# The Influence of E-Service Quality Dimensions on Customer Satisfaction: Aimed at Improving Economic Growth in China's Online Apparel E-Marketplace

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This research endeavours to examine the impact of electronic service quality on customer satisfaction within the context of China's online apparel emarketplace. Employing a quantitative research approach, data is gathered through a survey conducted among online shoppers in Guizhou, China. Grounded in Parasuraman's E-SERVQUAL model, the study delves into the dimensions of reliability, empathy, tangibles, and responsiveness as



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determinants of customer satisfaction in the service industry. Specifically, attention is directed towards the influence of web design and responsiveness, with gender acting as a moderating variable. The findings indicate a significant effect of web design and personalization on customer satisfaction, while further investigation is warranted for the impact of responsiveness. Moreover, the study discerns that the relationship between responsiveness and customer satisfaction is contingent on gender. The research imparts evidence-based recommendations to enhance the competitiveness and profitability of e-retailers, positing that by elevating customer satisfaction, the industry can contribute to social progress and foster economic growth in China's apparel e-marketplace.

**Keywords:** Customer Satisfaction, Web Design, Responsiveness, Personalization, Gender, Economic Growth.

# Introduction

In the context of economic globalization and global informatization, online shopping has emerged as a pivotal catalyst for sustained global economic expansion (Mingli & Jiakang, 2021). In China, the domestic online shopping sector has undergone rapid expansion, with apparel transactions taking the lead and constituting 67.9% of all e-commerce transactions in 2022 (Iimedia, 2022). Taobao, a prominent e-commerce platform, reported clothing as the highest-selling category in the initial half of 2023, underscoring the pronounced preference of Chinese consumers for online shopping (China Industrial Research Report Network, 2019). Nevertheless, the proliferation of e-commerce has intensified competition within the apparel industry, presenting notable challenges such as pricing transparency and facile switching between competitors with a mere click (Yin & Awokuse, 2010). To fortify competitiveness amidst the challenges posed by price transparency, companies may contemplate three strategic approaches: capitalizing on geographical differentiators, introducing moderate switching costs, and prioritizing electronic service quality (Cox & Dale, 2001).

In the era of digitalization, the diminishing relevance of geographical disparities and switching costs accentuates the significance of e-service quality in gaining a competitive advantage. E-commerce, offering distinctive benefits such as time efficiency, convenience, cost-effectiveness, and personalized services, establishes eservice quality as a pivotal determinant (Cox & Dale, 2001). Consequently, examining consumer satisfaction with e-service quality bears pragmatic importance for enterprises. Empirical evidence indicates a substantial impact of subpar e-service quality on online transactions, with 28% of failures ascribed to deficiencies in merchant services and approximately 50% of consumers expressing discontent with their online shopping experiences (Jia-Ying et al., 2010). This inadequacy in e-service quality can result in diminished customer loyalty, as it undermines satisfaction and trust in the retailer, subsequently affecting customer retention and repeat business. Notably, instances of customers abandoning online shopping carts often stem from frustrations with web interface technology, design shortcomings, or cluttered pages that hinder swift product discovery (Hager & Elliot, 2001). Research from the Akamai Report (2017) reveals that 53% of online shoppers abandon a site if it takes more than three seconds to load, contributing to an average cart abandonment rate of 69% across

industries (Baymard Institute, 2021).

Complicated checkouts and technical glitches worsen the problem, while insufficient responses to customer inquiries amplify frustration and dissatisfaction. Lack of personalized service aggravates the issue, as automated or generic responses may leave customers feeling undervalued (Lee & Lin, 2005). Negative feedback can damage a retailer's reputation, hindering potential customer engagement. E-service quality (E-SQ) emerges as a bottleneck for e-commerce growth, necessitating comprehensive understanding and enhancement by enterprises to address these challenges.

A conspicuous void exists in the current academic literature pertaining to China's online apparel industry, with predominant emphasis found in literature concerning banking, retail trade, and e-commerce, as highlighted by Zhong and Moon (2020). The conceptualization of customer satisfaction is acknowledged as intricate, with varying perspectives among scholars. While this study establishes the appropriateness of customer expectations, it acknowledges potential data deviations stemming from respondents' diverse interpretations of the questionnaire due to various factors (Lal & Katole, 2021). Despite the conscientious exclusion of invalid questionnaires in this research, the possibility of omissions remains, introducing potential data inaccuracies. Empirical investigations on the service quality variables influencing customer satisfaction within the Chinese apparel context are notably scarce. Present scholarly discourse predominantly focuses on Europe, the United States, the United Kingdom, and other Western nations, with limited attention directed towards Asian nations, despite a growing body of research in this domain (Huang et al., 2018).

