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The Influencing Factors of Artificial Intelligence Improving Chengdu Consumer Satisfaction in Apparel Industry

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Abstract: *The apparel industry in Chengdu is transforming significantly due to integrating artificial intelligence (AI) technologies. This evolution aims to enhance consumer satisfaction by providing personalized shopping experiences, improving inventory management, and streamlining the supply chain. AI-driven algorithms analyze consumer behavior and preferences, allowing retailers to create tailored recommendations that align with individual tastes. Additionally, AI tools enable efficient inventory management by predicting trends and consumer demand, which helps reduce instances of overstock and stockouts. This optimization improves operational efficiency and ensures customers can find their desired products when visiting stores or online. This study was conducted through an online questionnaire distributed to 376 Chengdu participants to measure their attitudes toward AI improvement in the apparel industry. The findings underscore that innovative technology, perceived information quality, and perceived customization correlate with consumer satisfaction in AI experience improvement.*

Keywords: *Artificial Intelligence, Customer Satisfaction, Apparel Industry*

1. INTRODUCTION

The apparel industry in China is undergoing a notable transformation, primarily influenced by advancements in artificial intelligence (AI). This transformation involves the integration of AI technologies across various aspects of the industry, from production processes to consumer engagement (Wirtz & Zeithaml, 2018). Chinese companies are progressively adopting AI to enhance operational efficiency, reduce costs, and improve product quality. For example, AI- driven robots now execute tasks like sewing and cutting fabric highly, increasing productivity and minimizing defects in finished products. Moreover, AI is crucial in analyzing market trends and consumer preferences. By leveraging extensive datasets, AI algorithms can accurately forecast fashion trends and consumer demands, enabling designers and manufacturers to respond swiftly to market changes (Huang & Rust, 2018). This capacity is a sophisticated tool that empowers businesses to maintain a competitive advantage by aligning their offerings with consumer expectations. In addition to enhancements in production processes, AI is also revolutionizing customer engagement within the apparel sector. Retailers are utilizing AI- powered chatbots and virtual assistants to provide personalized shopping experiences, ultimately improving customer satisfaction and fostering brand loyalty (Solimun & Fernandes,2018). These technologies facilitate tailored recommendations and offer real-time support, resulting in a more interactive and enjoyable shopping experience for consumers. As the Chinese market continues to embrace

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e-commerce and digital platforms, the integration of AI is enhancing operational efficiency and driving innovation in customer engagement (Khan et al., 2022). This evolution paves the way for China's more competitive and consumer-centric apparel industry. AI is poised to play a pivotal role in shaping the future of fashion retail.

Research Objectives

This study explores AI improving Sichuan consumer satisfaction in the apparel industry in Chengdu with the following objectives:

1. To examine the influencing mechanisms of AI improving Chengdu consumer satisfaction in the apparel industry based on innovative technology, perceived information quality, and perceived customization.
2. To offer suggestions for the apparel industry using AI to improve consumer satisfaction by enhancing operations by optimizing design processes, quality control, and customer experience.

2. THEORETICAL FOUNDATION

Definition of The Service Quality Model

The Service Quality Model, which emphasizes reliability, responsiveness, assurance, empathy, and tangibles, can effectively be utilized to comprehend how artificial intelligence (AI) enhances these factors within the apparel industry. AI technologies optimize operations, thereby improving both product availability and quality reliability. For example, AI-driven predictive analytics facilitate more accurate demand forecasting, enabling manufacturers to maintain optimal inventory levels, thus minimizing stockouts or overstock situations. Responsiveness represents another essential dimension to which AI significantly contributes. AI-powered chatbots and virtual assistants enhance customer service by responding immediately to inquiries and facilitating smoother interactions throughout the shopping process. Assurance, which pertains to consumers' confidence in the provided service, is strengthened by AI through personalized shopping experiences. By systematically analyzing customer feedback and preferences, AI systems can assist retailers in better understanding consumer requirements and adjusting their offerings accordingly. This heightened responsiveness to consumer sentiment can significantly enhance overall satisfaction (Li et al., 2024).

Definition of Expectation Confirmation Theory (ECT)

The Flow Theory Model underscores the significance of achieving a state of complete immersion and engagement in an activity and has the potential to enhance consumer satisfaction within the apparel industry through innovations in artificial intelligence (AI) in

China. This model posits that when consumers enter a state of flow during their shopping experience, they are more inclined to enjoy the process, which leads to increased satisfaction and loyalty. For instance, AI algorithms can effectively analyze consumer preferences and behaviors to deliver personalized recommendations, creating a more engaging and relevant shopping experience. This degree of personalization fosters a deeper connection between consumers and products, enhancing overall enjoyment and satisfaction. Furthermore, AI can optimize shopping by offering features such as virtual fitting rooms and augmented reality applications. These technologies enable consumers to visualize how clothing items will appear on them without physical try-ons, thereby mitigating the challenges frequently associated with online shopping. Integrating these advanced technologies into the shopping experience facilitates a heightened flow state as consumers become fully absorbed. The Flow Theory Model highlights the importance of cultivating an immersive and engaging shopping experience in the apparel industry (Bhandari & Rodgers, 2020).

