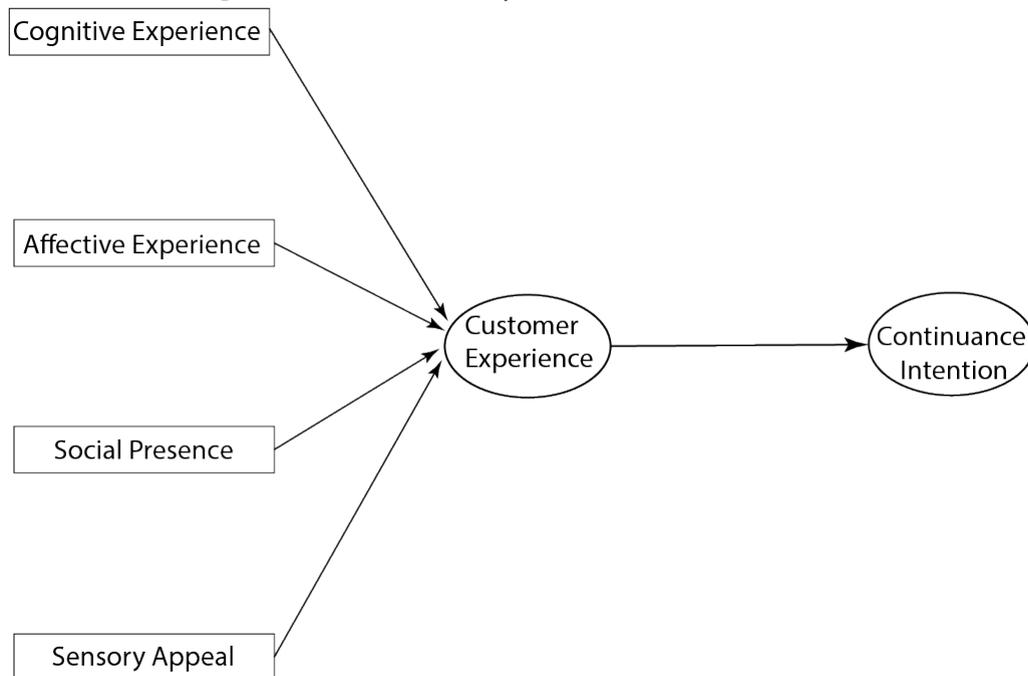
Fig. 4 Model 1: conceptual FLS-CX framework

Fig. 5 Model 2: competing CX scale by Bleier et al. (2019)

Method and Measures

The present study tested the proposed framework (Model 1) and compared it against an existing CX scale (Model 2) using partial least square structural equation modelling (PLS-SEM) through SPSS and SmartPLS. As shown in Table 1, all measurement items were adapted from established research: six items for interactivity [In] (Dong and Wang, 2018); three items for personalisation [Pe] (Zhang et al., 2022, Liu, 2003); six items for parasocial interaction [PSI] (Xiang et al., 2016); three items for price benefit

[PB] (Yaraş et al., 2017) and three items for continuance intention [CI] (Zhang et al., 2022). To evaluate the FLS-CX scale's effectiveness, current research employed a 12-item CX measure with four first-order factors (i.e., cognitive [CCX], affective [ACX], social [SOCX], sensory [SECX]) (Bleier et al., 2019). All measures were rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Sample and Procedures

A total of 304 valid responses were collected through a survey hosted on WJX.cn, a major Chinese-language online survey platform. The original English questionnaire was back-translated to ensure accuracy and cultural appropriateness. Two pre-screening questions confirmed that all participants had prior experience purchasing fashion products via livestreaming platforms, specifically, sportswear and cosmetics. Before completing the questionnaire, participants were instructed to watch a 5-minute livestream of either sportswear or cosmetics (see Figure 6). Among the respondents, 67.8 per cent of respondents were female (*n*=206). The majority were aged 26-41 (*n*=252; 82.9%), followed by those aged 18-25 (*n*=43; 14.1%). Cosmetics livestream viewers dominated the sample compared to sportswear viewers (*n*=209; 68.8%).

