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Exploring Determinants of Second-Hand Apparel Purchase Intention and Word of Mouth: A Stimulus–Organism–Response Approach

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Abstract: The U.S. second-hand clothing industry is experiencing rapid growth, driven by increasing environmental awareness among consumers. However, there is a gap in understanding the driving forces behind this trend. This study aims to investigate the impact of external factors, including product quality, information quality, and service quality, on consumers' internal emotions and examines how these emotional states, encompassing hedonic value, utilitarian value, environmental value, functional risk, aesthetic risk, and sanitary risk, influence their purchase intentions and word-of-mouth recommendations. Data were collected from 448 consumers who have shopped for second-hand clothing through an online survey conducted on Qualtrics. Multiple regression was applied to test the hypotheses. The findings indicate that product quality, information quality, and service quality enhance consumers' perceived hedonic, utilitarian, and environmental values. Furthermore, service quality significantly reduces consumers' perceived risks in terms of functionality, aesthetics, and sanitation. Additionally, consumers' purchase intentions and word of mouth regarding second-hand clothing are positively influenced by their perceived hedonic, utilitarian, and environmental values. This research enriches the understanding of consumer behavior in the second-hand marketplace and offers insightful implications for retailers and marketers in the second-hand clothing industry.

Keywords: second-hand clothing; sustainable fashion consumption; perceived value; perceived risk; purchase intention; WOM; U.S. consumers

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1. Introduction

Fast fashion continues to dominate the market in the United States, evidenced by the annual consumption of 100 to 150 billion new clothing items [1,2]. Positioned as the second-largest contributor to environmental pollution, the fashion industry generates substantial negative environmental impacts throughout a product's entire lifecycle, from raw material extraction to product disposal [3,4]. The fashion industry is responsible for 8 to 10 percent of global carbon emissions, up to 20 percent of industrial water waste, and up to 35 percent of the microplastic pollution in oceans [5]. Moreover, the accumulation of post-consumer textile waste presents a significant challenge. Recent data from the U.S. Environmental Protection Agency (EPA) indicate that only 2.5 million tons of textiles were recycled, while landfills received 11.3 million tons of textiles in 2018 [6].

Due to these negative impacts of fast fashion consumption, an effective way to promote sustainability in the fashion industry is through purchasing second-hand clothing. In recent years, the number of second-hand shoppers has increased as consumers recognize the harmful effects of fast fashion and turn to second-hand fashion products [7]. The second-hand clothing industry is expanding at a rapid rate, driven by consumer demand for affordably priced clothing [7,8]. In 2021, the second-hand and reseller market was valued at USD 96 billion, and this value is projected to reach USD 218 billion by 2026 [9]. Additionally,

during and after the COVID-19 pandemic, consumers sought alternative shopping options as household savings dropped [10]. In 2021, the average online second-hand clothing shopper in the United States spent around USD 340, and this amount is estimated to increase to USD 788 per buyer by 2025 [11].

The expansion of the second-hand market necessitates further scholarly research to understand the driving forces behind this phenomenon and to study the consumption patterns associated with second-hand clothing comprehensively. Therefore, the purpose of this research is to explore the impact of external factors such as product quality, information quality, and service quality on the emotional states of consumers and how consumers' perceived values and risks influence their purchase intentions and their likelihood to recommend products through word of mouth (WOM). Specifically, the objectives of this study are as follows: (1) to investigate the rise in second-hand clothing consumption among U.S. consumers; (2) to enhance comprehension of the Stimulus–Organism–Response (S-O-R) framework by identifying the specific stimuli and organisms within the context of second-hand consumption, as the model examines how external stimuli (e.g., product quality, information quality, and service quality) affect consumers' internal organism (e.g., hedonic value, utilitarian value, environmental value, functional risk, aesthetic risk, and sanitary risk), which in turn shapes their behavioral responses (e.g., purchasing intentions and word of mouth); (3) to test the proposed model through an analysis of data obtained from an online survey of U.S. consumers; and (4) to provide insightful recommendations for second-hand retailers and marketers. By understanding these dynamics, these entities can more effectively cater to their consumers' needs and preferences.