Definition of Terms

1. Consumer satisfaction in the apparel industry, particularly with artificial intelligence (AI), is increasingly influenced by AI technologies' ability to enhance the shopping experience. AI plays a crucial role in personalizing interactions, which is a significant factor in consumer satisfaction. AI can provide tailored product recommendations that align with individual preferences and shopping behaviors by analyzing consumer data. This level of personalization makes consumers feel valued and understood, leading to a more enjoyable shopping experience (Cheng & Jiang., 2022).
2. Innovative technologies in the apparel industry that enhance consumer satisfaction through AI include several key advancements. One significant development is the implementation of advanced recommendation systems. These systems analyze consumer behavior and preferences, offering personalized product suggestions that align with individual tastes, thereby improving the shopping experience. Additionally, these technologies enable consumers to virtually try on clothing items, removing the uncertainty often associated with online shopping. This immersive experience boosts engagement and reduces return rates, ultimately contributing to overall customer satisfaction (Dubberly & Pangaro, 2023).
3. Perceived information quality to consumer satisfaction and AI in the apparel industry refers to how consumers evaluate the relevance, accuracy, and completeness of the information provided during their shopping experience. High-quality information contributes significantly to consumer satisfaction by enhancing their confidence in

purchasing decisions. When AI systems deliver accurate product recommendations, detailed descriptions, and reliable reviews, consumers feel more informed and empowered, which leads to a more positive shopping experience. AI technologies that analyze consumer preferences help ensure that the information presented is tailored to individual needs, increasing perceived quality (Bhagat et al., 2023).

4. Perceived customization in the context of consumer satisfaction related to artificial intelligence (AI) in the apparel industry refers to how consumers feel that products and services are tailored to their individual preferences and needs. This perception is greatly influenced by AI technologies that enable personalized shopping experiences. When consumers use AI- driven customization tools, such as virtual fitting rooms or design platforms, they often feel a sense of ownership and uniqueness regarding their purchases, which enhances their overall satisfaction. AI enhances perceived customization by analyzing consumer data, including past purchases, browsing behavior, and individual preferences. This analysis allows brands to offer personalized recommendations and options that closely align with each consumer's tastes (Chen et al., 2022).

Conceptual Framework

At the core of this framework lies innovative technology, specifically the integration of artificial intelligence (AI) across various facets of the apparel industry. This technology enhances consumer interactions by providing personalized experiences like customized product recommendations and virtual fitting rooms. By implementing AI tools, retailers can analyze consumer data proficiently, improving service delivery and operational efficiency (Dalle & Murzyn-Kupisz, 2021). Another essential element of the framework is perceived information quality, which pertains to the accuracy, relevance, and timeliness of the information presented to consumers via AI systems. High-quality information fosters consumer trust and confidence in the technology, positively impacting overall satisfaction. When consumers deem the information they receive valuable and reliable, they are more inclined to engage with the brand and make informed purchasing decisions (Abrardi et al., 2022).

Perceived customization closely relates to both innovative technology and information quality. It embodies the degree to which consumers perceive that products and services are tailored to their preferences and needs. AI technologies facilitate greater customization by analyzing consumer behavior and preferences, enabling brands to deliver personalized products and services. This perception of customization can significantly elevate consumer

satisfaction, as customers value brands' efforts to address their specific desires (Ameen et al., 2022). Consumer satisfaction serves as the outcome variable within this framework. It reflects consumers' overall contentment with their experiences in the apparel industry, particularly regarding AI technologies. The interplay among innovative technology, perceived information quality, and perceived customization ultimately influences consumer satisfaction (Allal-Cherif et al., 2021). When consumers encounter high-quality, personalized interactions enabled by AI, their satisfaction will likely increase, fostering brand loyalty and encouraging repeat purchases.

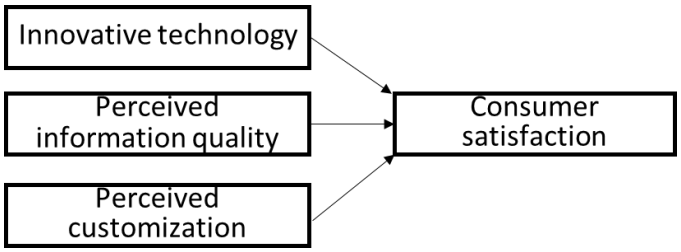

Figure 1. The Conceptual Framework

Research Restriction

One notable limitation in applying AI technologies within the Chengdu market is the lack of comprehensive consumer behavior and preferences data. The effectiveness of these technologies is heavily dependent on the availability of high-quality, localized data that accurately captures the unique characteristics of consumers in Chengdu. Additionally, there is a challenge posed by the varying levels of technological adoption among apparel retailers in the region. Not all companies possess the necessary resources or expertise to implement advanced AI solutions, leading to disparities in consumer experiences. This inconsistency may impede the overall effectiveness of AI in improving consumer satisfaction across the apparel industry.