Table 1. Measures in Model 1 & Model 2

Factors	Items	Factor loadings	Measure
Interactivity (adapted from Dong and Wang 2018)	In_1/2/3	-	*
	In_4	0.76	Livestreaming allows me to provide real-time feedback.
	In_5	0.76	Livestreaming responds to my questions in a timely manner.
	In_6	0.76	I can get information from the anchors and other consumers rapidly.
Personalisation (adapted from Zhang et al. 2022 and Liu 2003)	Pe_1	0.77	Livestreaming commerce recommends products based on my specific needs, such as sizing, fabric, information, etc.
	Pe_2	0.71	Live streaming commerce/group buying stores all my preferences and offers me extra products/services based on my preferences.
	Pe_3	0.75	Livestreaming commerce allows me to easily shop for what I want.
Parasocial interaction (adapted from Xiang et al. 2016)	PSI_1	0.80	Livestreaming commerce shows me what the anchors and other consumers are like, especially some influencers & anchors I'm interested in
	PSI_2	0.82	The interaction with the anchors and other consumers on livestreaming commerce makes me feel comfortable, especially with some anchors I hardly contact in real life, as if we were friends.
	PSI_4	0.74	I can trust the information I get from the anchors and other consumers on livestreaming commerce, especially from some influencers & anchors I'm interested in.
	PSI_3/5/6	-	*
Price Benefit (adapted from Yaras et al. 2017)	PB_1	0.76	Live streaming commerce provides attractive offers for fashion products.
	PB_2	0.75	Purchasing fashion products from livestreams is very useful when it comes to obtaining better prices.
	PB_3	0.80	The price of fashion products in livestreaming commerce is economical.
Continuance Intention (adapted from Zhang et al. 2022)	CI_1	0.78	I would use livestreaming commerce again if I had a choice.
	CI_2	0.80	I will choose to use livestreaming commerce next time I need to make a fashion purchase.
	CI_3	0.75	I will use livestreaming commerce in the future.
Customer Experience (adapted from Bleier et al., 2019)			
Cognitive Customer Experience	CCX_1	0.72	Information obtained from livestreaming commerce is useful.
	CCX_2	0.72	I learned a lot from using livestreaming commerce.
	CCX_3	0.71	I think the information obtained from livestreaming commerce is helpful.
Affective Customer Experience	ACX_1	0.79	Shopping for fashion products from livestreaming commerce is fun.
	ACX_2	0.78	Shopping for fashion products from livestreaming

			commerce is enjoyable.
	ACX_3	0.65	Shopping for fashion products from livestreaming commerce is entertaining.
Social Customer Experience	SoCX_1	0.73	There is a sense of human contact in livestreaming commerce.
	SoCX_2	0.80	There is a sense of human warmth in livestreaming commerce.
	SoCX_3	0.80	There is a sense of human sensitivity in livestreaming commerce.
Sensory Customer Experience	SeCX_1	0.76	The product presentation on livestreaming commerce is lively.
	SeCX_2	0.71	I can acquire product information on livestreaming commerce from different sensory channels (e.g., imagery, auditory).
	SeCX_3	0.76	Livestreaming commerce contains product information exciting to the senses.