2. Literature Review

2.1. Second-Hand Clothing Industry

Second-hand clothing is defined as an item that has been previously owned and used by at least one individual [12]. Historically, buying second-hand goods was seen as a sign of low social status and an economic necessity for individuals in need [13]. However, today, individuals from all social classes shop second-hand as consumers in higher social classes seek exclusive items [14]. The second-hand clothing market has been growing exponentially. In North America, the growth rate of the second-hand apparel market is projected to be eight times faster than that of the overall apparel market [15], highlighting that the second-hand market is increasingly becoming valuable to both consumers and businesses.

Purchasing second-hand clothing extends the product's lifetime and minimizes the negative environmental impacts from the production to the consumption stages [13]. This practice also addresses the critical problem of textile waste, which is one of the main challenges in the fashion industry. Recent data from 2018 revealed that textiles are discarded into landfills at a rate 4.5 times higher than their recycling rate within the fashion industry [6]. Moreover, second-hand consumption supports circular economy practices by prolonging the active use of clothing. This could potentially reduce environmental impacts, including water waste and carbon emissions, by 20 to 30 percent [16].

2.2. Stimulus–Organism–Response (SOR) Model

The Stimulus–Organism–Response (SOR) model serves as the theoretical foundation for this study. First introduced by Mehrabian and Russell in 1974, this framework was derived from the theory of environmental psychology [17]. The stimulus (S) refers to external elements in the environment, while the organism (O) refers to an individual's internal processes [18]. The response (R) is the action taken, signifying the behavioral outcome influenced by the organism variable. This theory suggests that unique environmental factors affect people's internal feelings and emotions, which ultimately shape their behaviors [17]. In other words, people may either avoid or approach certain environmental stimuli, which will influence their cognitive state [17]. Consequently, an individual's emotional state influences their behavior or response [19]. Over the decades, the S-O-R (Stimulus–Organism–Response) framework has been utilized as a guide for academic re-

search to understand consumer behaviors related to sustainable fashion consumption. This includes areas such as fashion rental services [20], environmentally friendly apparel [21], and used apparel donation behavior [22]. Due to its comprehensive approach to capturing the relationship between environmental stimuli, internal psychological processes, and consumer behavior, the S-O-R framework was adopted by this research to examine second-hand clothing consumption.

2.3. Stimulus: Product Quality, Information Quality, Service Quality

This study examined three stimuli: product quality, information quality, and service quality. Product quality is defined as the degree to which a product meets or exceeds consumers' expectations for its intended use [23]. Common indications of poor product quality include sizing discrepancies, material flaws, and undesirable odors [16]. In the context of the second-hand clothing industry, product quality can be evaluated based on the product's age and the attributes of its previous owner [23]. Information quality is a key factor in consumer understanding and decision-making regarding a product or service. It consists of aspects such as accuracy, completeness, relevance, and timeliness [24]. Information is considered of high quality if it aligns with the consumer's specific requirements [25]. This information includes product images, descriptions, and conditions of use [26]. Service quality is a measure of how well a company's services align with or exceed customer expectations [27]. It plays a significant role in determining consumers' choice of second-hand stores. Service quality is typically evaluated based on the standard of customer service offered [28]. Key elements of customer service include personal interactions with staff, the reliability of retailers or their staff, the speed and efficiency of problem-solving, and the established service policies such as store hours, product warranties, and parking facilities [29–31].

2.4. Organism: Perceived Values and Risks

2.4.1. Perceived Hedonic Value

Perceived hedonic value is defined as beneficial, entertaining, and a form of escapism [32]. Hedonic values are typically personal and unique to each individual, reflecting the emotional aspects of consumer behaviors such as pleasure and excitement [33]. Han et al. [34] found that product quality significantly influenced consumers' perceived hedonic value and purchase intentions. High-quality second-hand items can provide a sense of exclusivity and carry a history that enhances a consumer's pleasure of ownership. For many consumers, the process of hunting for high-quality second-hand items contributes to their overall enjoyment of the shopping experience [35]. In addition, information about the history of a second-hand item can create an emotional narrative, adding to consumers' overall satisfaction and pleasure. Kim et al. [36] indicated that offering a variety of detailed information about products can increase consumers' hedonic values. Moreover, perceived hedonic value can be enhanced by providing positive retail performance and high-quality websites [37]. Michon et al. [38] and Wang [39] also found that high service quality generated positive emotions and played a critical role in shaping consumers' hedonic values. Therefore, the following hypothesis was proposed:

H1. *Product quality (a), information quality (b), and service quality (c) enhance U.S. consumers' perceived hedonic value toward second-hand clothing consumption.*

2.4.2. Perceived Utilitarian Value

Perceived utilitarian value is defined as an overall assessment of a product's functional benefits [40]. Utilitarian shoppers prioritize completing their shopping tasks quickly and at minimum cost and tend to make rational purchasing decisions based on their needs [41]. Previous research has suggested that product quality positively affects shoppers' perceived utilitarian values and plays an important role in shaping consumers' shopping behavior [34,42]. Goal-oriented consumers are more likely to search for product information

thoroughly before purchasing. Accurate and comprehensive information allows consumers to find items that meet their needs and requirements. With the rise of online shopping, previous literature has emphasized the critical role of information quality in influencing consumers' online purchasing behavior. For example, Chen et al. [43] discovered that information quality had a positive impact on the utilitarian value of online shoppers. Apart from information quality, quick and efficient service also enhances the perceived utilitarian value for buyers. According to Kim et al. [36], quickness and responsiveness are the two factors that contribute to the positive relationship between service quality and consumers' perceived utilitarian values. Quickness refers to how quickly a product is shipped to consumers, while responsiveness focuses on the ease of product returns. Therefore, the following hypothesis was proposed:

H2. *Product quality (a), information quality (b), and service quality (c) enhance U.S. consumers' perceived utilitarian value toward second-hand clothing consumption.*

2.4.3. Perceived Environmental Value

According to Kim et al. [3], perceived environmental value is the perceived benefits that consumers obtain from selecting products that have a positive impact on the environment. Consumers who have high levels of environmental value exhibit a strong interest in environmental issues and prioritize environmental protection as a moral value [35]. According to Chen et al. [44], improving product quality is necessary to enhance consumers' perceived environmental values. High-quality materials and construction methods can prolong the lifespan of a garment and promote a circular approach [45]. These products can circulate among multiple households, reducing the need for new products and preserving the environment. Additionally, Vehmas et al. [46] found that consumers want visible information about sustainable clothes and how their purchase behavior can affect the environment [14]. Accurate and detailed information about second-hand products builds transparency and trust and helps consumers make informed decisions that align with their environmental values. A high quality of service provided by second-hand retailers encourages more consumers to participate in the circular economy [45]. When customers experience reliable, efficient, and pleasant services, they are more likely to choose second-hand items over new ones. Therefore, the following hypothesis was proposed:

H3. *Product quality (a), information quality (b), and service quality (c) enhance U.S. consumers' perceived environmental value toward second-hand clothing consumption.*

2.4.4. Perceived Functional Risk

Perceived functional risk, also known as performance risk, is defined as the uncertainty and potential unfavorable outcomes associated with the consequence of a product not functioning as expected [47]. Consumers may worry about the durability and condition of second-hand clothing [16]. Higher product quality can reduce consumers' perceived risks when purchasing second-hand products. As the quality of a product improves, the perceived risk related to its performance decreases [28]. The quality of information provided about second-hand clothing also plays an important role in mitigating consumers' perceived functional risk [16]. According to Tsai and Yeh [48], higher information quality, such as detailed descriptions and accurate sizing information, leads to reduced perceived functional risks and increased consumer confidence, loyalty, and trust in their purchases. Furthermore, previous studies have explored the relationship between service quality and consumers' perceived risk related to product function and performance [49,50]. In the online context, improving website services in terms of efficiency, availability, and customer service can reduce consumers' perceived risks such as the need to return an item that does not meet expectations [49]. Therefore, the following hypothesis was proposed:

H4. *Product quality (a), information quality (b), and service quality (c) reduce U.S. consumers' perceived functional risk toward second-hand clothing consumption.*