3. RESEARCH HYPOTHESIS

The Correlation between Innovative Technology and Consumer Satisfaction

Numerous studies indicate a correlation between innovative technology and consumer satisfaction. This hypothesis asserts that consumer satisfaction levels will likely increase as retailers in Chengdu integrate advanced artificial intelligence technologies for personalized shopping experiences, operational efficiency, and enhanced service delivery. The rationale behind this hypothesis is that innovative technology enables improved customer interactions through personalized recommendations, efficient inventory management, and responsive

customer service. Consequently, when consumers benefit from such enhancements, their overall satisfaction with apparel brands is expected to improve. Moreover, the hypothesis can be further elaborated to suggest that the perceived effectiveness of innovative technology in addressing consumer needs is directly linked to their satisfaction levels. In summary, successfully implementing AI solutions within the apparel industry is anticipated to create a more satisfying shopping experience for consumers in Chengdu, promoting brand loyalty and encouraging repeat purchases (Naqvi et al., 2024).

H1 There is no positive correlation between innovative technology and consumer satisfaction for AI improvement in the Chengdu apparel industry.

The Correlation between Perceived Information Quality and Consumer Satisfaction

Recent studies indicate that higher perceived information quality, facilitated by advanced AI technologies, significantly impacts consumer satisfaction. When shoppers are provided with accurate, relevant, and timely information through sophisticated AI-driven platforms, their overall satisfaction with the shopping experience tends to increase substantially. This concept can be further elaborated to suggest that perceived information quality is crucial to implementing AI technology and consumer satisfaction. In essence, the effectiveness of AI in enriching the shopping experience heavily relies on the quality of the information made available. High-quality information enhances decision-making and empowers consumers, making them feel more confident in their purchases. Moreover, by consistently delivering valuable and trustworthy information, brands can foster a more profound sense of trust among consumers. This trust is vital as it leads to enhanced consumer satisfaction and loyalty, particularly within the competitive landscape of the Chengdu apparel market, where informed consumers are more likely to return to brands they believe in and value. Thus, investing in AI technologies and prioritizing information quality is essential for brands aiming to thrive and resonate with their audience (Suh, 2014).

H2 There is no positive correlation between perceived information quality and consumer satisfaction for AI improvement in the Chengdu apparel industry.

The Correlation between Perceived Customization and Consumer Satisfaction

It is proposed that a greater degree of perceived customization, empowered by advanced AI technologies, significantly enhances consumer satisfaction. When shoppers feel that their unique preferences and needs are thoughtfully addressed through tailored offerings, their overall satisfaction with the shopping experience will likely soar. Furthermore, this hypothesis can be expanded to suggest that perceived customization is a vital mediator between integrating AI technology and consumer satisfaction. This means that AI could

improve consumer satisfaction, which is closely linked to how consumers perceive the personalization of products and services to align with their specific desires and lifestyle choices. Ultimately, successfully implementing AI-driven customization strategies is expected to cultivate deeper consumer engagement and foster loyalty, significantly elevating satisfaction levels within the dynamic Chengdu apparel market. As consumers encounter shopping experiences that resonate with their tastes and preferences, they are more likely to become repeat customers, contributing to a thriving retail environment (Khan et al., 2021).

H3 There is no positive correlation between perceived customization and consumer satisfaction for AI improvement in the Chengdu apparel industry.

4. RESEARCH METHODS

Population and Sample

This research population comprises Chengdu and China and focuses on improving artificial intelligence in the apparel industry. In October 2024, the WeChat Survey Platform collected a sample 376 for this study's analysis.

This study's minimum research sample size is based on the study of Das et al. (2016)

1. The margin of error (confidence interval) – 95%
2. Standard deviation 0.5
3. 95% - Z Score = 1.96
4. Sample size formula = (Z-score) ^{2} * Std Dev*(1-StdDev) / (margin of error) ^{2}
5. (1.96) ^{2} x 0.5(0.5) / (0.05) ^{2}
6. (3.8416 x 0.25) / 0.0025
7. 0.9604 / 0.0025 = 384
8. 384 respondents would be needed for this study based on a confidence level of 95%

5. RESEARCH MODEL

Correlation Analysis

Correlation analysis is widely used to measure the degree of association between different variables. The Pearson correlation coefficient is commonly used to test the correlation. The value of the correlation coefficient (r) indicates the strength of the correlation between variables, while the significance level of the correlation is shown in the P-value.