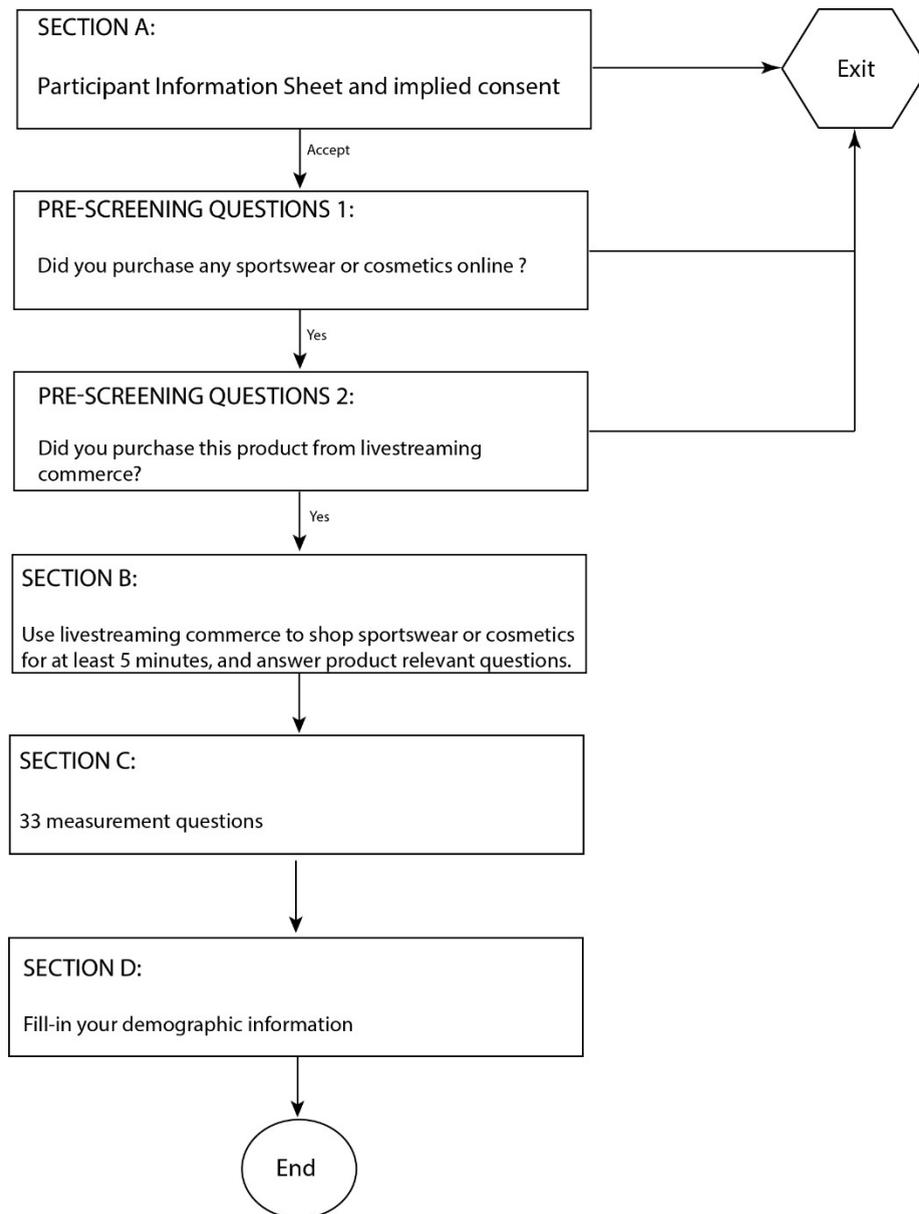Note: *: the item was removed after factor deduction in SPSS

Fig. 6 Survey response process

RESULTS

Reliability Analysis and Discriminant Validity

An exploratory factor analysis (EFA) was conducted on all variables of Model 1 using SPSS 28.0 to refine the factors and calculate the reliability coefficients. Harman's one-factor test indicated no significant common method bias. After the EFA, all factors remained but six measurement items were removed due to their factor loadings below the acceptable threshold of 0.70 (Hair Jr et al., 2021). Notably, the factor loading of item ACX_3 was slightly lower than 0.7 but this item remained for the need of using original items in the competing model comparison. As shown in Table 2, all estimated average variance extracted (AVE) and composite reliability (CR) values exceeded the recommended thresholds of 0.5 (Hair Jr et al., 2021) and 0.6 (Bagozzi and Yi, 2012), respectively. Discriminant validity for both Model 1 and Model 2 was confirmed using the Fornell-Larcker criterion, as the square root of each construct's AVE was greater than its inter-construct correlations (Afthanorhan et al., 2021). Thus, the reliability and discriminant validity are supported. In addition, the standardised root mean residual (SRMR) values for both models were 0.07, below the recommended cutoff of 0.08, indicating good model fit (Henseler et al., 2015).