2.4.5. Perceived Aesthetic Risk

Perceived aesthetic risk refers to the potential dissatisfaction or uncertainty a consumer might feel about the aesthetic aspects of a product before making a purchase. This risk is particularly related to clothing purchases that do not align with the consumer's self-image [51]. When purchasing second-hand clothing, consumers may worry about the color, size, fit, and overall style. They may also be concerned that the clothing has potential defects or has gone out of fashion [3]. High-quality products reduce perceived aesthetic risk as consumers feel confident about the durability and appearance of the clothing. In addition, consumers expect clear, consistent, and concise information about product descriptions and images. According to McCoy and Chi [52], information quality on the fashion company's website enhances consumers' satisfaction. Consumers depend on high-quality information such as comprehensive product details, precise sizing charts, and detailed product images when purchasing second-hand clothing. Unclear or misleading information increases consumers' perceived aesthetic risk as they are unsure of what they will receive. Moreover, good service quality assures consumers that they can seek help if the product does not meet their aesthetic expectations, thus lowering perceived risk. Therefore, the following hypothesis was proposed:

H5. *Product quality (a), information quality (b), and service quality (c) reduce U.S. consumers' perceived aesthetic risk toward second-hand clothing consumption.*

2.4.6. Perceived Sanitary Risk

Perceived sanitary risk is defined as the perception of anxiety that might harm one's life or health [3]. Many consumers perceive second-hand clothes as not being clean and likely to have stains or dirt [16]. Other concerns regarding second-hand clothing include hygiene, persistent odors, and potential health hazards [35]. Second-hand clothes that have been thoroughly cleaned and well-maintained could significantly reduce consumers' sanitary concerns. Moreover, the more detailed and reliable the information provided, the fewer risks consumers may perceive [20]. By offering complete and transparent information about a garment's history such as previous usage, cleaning, and maintenance history, consumers can better assess the overall hygiene level of the items. Additionally, Chen and Chen [50] revealed that service quality had a negative impact on consumers' perceived risk, which negatively affected their repurchase intentions. Quality control services like professional cleaning before sale, clear return policies, and responsive customer support could alleviate consumer concerns related to health and hygiene. Therefore, the following hypothesis was proposed:

H6. *Product quality (a), information quality (b), and service quality (c) reduce U.S. consumers' perceived sanitary risk toward second-hand clothing consumption.*

2.5. Behavioral Response: Purchase Intention and Word of Mouth (WOM)

2.5.1. Purchase Intention

Perceived hedonic value was identified as the most influential factor for second-hand purchase intentions in the United States [35]. Hur [16] and Bly et al. [53] confirmed that the consumption of second-hand products was directly linked to consumers' hedonic values. In contrast, consumers who perceive a high level of utilitarian values focus on evaluating the functionality of products and analyzing product and seller information based on their needs [54]. Jiao [26] noted that utilitarian consumers spent time and money shopping for second-hand products to find items for specific occasions or purposes. Similarly, Kim et al. [36] discovered that consumers who perceived high utilitarian values were more likely to maintain repurchasing intentions, as they shopped with a specific goal in mind.

In addition, consumers who highly value the environment are more inclined to engage in behaviors that benefit the environment [7]. These consumers believe that by buying and wearing second-hand products, they could reduce garment waste and address the current environmental issues [55]. Other research also revealed that perceived environmental value was a critical predictor of purchase intention for second-hand clothing [3,13,56]. Therefore, the following hypothesis was proposed:

H7. *Perceived hedonic value (a), perceived utilitarian value (b), and perceived environmental value (c) positively affect U.S. consumers' purchase intention toward second-hand clothing.*

According to Hur [16], consumers were reluctant to purchase second-hand clothing due to a combination of perceived risks. Functional risks have consistently impacted consumer behavior in the second-hand clothing market [57]. Unlike brand-new items, second-hand clothing tends to wear out more quickly, and its style or color can be easily damaged after washing. Other uncertainties of second-hand clothing include its condition, longevity, and whether it has been properly maintained by the previous owners [57]. Additionally, consumers perceive a lack of diversity in color, size, and style in second-hand clothing, finding it challenging to match these pieces with other items in their wardrobe [3,20]. This perception further prevents them from purchasing such products. Sanitary risk is another factor that affects consumers' willingness to purchase second-hand clothing [58]. Unlike other products, clothing directly touches the skin, leading consumers to have reservations about sanitary conditions and concerns about unknown diseases [59]. Kim et al. [3] noted that both aesthetic and sanitary risks negatively impacted consumer attitudes and purchase intentions towards second-hand clothing. Similarly, Koay et al. [58] also identified aesthetic risk as a significant predictor of consumers' intention to buy second-hand clothing. Therefore, the following hypothesis was proposed:

H8. *Perceived functional risk (a), perceived aesthetic risk (b), and perceived sanitary risk (c) reduce U.S. consumers' purchase intention.*

2.5.2. Word of Mouth

Word of mouth (WOM) is defined as a recommendation of a product or service to others that requires no financial costs [3]. Previous research has found that consumers who experience a strong sense of enjoyment were more inclined to share information about products or certain brands with friends and family. In Kim et al.'s [3] study, consumers with positive and enjoyable shopping experiences tended to have stronger attitudes toward products and higher intentions to engage in word-of-mouth communications about those products. Consumers' perceived utilitarian value also influences their word-of-mouth recommendations. When consumers experience a high utilitarian value in a product, they are more likely to recommend it based on their positive experiences. Conversely, consumers experiencing low utilitarian value are less inclined to recommend such products, which could result in negative word of mouth [20]. Moreover, consumers are more likely to share their beliefs and experiences with others and promote second-hand clothing if they incorporate eco-friendly practices into their daily lives. According to Salem and Alanadoly [60], consumers who place a high value on environmental issues are more likely to engage in conversations about sustainable practices. Therefore, the following hypothesis was proposed:

H9. *Perceived hedonic value (a), perceived utilitarian value (b), and perceived environmental value (c) enhance U.S. consumers' WOM.*

Due to the potential perceived risks associated with second-hand clothing, consumers may be less willing to make purchases and less inclined to provide positive reviews or recommend these items to other potential buyers. As consumers' perceived risks increase, their likelihood of spreading positive word of mouth decreases, while negative word of

mouth tends to increase. When consumers purchase second-hand items that do not meet their expectations in terms of quality and functionality, they tend to share their negative experiences with others [20]. Second-hand clothing carries the risk of being out of style and not meeting the aesthetic standards of the buyer [55]. Consumers' disappointment over the style or appearance of second-hand clothing can lead to further negative word of mouth. Additionally, consumers are likely to share concerns about cleanliness and hygiene, which could discourage potential customers from purchasing second-hand clothing [61]. Negative word of mouth can quickly spread and harm the reputation and desirability of second-hand clothing markets. Therefore, the following hypothesis was proposed:

H10. *Perceived functional risk (a), perceived aesthetic risk (b), and perceived sanitary risk (c) reduce U.S. consumers' WOM toward second-hand clothing.*

Based on the literature review, a research model was proposed, as presented in Figure 1. This model suggests that three external factors (i.e., product quality, information quality, and service quality) impact consumers' internal states (i.e., perceived hedonic value, perceived utilitarian value, perceived environmental value, perceived functional risk, perceived aesthetic risk, and perceived sanitary risk). These internal states, in turn, shape consumers' behaviors, including purchase intention and their likelihood to engage in word-of-mouth promotion.