This study aims to explore the impact of electronic service quality on customer satisfaction, specifically within China's online apparel e-marketplace. Employing a quantitative research approach, data is collected through a survey of online shoppers in Guizhou. Grounded in Parasuraman's E-SERVQUAL model, the research assesses reliability, empathy, tangibles, and responsiveness as key factors influencing customer satisfaction. The study delves into the role of web design and responsiveness, with gender serving as a moderating variable. Results indicate significant effects of web design and personalization on customer satisfaction, while further research is needed to fully understand the impact of responsiveness, especially considering gender differences.

# **Review of Literature**

#### The Concept and Dimension of E-Service Quality

The integration of the "service economy" and "electronic network" gives rise to the contemporary concept of electronic service (Hu & McAleer, 2004). Zeithaml et al. (2005) were pioneers in providing a widely accepted definition of electronic service quality, emphasizing the convenience of website usage in customer browsing, shopping, and product or service delivery (Zeithaml, 2000). Limited research currently explores the dimensions of electronic service quality and their correlation with customer satisfaction. Discrepancies exist in identifying the most influential dimensions for both service quality and customer satisfaction, and a universally accepted definition is lacking. Figure 1 and Table 1 below present a straightforward model depicting the relationships between concepts associated with e-service quality.

Service quality satisfaction loyalty	> profit
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Figure 1: Relationship Linking Service Quality and Profit (Wang & Yang, 2010).

**Table 1**: Lists the research results of some experts and scholars on the dimensions of "e-service quality".

Outline of Each Chapter					
Scholar	Research content	Dimensions			
Moorman and Rust (1999)	Conceptual study	Ease of access, assurance/trust, ease of web browsing, security/privacy, reliability, responsiveness, flexibility of service, novelty and personalization of web pages.			
Yang et al. (2023)	Internet Online pharmacy	Ease of use, 24/7 responsiveness, accurate content, aesthetics, and privacy.			
Cox and Dale (2001)	Online retail	Ease of access, understandability, communication credibility, appearance, and usability.			
Janda et al. (2002)	Online retail	Performance (execution), feel (interactive features), access, security (integrity and privacy), and information			
Wolfinbarger and Gilly (2003)	Online retail	Web site design, privacy/security, reliability and customer service.			
Loiacono et al. (2002)	Research on web quality and interface design	Information, engagement, integrity, visual requests, innovation, flow, multi-channel communication, response time, design, intuition, business processes, and substitutability.			
Zeithaml et al. (2002)	Conceptual study	Efficiency, execution, reactivity, reliability, privacy and compensation.			
Surjadjaja et al. (2003)	Literature review	Price, convenience and availability, response to the latest information, service assistance and supply chain integration under system integration, internal communication, security, execution, external communication and after- sales processing.			
Jayawardhena et al. (2007)	Online bank	Access, integrity, web site interface, attention and trust.			
Parasuraman et al. (2005)	Electron array study	Efficiency, execution, privacy, responsiveness, system availability, compensation, and connectivity.			
Yugo (2006)	Online bookstore	Tangible evidence, credibility, reliability, sensitivity and care.			
Yaping and Min (2009)	Electronic commerce	Website design and functionality, security and privacy, information quality, system effectiveness, product quality assurance, completion, offline service, reactivity, compensation and accessibility.			

The E-SERVQUAL model, developed by Parasuraman et al. (2005), assesses customer perceptions and expectations across diverse dimensions of electronic service quality. As outlined by Zeithaml et al. (2002), this model encompasses five dimensions,

commonly referred to as the "RATER" framework. Firstly, reliability focuses on aspects such as system availability, transaction accuracy, and consistent service performance. Assurance includes secure transactions, privacy protection, and the reliability of information, reflecting the credibility, reputation, and expertise of the electronic service provider. Tangible assets encompass the physical and visible facets of electronic services, including supporting features or tools, particularly in an online context. Empathy measures personalized communication, timely customer support, and tailored assistance. Lastly, responsiveness evaluates the promptness and efficiency with which an e-service provider addresses customer inquiries, complaints, or assistance requests, encompassing factors like response time, availability of customer support channels, and the efficacy of problem resolution.

Moreover, the E-SERVQUAL model, utilizing gap analysis, serves to mitigate the divergence between customer expectations and perceived service quality. This facilitates organizational identification of areas marked by disparities, guiding endeavours to enhance the electronic service milieu, thereby culminating in heightened customer satisfaction (Zeithaml et al., 2002). However, the mean value model of service quality is delineated in Figure 2.



Figure 2: The Mean Value Model of Electronic Service Quality (Zeithaml, 2000).

#### **Relationships Among the Variables**

In accordance with the scholarly investigation conducted by Ruan et al. (2019), it is asserted that the SERVQUAL model proves to be an effective instrument for gauging the service quality within China's online apparel industry. The essential dimensions encapsulating the concept of "service quality" are explicated as follows.