Table 2. Reliability, discriminant validity, and SRMR values of Model 1 and Model 2

Model 1					Fornell-Larcker Criterion				
SRMR	Items	α	CR	AVE	CI	In	Pe	PB	PI
0.07	CI	0.66	0.82	0.60	0.77*				
	In	0.64	0.80	0.58	0.54	0.76*			
	Pe	0.59	0.78	0.55	0.61	0.53	0.74*		
	PB	0.66	0.81	0.59	0.51	0.36	0.41	0.76*	
	PSI	0.70	0.83	0.62	0.58	0.51	0.49	0.41	0.79*
Model 2					Fornell-Larcker Criterion				
SRMR	Items	α	CR	AVE	ACX	CCX	CI	SeCX	SoCX
0.07	ACX	0.58	0.78	0.55	0.74*				
	CCX	0.52	0.76	0.51	0.50	0.71*			
	CI	0.66	0.82	0.63	0.62	0.58	0.77*		
	SeCX	0.60	0.79	0.55	0.48	0.50	0.54	0.74*	
	SoCX	0.68	0.82	0.61	0.55	0.50	0.57	0.55	0.78*

Note(s): CI: continuance intention, In: interactivity, Pe: personalisation, PB: price benefit, PSI: parasocial interaction, ACX: affective customer experience, CCX: cognitive customer experience, SeCX: sensory customer experience, SoCX: social customer experience, CR: composite reliability, α: Cronbach's α, AVE: average variance extracted, CR: composite reliability, AVE: average variance extracted.

*: each construct's square root of AVE.

CX Scale Validity

The estimated results of Model 1 validated all proposed CX determinants, as shown

in Figure 7. All four lower-order variables served as formative dimensions of CX, given their significant factor loadings (β≥ 0.1; p <0.05) and path direction. Among these dimensions, personalisation emerged as the most significant determinant, followed by parasocial interaction, price benefit, and interactivity, from the order of high to low. The explanatory power of the CX scale for continuance intention was 53.8 per cent, representing an upper- medium level of explanatory strength. The path coefficient value from CX to continuance intention was located at the strong strength (β=0.734, p <0.001).
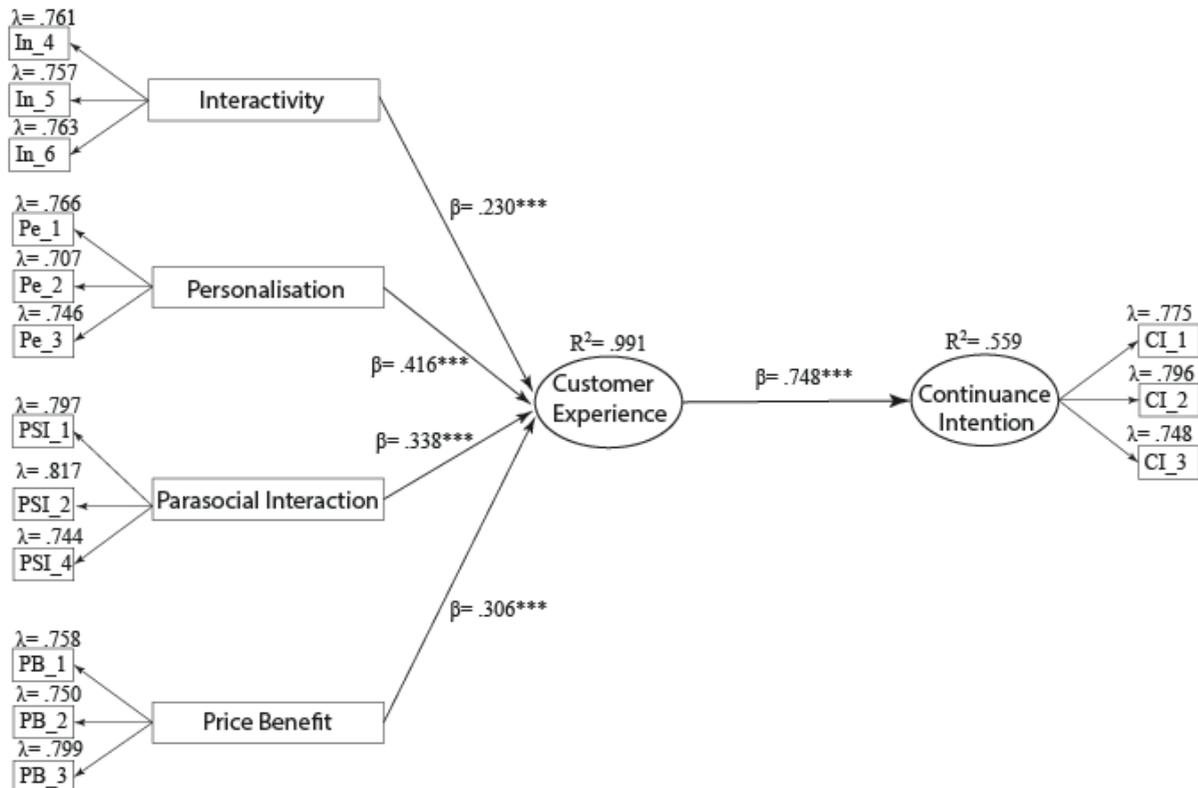