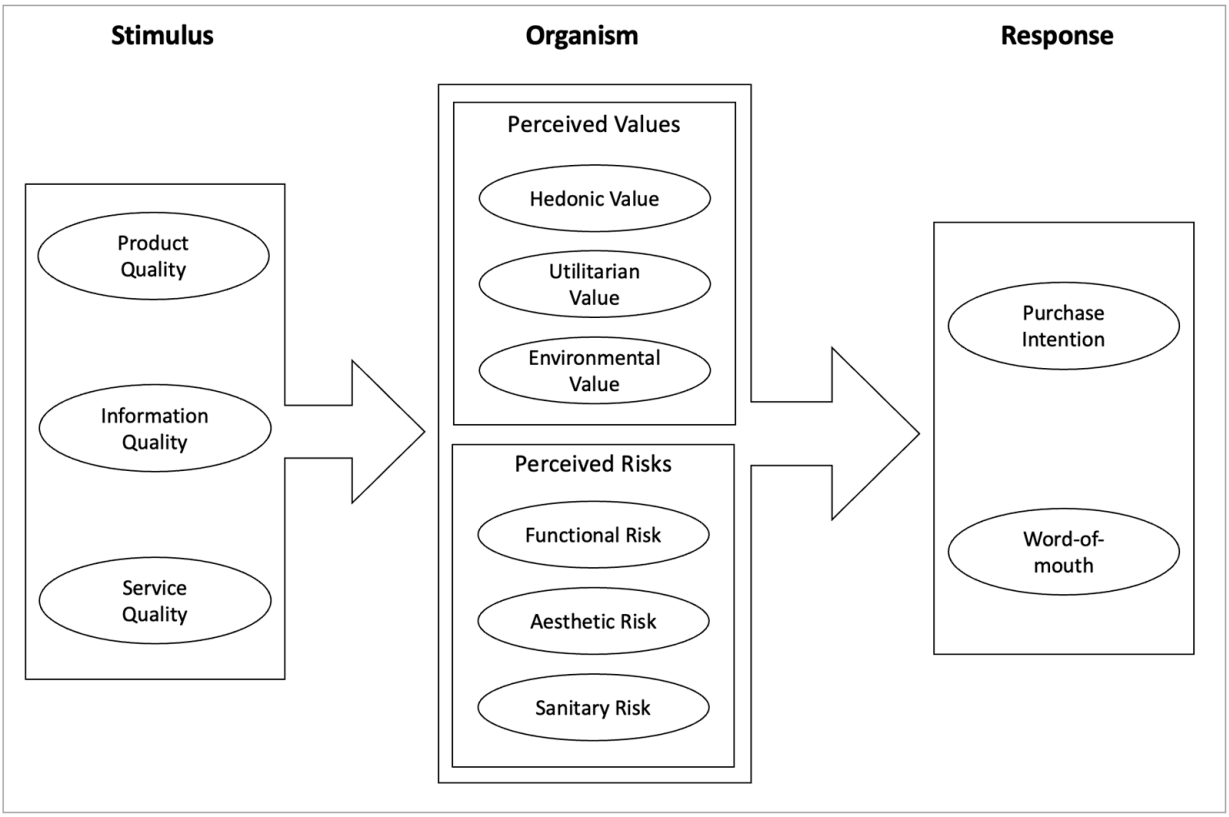

Figure 1. Proposed research model.

3. Methodology

3.1. Data Collection and Sample Profiles

Primary data were collected through an online survey developed on the Qualtrics platform and distributed using Amazon Mechanical Turk (MTurk). Amazon MTurk is a crowdsourcing website that allows researchers to recruit participants willing to perform micro-tasks with minimum effort [62]. Notably, the use of Amazon MTurk in management research increased by 2117% from 2012 to 2019 [63]. Amazon MTurk was selected for the

collection of data due to four main benefits: (1) diversity in participants, (2) easy access and quick results, (3) low costs, and (4) flexibility in research design [63].

Out of the initial 523 responses received, 448 were complete and thus retained for data analysis. All participants were based in the U.S., over 18 years old, and had previous experience with second-hand clothing purchases. Participants' demographic data are presented in Table 1. Among the 448 valid responses received, 280 participants identified as male (62.5%) and 168 as female (37.5%). The majority of participants were White/Caucasian (92.2%). The age of respondents ranged from 18 to 61 and above, with a majority (83.4%) between 18 and 45. Regarding employment, a significant portion were either self-employed (44.6%) or involved in private business (37.3%). Most participants held a bachelor's degree (63.8%) or a master's degree (26.3%). In terms of annual household income, most participants earned between USD 50,000 and USD 74,999 (28.1%), followed by between USD 35,000 and USD 49,999 (25.4%) and between USD 75,000 and USD 99,999 (14.3%).

Table 1. Profile of Survey Respondents.