### Web Design

E-commerce platforms characterized by visually appealing graphics and a well-crafted layout exert a considerable influence on consumers, eliciting aesthetic and emotional responses (Cyr et al., 2009). In the absence of a distinct website image, elements like product presentation, display, and interpersonal interactions gain heightened importance in the context of online purchasing (Akroush et al., 2015). In comparison to traditional retail, establishing a robust online reputation assumes paramount significance. During online transactions, customers engage in product research and pricing evaluations, both of which are contingent on the website's structural and aesthetic attributes (Çelik & Dulek, 2023). Seckler et al. (2015) expound on the advantageous impact of various website features, including graphic design, content design, and structural design, in enhancing consumer satisfaction. To put it succinctly, the visual appeal of a website page emerges as a pivotal factor influencing consumers' inclination to make purchases.

H1: Web design positively influences customer satisfaction.

#### Responsiveness

The visual presentation of a web interface, encompassing aspects such as navigational simplicity, content comprehensibility, and loading speed—referred to as responsiveness—exerts a significant influence on the visitor's perception of the website (Lal & Katole, 2021). Given that responsiveness evaluates a website's adaptability to various screen sizes and devices while ensuring an optimal user experience, a responsive website has the potential to enhance both security and purchase intent. In this context, website responsiveness is gauged by the ease of product discovery, users' perception of the website's user-friendliness, its consistent design patterns, and its ability to facilitate user navigation within the system (Chen & Teng, 2013). Notably, research by Chang and Chen (2008) posits that responsiveness contributes positively to client satisfaction in the realm of e-commerce.

H2: Responsiveness positively influences customer satisfaction.

### Personalization

Apparel website personalization tailors the user experience based on individual preferences, behaviours, and characteristics (Chen et al., 2018). This approach enhances user satisfaction by providing a relevant and engaging encounter, meeting unique needs, and reducing information overload (Lal & Katole, 2021). By understanding user preferences, websites streamline browsing, saving time and effort in finding suitable clothing. Personalization also fosters customer loyalty and trust, as consistently personalized experiences make users feel valued and understood, increasing the likelihood of repeat visits and purchases (Chen & Teng, 2013). **H3:** *Personalization positively influences customer satisfaction.* 

### Gender

In the assessment process, research by Broverman et al. (1968) reveals that men demonstrate superir analytical and logical problem-solving skills, while women tend to engage in subjective evaluations and intuitive judgments. According to the selective model posited by Meyers-Levy and Loken (2015), men exhibit a tendency to not meticulously consider all available information when making decisions, opting for

selective processing. Conversely, women are inclined to thoroughly consider all accessible information, adopting a more comprehensive decision-making strategy. Moreover, Stafford's study in 1996 indicates that women exhibit a higher cognitive grasp of key dimensions of service quality compared to men. Additionally, Paswan et al. (2004) affirm that older women show increased involvement in the tangible elements of service quality. Notably, the works of Almossawi (2001) and Graham et al. (2002) underscore the significance of gender as a crucial variable influencing service quality. **H4a:** Gender moderates the influence between web design and customer satisfaction with females having a strong effect on this influence.

**H4b:** Gender moderates the influence between responsiveness and customer satisfaction with females having a strong effect on this influence.

**H4c:** Gender moderates the influence between personalization and customer satisfaction with females having a strong effect on this influence.

#### **Proposed Conceptual Framework**

Adapted from the SERVQUAL model, Figure 3 depicts the conceptual framework, emphasizing the interplay among variables—web design, responsiveness, personalization, and gender. The framework posits that customer satisfaction is influenced by these four factors, each contributing distinct arguments to the model.



Figure 3: Conceptual Framework.

### **Research Methodology**

### **Data Collection**

This study employs a quantitative approach based on the works of Wider et al. (2023) and Jiang et al. (2023). Quantification, as outlined by Smith-Bell and Winslade (1994), involves testing theories with numerical measures and employing statistical analysis, emphasizing objectivity and repeatability (Smith, 2002). Quantitative methods, as highlighted by Gyempeh (2017), facilitate the measurement of customers' purchase intention, attitude, and behaviour. The study employs online questionnaires targeting Chinese online shoppers aged 20 to 49, demonstrating strong online shopping proficiency. Guizhou, identified as the fastest-growing province for online consumers (Forward Industry Research Institute, 2019), is selected as the survey site. G-power is utilized for sample size calculations, determining a sample size of 108, with 30 samples for pilot testing to identify areas for enhancement and implement necessary changes, following recommendations by Welch et al. (2022) and Sanders (2019).