Fig. 7 Estimation results of Model 1

Effectiveness Evaluation

Model 2 was estimated based on a two-step approach due to the existence of lower-order variables. As shown in Figure 8, Model 2's causal path was also validated, with the four CX dimensions identified by Bleier et al. (2019) together explaining 52.8 per cent of continuance intention. The explanatory strength was slightly lower than the FLS-CX scale. Additionally, the path coefficient for Model 2 ($β_{Model\ 2}$= 0.728, p<0.001) was slightly lower than that of Model 1 ($β_{Model\ 1}$= 0.734, p<0.001), although the difference is not significantly different.

The previous causal path analysis was to calculate the reliability of in-sample predictions. The second step of this competing model evaluation was to compare the out-of-sample prediction through the PLSpredict algorithm suggested by Shmueli et al. 2016). Following Monte Carlo simulation guidance suggested by Sharma et al. (2019), root mean squared error (RMSE) and mean absolute error (MAE) were used to

identify the model with better predictive power. In Model 1, Q^2 prediction of continuance intention was 0.522 and all RMSE values were lower than corresponding linear model (LM) values, suggesting strong predictive power. By comparison, the predictive power of Model 2 was slightly lower than Model 1, although all RMSE values were also lower than LM values. As shown in Table 3, Bayesian information criterion (BIC) (Acquah, 2010) can determine which model is more parsimonious and optimal. A model with a smaller BIC value is considered better in terms of both model fit and parsimony (Lin et al., 2017). The BIC value of Model 1 was less than that of Model 2. Additionally, the Akaike weight of Model 1 was 0.97, significantly higher than Model 2's Akaike weight of 0.03. Hence, the proposed FLS-CX scale is more effective compared to Bleier et al.'s (2019) from the aspect of out-of-sample prediction.
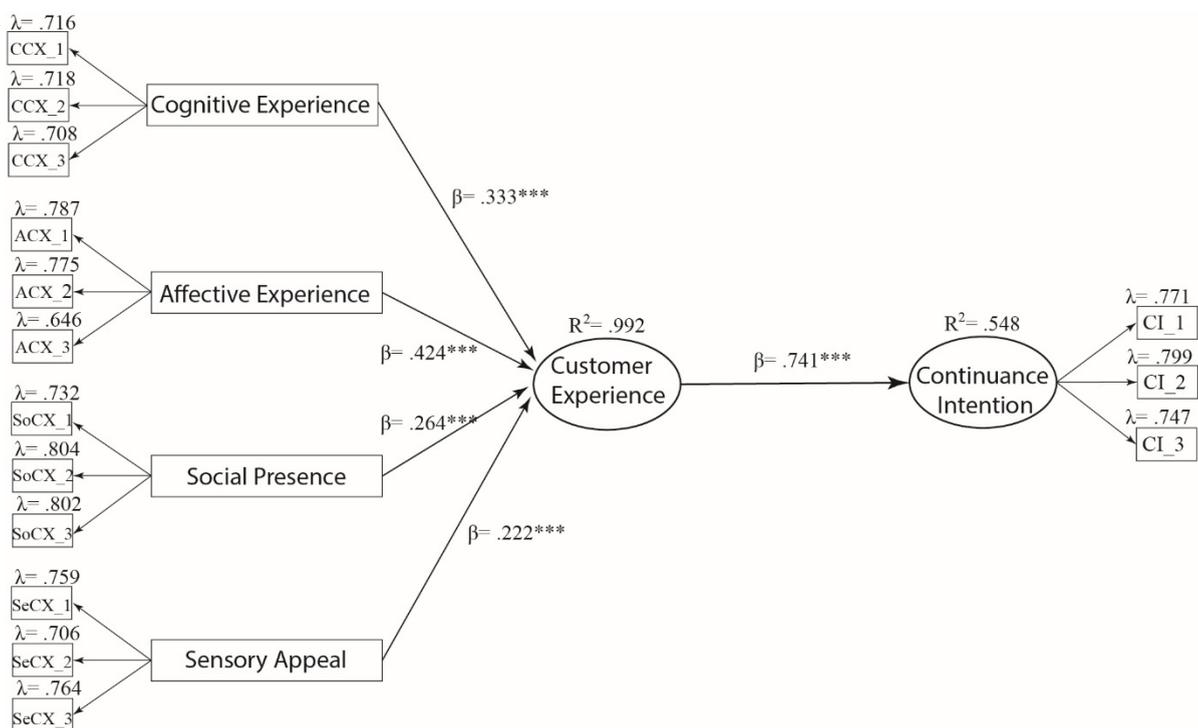