Table 1. Correlation Coefficient Classification

Correlation coefficient r	Degree of relevance
$\|r\| = 1$	Totally correlated
$0.70 \leq \|r\| < 0.99$	Highly correlated
$0.40 \leq \|r\| < 0.69$	Moderately correlated
$0.10 \leq \|r\| < 0.39$	Low correlation
$\|r\| < 0.10$	Weak or unrelated

Correlation Analysis of Innovative Technology and Consumer Satisfaction

The correlation coefficient r between innovative technology and consumer satisfaction is 0.785, and P=0.001 is less than 0.01. Thus, innovative technology significantly correlates with consumer satisfaction.

Table 2. Correlation analysis results between innovative technology and consumer satisfaction

	Innovative Technology
Consumer Satisfaction	1
Sig. (1-tailed)	
Innovative Technology	.785**
Sig. (2-tailed)	(.001)

Correlation Analysis of Perceived Information Quality and Consumer Satisfaction

The correlation coefficient r between perceived information quality and consumer satisfaction is 0.813, and P=0.002 is less than 0.01. Thus, perceived information quality significantly correlates with consumer satisfaction.

Table 3. Correlation analysis results between perceived information quality and consumer satisfaction

	Perceived Information Quality
Consumer Satisfaction	1
Sig. (1-tailed)	
Perceived Information Quality	.813**
Sig. (2-tailed)	(.002)

Correlation Analysis of Perceived Customization and Consumer Satisfaction

The correlation coefficient r between perceived customization and consumer satisfaction is 0.792, and P=0.006 is less than 0.01. Thus, perceived customization significantly correlates with consumer satisfaction.

Table 4. Correlation analysis results between perceived customization and

Consumer Satisfaction

	Perceived Customization
Consumer Satisfaction	1
Sig. (1-tailed)	
Perceived Customization	.792**
Sig. (2-tailed)	(.006)

6. CONCLUSIONS

Research Results

Integrating AI technologies has transformed how consumers engage with brands, enhancing shopping experiences. AI-driven personalized recommendations and tailored marketing strategies have been shown to elevate consumer engagement, fostering a sense of value and understanding among shoppers. This level of personalization cultivates a deeper emotional connection between consumers and brands, which is essential for developing brand loyalty (Cheng & Jiang, 2020). Furthermore, AI contributes to operational efficiency by optimizing inventory management and streamlining supply chains. Such efficiency guarantees that consumers have access to desired products, thereby facilitating timely delivery and improving service quality. Consequently, consumers are more likely to report satisfaction with their shopping experiences, which directly correlates with their brand loyalty. The application of AI in customer service, mainly through chatbots and virtual assistants, has also proven instrumental in promptly addressing consumer inquiries and concerns (Guo & Luo, 2023). This promptness enhances the overall customer experience; when consumers perceive that their needs are addressed swiftly and effectively, their likelihood of returning to the brand increases, reinforcing brand loyalty. AI's impact on consumer satisfaction and loyalty in Chengdu's apparel industry is evident through personalized experiences, enhanced service quality, and improved operational efficiency. Collectively, these factors contribute to a more satisfying shopping experience, encouraging consumers to maintain their loyalty to their preferred brands.

H1 There is a positive correlation between innovative technology and consumer satisfaction for AI improvement in the Chengdu apparel industry.

H2 There is a positive correlation between perceived information quality and consumer satisfaction for AI improvement in the Chengdu apparel industry.

H3 There is a positive correlation between perceived customization and consumer satisfaction for AI improvement in the Chengdu apparel industry.

Managerial Implications:

The managerial implications of AI and consumer satisfaction in the apparel industry in Chengdu are significant and multifaceted. As AI technologies evolve and become integrated into retail operations, managers must recognize how important it is to leverage these tools to enhance consumer experiences and drive satisfaction. One key implication is that apparel retailers must invest in AI-driven personalization strategies. By utilizing AI algorithms to analyze consumer data, retailers can offer tailored recommendations and customized shopping experiences that align with individual preferences. This level of personalization enhances consumer satisfaction and fosters brand loyalty, as customers are more likely to return to brands that understand and cater to their unique needs. Additionally, the quality of information provided through AI systems is crucial. Retailers must ensure that the data presented to consumers is accurate, relevant, and timely. High-quality information enhances the shopping experience, making consumers more confident in their purchasing decisions. Managers should prioritize developing and maintaining robust AI systems, consistently delivering this information quality. Moreover, implementing AI technologies can streamline operations and improve service efficiency. For example, AI can optimize inventory management and enhance supply chain processes, ensuring that popular items are readily available to consumers. This operational efficiency meets consumer demand and contributes to overall satisfaction by reducing wait times and improving product availability.

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