Due to time constraints, researchers utilized convenient sampling through an online

questionnaire website, employing an adaptive method (Yiwen et al., 2020). This method facilitated the collection of numerous completed surveys, ensuring rapid and cost-effective results. Self-administered questionnaires were employed as the research instrument to swiftly evaluate a large sample (Harris et al., 2016). The questionnaire is divided into three parts: Section A covers demographic background, including gender, age, salary level, and educational background. Part B focuses on the dependent variable (customer satisfaction) with four questions, while Part C addresses independent variables (web design, responsiveness, and personalization) with 12 questions. Adapted questionnaires from relevant literature were utilized for sections B and C.

# **Data Analysis**

Variable	Frequency	Dorcontago (%)
Variable		Tercentage (70)
Gend	ier 25	22.1
Male	25	23.1
Female	83	76.9
Ag	e	
20-29 years old	52	48.1
30-39 years old	39	36.1
40-49 years old	17	15.7
Over 50 years old	0	0
Education	al Level	
High school and below	7	6.5
Bachelor's degree	49	45.4
Master's degree	46	42.6
Doctoral degree	6	5.6
Job L	evel	
Ordinary staff	42	38.9
Group leader	36	33.3
Department leader	26	24.1
General manager and chairman	4	3.7
Monthly	Income	
Less than 2000 Yuan	3	2.8
2000-4000 Yuan	4	3.7
4000-6000 Yuan	32	29.6
6000-8000 Yuan	34	31.5
8000-10000 Yuan	21	19.4
More than 10,000 Yuan	14	13.0
Monthly Number of	<b>Online Purchase</b>	es
Once every 2 months	7	6.5
Once a month	23	21.3
2-3 times/month	46	42.6
4 or more times/month	32	29.6

Table 2: Demographic Data of 108 Consumers Who Participated in The Online Survey.

### **Demographic Profile of the Respondents**

The survey garnered 108 fully completed questionnaires from respondents in the Guizhou region of China. Table 2 delineates the demographic characteristics of these 108 consumers.

As evident from Table 2, the female customer cohort constitutes a significantly higher proportion (76.9%) compared to their male counterparts (23.1%). Regarding age distribution, a majority of respondents fall within the age brackets of 20 to 29 (48.1%) and 30 to 39 (36.1%), demonstrating greater purchasing power in contrast to the 40 to 49 age group (15.7%). Notably, consumers aged 50 and above, as highlighted in the report by Yao (2022), encounter certain challenges in utilizing mobile phones for shopping, with a preference for more traditional and offline shopping practices.

The table illustrates the employment backgrounds of respondents, encompassing various significant roles within a company. Ordinary employees (38.9%) and group leaders (33.4%) constitute a relatively high proportion, primarily stemming from individuals aged 20 to 39 who exhibit a keen interest in shopping and a penchant for fashion (Iimedia, 2022). Department managers (24.1%), on the other hand, may lean towards a more discerning lifestyle, eschewing impulsive shopping and selecting only essential items (Iimedia, 2022). General managers and chairpersons (3.7%) are inclined towards personalized services and are less likely to engage extensively with online shopping platforms (Fang & Tseng, 2015). Table 2 indicates that approximately 50% of respondents engage in shopping 2 to 3 times a month, while around 30% shop 4 or more times a month, indicative of robust consumer spending in Guizhou, China, facilitating the survey.

### **Pilot Test Results**

In accordance with Stratton (2021) guidance on ascertaining the viability of a questionnaire measurement trial, a pilot test was undertaken in this study. A preliminary investigation involving 30 respondents was conducted to assess the research tools, procedures, and data collection methods. Reliability was evaluated using Cronbach Alpha values, all of which exceeded 0.6 for the variables, signifying that the questionnaire items reliably measure the intended structure and are thus deemed suitable for broader-scale data collection. The outcomes of the pilot study are delineated in Table 3.

Variable	Cronbach Alpha
<b>Customer Satisfaction (DV)</b>	0.658
Web Design (IV1)	0.822
Responsiveness (IV2)	0.746
Personalization (IV3)	0.687

 Table 3. Pilot Test Results.

#### **Principal Component Analysis**

The outcomes of the KMO test and Bartlett test revealed a KMO value of 0.906, and the p-value of the Bartlett sphericity test was 0.001, affirming the appropriateness of the data sample size for factor analysis (Theertham & Pavan, 2019). Detailed results

KMO And Bartlett Tests						
Kaiser-Meyer-Olkin Sampling Adequacy Measure 0.906						
	Approximate Chi-Square	986.832				
Bartlett's Sphericity Test	Df	120				
	Sig	< 0.001				

are presented in Table 4.

 Table 4: Kaiser-Meyer-Olkin and Bartlett Tests.