Fig. 8 Estimation results of Model 2

Table 3. PLS standard evaluation criterion of Model 1 and Model 2

	Model 1 (FLS-CX Scale)			Model 2 (Online CX Scale)		
R^2 of CI	0.539			0.530		
Adjusted R^2 of CI	0.538			0.528		
	Q^2 predict	**RMSE**	**LM**	**Q^2 predict**	**RMSE**	**LM**
Continuance Intention_1	0.292	0.791	0.800	0.276	0.799	0.801
Continuance Intention_2	0.366	0.723	0.732	0.362	0.725	0.730
Continuance Intention_3	0.266	0.751	0.754	0.252	0.757	0.762
Continuance Intention	0.522	0.703	/	0.503	0.716	/

BIC Comparison	-239.281	-232.075
Akaike Weight	0.973	0.027

DISCUSSIONS AND IMPLICATIONS

This study aimed to propose and validate a specialised CX scale for fashion livestreaming commerce (FLS-CX), and to compare its effectiveness with an established CX scale (Bleier et al., 2019). As one of the first empirical studies in this domain, the estimated results provide valuable insights into the unique dynamics of CX in fashion livestreaming, offering implications for both researchers and business practitioners.

First, the FLS-CX scale not only demonstrated robust psychometric properties but also outperformed Bleier et al.'s (2019) CX scale in several areas. Besides the path coefficient, explanatory power and out-of-sample predictive accuracy, the FLS-CX shows a stronger sensitivity (Salciccioli et al., 2016). Both competing scales have lower-order constructs, but the FLS-CX scale has higher path coefficients in its lower-order construct (β_{total} = 1.29) compared to the competing scale (β_{total} = 1.24) (see below).

FLS-CX Scale: $\beta_{total} = \beta_{Pe} + \beta_{PI} + \beta_{PB} + \beta_{In}$ = 1.29
Bleier et al (2019) CX Scale: $\beta_{total} = \beta_{CCX} + \beta_{ACX} + \beta_{SoCX} + \beta_{SeCX}$ = 1.24

Moreover, the FLS-CX scale's four dimensions can be examined independently. In contrast, Bleier et al. (2019) scale's cognitive, affective, social and sensory overlap in livestreaming commerce. For example, social CX can blend with affective CX if viewers find entertainment (i.e., affective experience) in interacting with the anchor or other viewers. Alternatively, social CX may resemble cognitive CX if viewers seek information regarding product fit, fabrics and style from other viewers or the anchor. Cognitive CX refers to the useful information about product items. Such overlaps can make it difficult for consumers to clearly differentiate among CX dimensions. In contrast, the distinctiveness of the FLS-CX scale's dimensions enables researchers to isolate the effects of external marketing offerings on specific aspects of CX or examine the combined influence on overall CX.

Third, the four dimensions of personalisation, price benefit and interactivity were not firstly validated as integral components of CX. Specifically, personalisation was included in the Bank CX scale (Garg et al., 2014) and the Online Customer Experience (OCE) scale (Rose et al., 2012). In the former study, personalisation represents the customised bank service while the tailored products in the latter research. Additionally, a synonym of price benefit – benefits – was one dimension of the Online Post-purchase Customer Experience (Kumar and Anjaly, 2017). Furthermore, interactivity shares similarities with a few existing CX measures, such as interactive (Rose et al., 2012), and customer companions (Chang and Horng, 2010). Although

parasocial interaction emerges as a novel CX dimension that was not previously explored in the published CX scales, there were five empirical studies have been conducted to investigate the influence of parasocial interaction on consumers' psychological attitudes (see Figure 3). For example, Chen et al. (2020) found parasocial interaction can drive consumer trust in livestreaming. With these theoretical foundations, current research quantified the most significant factors in are most likely to satisfy the fashion livestream viewers.

Fourth, current research is the first livestreaming commerce targeting fashion products. The tailored FLS-CX scale demonstrates the marketing strategy principle for the livestream viewers' positive CX formation: the retailer needs to utilise influencer marketing, provide discounts, enable a highly interactive environment, and most importantly, offer personalised livestream service. These marketing suggestions are tailored to sportswear and cosmetics. Although cosmetics also can be categorised into a separate field, the results of the present study indicated a similarity in what factors satisfy both consumers in livestreaming commerce, led by personalisation. This finding provides evidence from the consumer aspect to the recent emerging studies on personalised recommender systems (Jayaram et al., 2024).

In practice, these insights guide fashion retailers in designing their livestream marketing strategies following the FLS-CX. First, personalisation is the most significant dimension of FLS-CX. Consistent with the findings of Chou et al. (2023), personalisation can be enhanced through both advanced personalised AI and anchor personalised recommendations. Business practitioners should seek an effective way to capture viewers' preferences so anchors can recommend suitable apparel or cosmetics. Second, interactivity and personalisation are closely linked. Interactivity indicates the capability of the livestream sellers to encourage viewers to communicate with each other. It enables and reinforces the relevance of personalised recommendations. For example, the livestream anchor needs to offer personalised product recommendations to the viewers and facilitate more interactions. Furthermore, the significance of parasocial interaction suggests that selecting influential anchors or involving popular consumer endorsers can significantly enhance viewer satisfaction. Finally, the best price policy is a common marketing strategy in livestreaming commerce, reflected as price benefit. The study result confirmed the role of price benefit, but its influence on fashion livestream viewers is not as significant as personalisation and parasocial interaction. This finding confirmed the previous studies on unique features of fashion products (Djafarova and Bowes, 2021), involving visual appeal and personalised selection. Hence, fashion retailers need to better balance the relationship between low prices and other CX dimensions.

CONCLUSION

This study provides a robust, context-specific measurement tool (FLS-CX) for

capturing the nuances of CX in fashion livestreaming commerce. While our findings contribute to a better understanding of CX in this emerging field, several limitations indicate directions for future research. First, further research can explore how the importance of these CX dimensions may vary across different fashion product categories, cultural contexts, or demographic groups. For example, livestreaming commerce in Japan is well-established (Ni and Ueichi, 2024). It is unknown whether the FLS-CX scale will be validated in Japan. Second, utilising a larger sample size could enhance the generalisability and robustness of the results. Finally, examining other fashion product segments—such as second-hand fashion (Yasser and Gayatri, 2024) or sustainable fashion—would offer additional insights into whether the FLS-CX scale's dimensions hold consistently across diverse product categories.

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