# **Total Variance Interpretation**

Within the framework of principal component analysis (PCA) or factor analysis, the interpretation of total variance pertains to the extent to which the principal component or factor encapsulates overall variability. The cumulative variance explained by the components derived from PCA indicates the presence of three factors, each possessing an eigenvalue exceeding 1 (1.000). Collectively, these factors contribute to the explanation of 64.1% of the total variance.

# **Reliability Analysis**

Reliability analysis serves the purpose of establishing the credibility and authenticity of the data (Fisher & Frey, 2019). As demonstrated in the table below, the Cronbach Alpha values uniformly signify strong internal consistency, affirming their efficacy in measuring the respective underlying structures. Detailed results are presented in Table 5.

Variable	Cronbach's Alpha	Results
Customer Satisfaction (DV)	0.829	Very Good
Web Design (IV1)	0.840	Very Good
Responsiveness (IV2)	0.845	Very Good
Personalization (IV3)	0.776	Good

# Table 5: Reliability Analysis Results.

# **Descriptive Analysis**

Kurtosis and skewness serve as indices to assess the extent of data deviation, often utilized as indicators for normality evaluation (Kline et al., 2005). Presented in Table 6, the descriptive statistics reveal that the mean values for the independent variables "web design, responsiveness, personalization" fall within the range of 3-4, while the standard deviation ranges from 0-1. Moreover, the skewness and kurtosis levels indicate a normal distribution, suggesting a consensus among most participants regarding the quality of diverse electronic services offered by Chinese apparel websites.

Variable	Mean	<b>Std Deviation</b>	Skewness	Kurtosis	Distribution
Customer Satisfaction (DV)	4.13	0.51	0.04	-0.62	Normal
Web Design (IV1)	3.89	0.60	-0.04	-0.60	Normal
Responsiveness (IV2)	3.75	0.53	-0.80	1.47	Normal
Personalization (IV3)	3.96	0.52	0.23	0.18	Normal

**Table 6**: Descriptive Statistical Results.

### **Pearson's Correlation Analysis**

Pearson correlation analysis, a method assessing linear correlation between continuous variables (Tan et al., 2018), is employed to examine the relationship between independent and dependent variables in this study (Table 7). The results reveal a robust positive correlation between customer satisfaction and web design (r = 0.673, p < 0.001), suggesting an enhancement in customer satisfaction with improved web design quality. Additionally, web design demonstrates a strong positive correlation with personalization (r = 0.687, p < 0.001), underscoring the potential of personalized web design to elevate customer satisfaction.

Variables	Customer Satisfaction	Web Design	Responsiveness	Personalization		
Customer	1.00	0.673	0.524	0.584		
Satisfaction		< 0.001	< 0.001	0.001		
Web Design	0.673	1.000	0.678	0.687		
web Design	< 0.001		< 0.001	0.001		
D	0.524	0.678	1.000	0.650		
Responsiveness	< 0.001	< 0.001		0.001		
Dersonalization	0.584	0.687	0.650	1.000		
reisonanzation	< 0.001	< 0.001	< 0.001			
Correlation is significant at the 0.01 level(2-tailed)						

Table 7:	Pearson's	Correlation	Analysis

### **Multicollinearity Statistics**

In linear regression analysis, multicollinearity refers to the interdependence of independent variables when one variable's change influences another (Pan et al., 2023). Detection methods include examining Variance Inflation Factor (VIF), with tolerance values under 0.20 or VIF exceeding 4 signalling potential multicollinearity issues (Pan et al., 2023). The study's multicollinearity statistics, presented in Table 8, reveal tolerances for web design (0.435), responsiveness (0.476), and personalization (0.466) all surpass 0.2. Web design exhibits the highest VIF at 2.297. These outcomes indicate the absence of significant multicollinearity problems, suggesting variables are not highly correlated, bolstering the study's findings' validity. Details are provided in Table 8.

Coefficients							
Variable	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig	Collinearity Tolerance	Statistics VIF
Constant	1.47	0.30		4.96	< 0.001		
Web Design	0.42	0.09	0.49	4.59	< 0.001	0.44	2.30
Responsiveness	0.05	0.10	0.05	0.52	0.61	0.48	2.10
Personalization	0.21	0.10	0.21	2.06	0.05	0.47	2.15
a. Dependent Variable: Customer Satisfaction							

 Table 8: Multicollinearity Statistics.

### **Multiple Regression Analysis**

The data from the Regression Model is presented in Table 9. The results of the regression analysis exhibit a significant correlation between the predictors (web design, responsiveness, personalization) and the dependent variables. The R2 value, standing at 0.582, signifies a moderate effect. In alignment with the criteria established by Chin (1998) and Henseler et al. (2009), an R2 exceeding 0.67 indicates high prediction accuracy, while values between 0.33 and 0.67 indicate a moderate influence. R2 values falling between 0.19 and 0.33 suggest a low influence, and those below 0.19 are deemed unacceptable.

Model	R	R Square	Adjusted R Square	Std. Error of The Estimate		
1	0.695	0.582	0.567	0.37372		
a. Predictors:(Constant), Personalization, Responsiveness, Web Design.						

Table 9: Summary of Regression Model.

The regression analysis results indicate that, among the predictive factors, web design emerges as the variable significantly impacting customer satisfaction. A one-unit increase in web design corresponds to a 0.491-unit increase in customer satisfaction ( $\beta$ =0.491, p<0.001; t>1.645). Similarly, personalization is another variable exerting a significant influence on customer satisfaction, with a one-unit increase leading to a 0.213-unit rise in customer satisfaction ( $\beta$ =0.213, t>1.645, p<0.05). In contrast, responsiveness exhibits no significant effect on customer satisfaction ( $\beta$ =0.051, t<1.645, p>0.05). In summary, the variables "web design" and "personalization" significantly influence customer satisfaction. Detailed findings are presented in Table 10.

	Model	Unstandardized	Std.	Standardized	4	Sig (n Valua)	
	Model	В	Error	<b>Coefficients Beta</b>	ι	Sig. (p value)	
	(Constant)	1.470	0.296	-	4.96	< 0.001	
1	Web Design	0.420	0.092	0.491	4.96	< 0.001	
1	Responsiveness	0.051	0.098	0.053	0.52	0.605	
	Personalization	0.211	0.102	0.213	2.06	0.042	
	a. Dependent Variable: Customer Satisfaction						

 Table 10: Multiple Regression Coefficient.

### **Moderating Effect of Gender**

### **Analysis of Interaction Effects**

A moderating variable, also referred to as an interaction effect in this context (Siregar et al., 2023), is a factor that influences the magnitude or direction of the relationship between independent and dependent variables. This regulatory variable interacts with the independent variable, altering its impact on the dependent variable under varying conditions or levels of the moderating variable.

# **Regression Analysis of Adjustment Effect**

In the present study, gender functions as a moderating variable, engaging in interactions with both web design and personalization, resulting in the derivation of Int1 and Int2. Given the lack of a substantial effect of responsiveness on customer

satisfaction, the moderating variables are excluded from the quadratic regression analysis of responsiveness. Detailed findings are presented in Table 11.

As observed in the tables, the tolerance values surpass 0.1, and VIF values are below 2, signifying the absence of multicollinearity issues among these variables. The regression coefficient for the interaction effect with the dependent variable is 0.03,  $\beta$  value = 0.03, t value = 0.29, and p-value > 0.05, indicating that the interaction effect and the dependent variable are not moderated. Consequently, the moderating effect is not supported, suggesting that gender does not serve as a moderator between web design and customer satisfaction. While tolerance values in the tables all exceed 0.1, the VIF value for the interaction term int2 involving gender and personalization surpasses 2, indicating a potential multicollinearity problem between them.

Coefficients								
Model	Unstandardized B	Std. Error	Standardized Coefficients Beta	t	Sig. (p-Value)	Collinearity Tolerance	Statistics VIF	
(Constant)	4.16	0.04		99.40	< 0.001			
<b>1</b> Zscore (Web Design)	0.36	0.04	0.70	9.49	< 0.001	0.95	1.04	
Gender_Dummy	-0.13	0.09	-0.10	-1.42	0.16	0.95	1.05	
(Constant)	4.16	0.04		98.81	< 0.001			
Zscore (Web Design)	0.35	0.04	0.68	8.29	< 0.001	0.76	1.32	
Gender_Dummy	-0.13	0.09	-0.11	-1.43	0.16	0.88	1.14	
Int1	0.03	0.09	0.03	0.29	0.77	0.70	1.43	
a. Dependent Variable: Customer Satisfaction								

**Table 11**: The Interaction of Adjustment Variables with Web Design.

The regression coefficient for Int2 and the dependent variable is 0.58,  $\beta$  value = 2.00, t value = 3.41, and the p-value < 0.05, signifying that the relationship between Int2 and the dependent variable is moderated. This supports the presence of a moderating effect, indicating that gender assumes a moderating role in the relationship between responsiveness and customer satisfaction. Detailed findings are presented in Table 12.

 Table 12: Interaction Between Adjustment Variables and Responsiveness.

Coefficients								
	Model	Unstandardized B	Std. Error	Standardized Coeffici0ents Beta	t	Sig. (p-Value)	Collinearity Tolerance	Statistics VIF
	(Constant)	4.15	0.05		85.58	< 0.001		
1	Zscore (Responsiveness)	0.28	0.04	0.54	6.35	< 0.001	0.96	1.05
	Gender_Dummy	-0.08	0.10	-0.07	-0.79	0.43	0.96	1.05
2	(Constant)	4.14	0.05		89.72	< 0.001		
	Zscore (Responsiveness)	0.25	0.04	0.48	5.85	< 0.001	0.92	1.09
	Gender_Dummy	-2.46	0.70	-2.03	-3.49	< 0.001	0.02	54.23
	Int2	0.58	0.17	2.00	3.41	< 0.001	0.02	54.86
a. Dependent Variable: Customer Satisfaction								

From the tables, where tolerance values exceed 0.1 and VIF values are below 2, no multicollinearity issues are observed among these variables. The regression coefficient for Int2 and the dependent variable is 0.130,  $\beta$  value = 0.098, t value = 1.328, and the p value > 0.05, indicating a nonsignificant relationship between the interaction effect and the dependent variable. Consequently, the moderating effect is not supported, suggesting that gender does not act as a moderator between personalization and customer satisfaction. These findings are reported in Table 13. In conclusion, the correlation between web design, personalization, and customer satisfaction remains independent of gender as a moderating variable. However, gender holds the capacity to regulate the impact of customer satisfaction and responsiveness. This underscores the need for further research to explore the potential influence of responsiveness on customer satisfaction and to comprehend the intricate relationship existing in numerous industrial settings between responsiveness and customer satisfaction (Chen et al., 2021).

Tuble 10. Interaction Deriveen najusiment Variables and Tersonauzation.										
	Coefficients									
	Model	Unstandardized B	Std. Error	Standardized Coefficients Beta	t	Sig.(p-Value)	Collinearity Tolerance	Statistics VIF		
1	(Constant)	4.14	0.05		89.81	< 0.001				
	Z score (Personalization)	0.30	0.04	0.59	7.39	< 0.001	0.98	1.03		
	Gender_Dummy	-0.06	0.10	-0.05	-0.60	0.551	0.98	1.03		
2	(Constant)	4.14	0.05		90.00	< 0.001				
	Z score (Personalization)	0.27	0.05	0.54	5.91	< 0.001	0.76	1.32		
	Gender_Dummy	-0.08	0.010	-0.07	-0.86	0.39	0.94	1.07		
	Int3	0.13	0.10	0.12	1.33	0.19	0.73	1.38		
	a. Dependent Variable: Customer Satisfaction									

Table 13. Interaction Between Adjustment Variables and Personalization.

# **Conclusion and Recommendation**

### **Summary of Research Results**

At a 0.001 significance level, data analysis affirms the substantial impact of web design on customer satisfaction, supporting hypotheses H1 and H3. The Beta coefficient for web design is 0.491, signifying a modest positive effect on customer satisfaction. With a t-value of 4.958 and a p-value < 0.001, the coefficient is statistically significant. Within e-commerce service quality dimensions, web design stands out as the most influential factor on customer satisfaction, correlating at 0.49. This aligns with Wolfinbarger and Gilly (2003) assertion that web design plays a crucial role in customer satisfaction and loyalty, particularly in China's e-commerce landscape. A well-designed website, addressing speed, usability, and cultural nuances, plays a pivotal role in engaging consumers and fostering brand loyalty (Atiyah, 2017; Santos, 2003). In conclusion, web design significantly and positively influences customer

satisfaction, as hypothesized.

Contrary to prior studies emphasizing the impact of responsiveness on customer satisfaction, this research reveals distinct findings. The responsiveness standardized coefficient (Beta) is merely 0.05, indicating a very weak positive effect. The t-value (0.52) and p-value (0.61) further indicate a lack of statistical significance for this coefficient. These results challenge established literature, such as Wang et al. (2022), which observed a significant positive impact of responsiveness on customer satisfaction. This discrepancy underscores the complexity of this relationship, suggesting the involvement of other influential factors. In conclusion, hypothesis 2, proposing a significant positive influence of responsiveness and customer satisfaction relationship, emphasizing the potential role of other factors. This discrepancy underscores the need for additional research to comprehend the nuanced interplay between responsiveness and customer satisfaction in diverse industry contexts.

The study confirms the substantial impact of personalization on customer satisfaction at a significance level of 0.001, aligning with H3. Personalization demonstrates a modest positive effect with a standardized coefficient (Beta) of 0.21. The statistical significance is reinforced by a t-value of 2.058 and a p-value of 0.042, indicating a noteworthy positive influence. This aligns with the competitive dynamics of China's online apparel market, where personalized experiences play a crucial role. Ma et al. (2023) research emphasizes personalization's impact on purchase intentions, and the Nielsen (2019) Report reveals global consumer willingness to pay more for personalized shopping. The study underscores personalized service's critical role in elevating customer satisfaction in China's online apparel market, emphasizing the strategic value of tailored recommendations for loyalty and engagement in a saturated market. In conclusion, the research supports the hypothesis that personalization significantly and positively influences customer satisfaction.

The study concludes that hypotheses H4a and H4c are not supported, indicating that gender does not moderate the influence of web design and personalization on customer satisfaction. However, H4b is supported, suggesting that gender moderates the influence of responsiveness on customer satisfaction. This finding is theoretically supported by previous research highlighting gender's role in regulating e-service quality and customer satisfaction. For instance, Royne Stafford et al. (2022) notes that women exhibit a higher cognition of various service quality elements compared to men. Despite the validation of the moderating effect of gender on the influence of responsiveness on customer satisfaction, the limited sample size and gender bias among respondents may contribute to deviations. The study acknowledges the need for a larger, more diverse sample to obtain robust results. Additionally, the prominence of female respondents might overlook male perspectives, and the independent variable's stimulus intensity is constrained.

The researchers propose a modification in the measurement scale for gender and consumer sentiment from a five-point to a seven-point scale. This adjustment is deemed necessary to capture subtle nuances more effectively. The aforementioned considerations constitute the primary factors contributing to the non-support of the gender hypothesis in relation to the interaction between web design, personalization, and customer satisfaction. Future research endeavours should take into account these nuances and methodological refinements to enhance the validity of the investigation.

### **Research Implications Theoretical Significance**

This study significantly contributes to the theoretical understanding of customer satisfaction determinants in China's online apparel industry. It underscores the importance of e-service quality dimensions, aligning with prior research and expanding the scholarly discourse within the unique context of China's online apparel market. The exploration deepens comprehension of interconnected influences and provides a practical application for established theories, validating their adaptability in diverse contexts. This research enhances theory-building and sets the stage for further academic investigations.

### **Practical Significance**

This study holds considerable practical significance by highlighting the impact of web design and personalization on elevating customer satisfaction, providing actionable insights for businesses to optimize their online strategies. Emphasizing the importance of user-friendly, visually appealing websites, companies can enhance the overall customer experience. Implementing personalized recommendations contributes to a sense of value among customers. Recognizing gender differences, businesses can tailor communication and service strategies to improve effectiveness. While responsiveness was found to not significantly influence satisfaction, maintaining a positive customer experience remains crucial. Timely responses and addressing concerns are vital for building trust. Enhancing these e-service quality dimensions can create a more positive online shopping experience, fostering loyalty and boosting business success in the dynamic e-commerce landscape.

#### **Research Limitations**

Despite meticulous design, this study has inherent limitations. Firstly, Geographical Restriction: Focusing on Guizhou, China, may constrain generalizability to the broader Chinese online apparel e-marketplace (Lueprasert et al., 2021). Secondly, Gender Imbalance: Overrepresentation of women in survey responses may impact research outcomes, neglecting insights from male respondents (Li et al., 2021). Thirdly, the study spans a relatively short 3 to 4 months, potentially limiting insights into long-term customer satisfaction factors (Wang et al., 2022). Lastly, reliance on quantitative methods, while ensuring robustness, may overlook the nuanced experiences of online apparel shoppers. Future research might adopt a hybrid approach incorporating both quantitative and qualitative methodologies for a comprehensive understanding (Ma et al., 2021).

### **Recommendations for Future Research**

E-commerce service quality significantly influences customer satisfaction and repurchase intentions. Web design and personalization are key dimensions affecting satisfaction levels (Xu et al., 2021) Future research should address limitations by expanding geographically, comparing different regions and countries (Hu et al., 2023). Longitudinal studies over multiple years can capture evolving trends in customer satisfaction (Yang et al., 2023). A mixed-methods approach, incorporating qualitative data from interviews or focus groups, will enrich understanding of service quality dimensions (Arkas et al., 2023).

#### Conclusion

This research aimed to explore factors affecting customer satisfaction in China's online apparel e-marketplace, specifically focusing on web design and personalization. Carried out in Guizhou, China, the study surveyed 108 online shoppers following a pilot test to ensure feasibility and reliability. Statistical analyses, including variance analysis, linear regression, beta coefficients, and hypothesis testing, were employed. The findings supported hypotheses 1 and 3, establishing web design and personalization as independent variables influencing customer satisfaction. Unfortunately, hypothesis 2 was not substantiated. Assuming acceptance of H4b, gender moderates the influence of responsiveness on customer satisfaction. Despite geographic limitations, this study significantly contributes to existing knowledge and guides future research directions. Identified limitations underscore the necessity for broader investigations into customer satisfaction factors. In conclusion, the study strengthens the theoretical foundation of China's online apparel e-marketplace and provides valuable insights for e-commerce enterprises, highlighting the pivotal role of web design and personalization in enhancing customer satisfaction.

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