	%		%
Gender		Annual Household Income	
Male	62.5%	Under USD 5000	0.4%
Female	37.5%	USD 5000 to USD 9999	5.1%
		USD 10,000 to USD 14,999	5.4%
Ethnicity		USD 15,000 to USD 24,999	8%
White/Caucasian	92.2%	USD 25,000 to USD 34,999	9.6%
Black/African American	4%	USD 35,000 to USD 49,999	25.4%
Asian American/Pacific Islander	1.1%	USD 50,000 to USD 74,999	28.1%
Latino/Hispanic	0.7%	USD 75,000 to 99,999	14.3%
Native American	2%	USD 100,000 to USD 149,999	2.9%
		USD 150,000 and more	0.8%
Employment Status			
Government	6%	Age	
Private business	37.3%	18–25	14.3%
Non-profit organization	6.3%	26–30	27.5%
Self-employed	44.6%	31–35	18.8%
Part-time	4.5%	36–40	11.4%
Unemployed	0.9%	41–45	11.4%
Retired	0.4%	46–50	6.9%
		51–55	4%
Education Level		56–60	3.3%
High School diploma	4.7%	61 and older	2.4%
Associate degree	4.2%		
Bachelor's degree	63.8%		
Master's degree	26.3%		
Doctorate	1.0%		

3.2. Survey Instruments

The survey is organized into four sections. First, a set of screening questions was used to determine whether potential participants were eligible to take part in the survey. The second section measured the following constructs: product quality, information quality, service quality, perceived hedonic value, perceived utilitarian value, perceived environmental value, perceived functional risk, perceived aesthetic risk, perceived sanitary risk, purchase intention, and word of mouth. These constructs were adapted from previous literature and were modified to better align with this study's objective (Table 2). Each construct was evaluated using a seven-point Likert scale, with 1 being "strongly disagree" and 7 being "strongly agree." The last section consisted of six demographic questions related to age, gender, ethnicity, educational level, occupation, and income level.

Table 2. Constructs and corresponding measurement items.

Constructs	Measurement Items and Scale	Cronbach's α	Source
Product Quality (PQ)	PQ1: Second-hand clothing is reliable. [0.755] PQ2: Second-hand clothing is dependable. [0.757] PQ3: Second-hand clothing is durable. [0.782] PQ4: The workmanship on second-hand clothing would be good. [0.764]	0.763	Sweeney et al. [64]
Information Quality (IQ)	IQ1: Second-hand retailers provide correct information about the items that I want to purchase. [0.729] IQ2: Overall, I think second-hand retailers provide useful information. [0.726] IQ3: Second-hand retailers provide timely information on their clothes. [0.741] IQ4: Second-hand retailers provide reliable information. [0.701] IQ5: Second-hand retailers provide sufficient information when I try to make a transaction. [0.729] IQ6: I am satisfied with the information that second-hand retailers provide. [0.706] IQ7: Overall, the information second-hand retailers provide is of high quality. [0.750]	0.850	Kim et al. [24]
Service Quality (SQ)	SQ3: Second-hand retailers provide flexible services that meet the demands of each individual customer. [0.700] SQ4: Second-hand retailers' staff (sales associates and customer service agents) are always available when needed. [0.701] SQ5: Second-hand retailers' environment is pleasant. [0.700]	0.636	Habibi and Rasoolimanesh [27]
Hedonic Value (HV)	HV1: I like wandering around second-hand retailers because I always hope I'll come across a real find. [0.739] HV2: [0.707] HV4: In certain second-hand retailers, I feel rather like a treasure hunter. [0.741]	0.643	Guiot and Roux [65]
Perceived Utilitarian Value (UV)	UV1: The products and services I purchase at second-hand retailers are always priced right and are good quality. [0.702] UV3: When second-hand shopping, I search just for the items I am looking for. [0.720] UV4: I am able to buy what I really need when second-hand shopping. [0.745] UV5: I am able to accomplish just what I want when second-hand shopping. [0.788]	0.749	Prashar et al. [66]
Perceived Environmental Value (EV)	EV1: Second-hand clothing helps save resources. [0.714] EV3: Second-hand clothing is environmentally friendly. [0.765] EV4: Second-hand clothing has more environmental benefits than other clothing. [0.806]	0.704	Yu and Lee [67]
Functional Risk (FR)	FR1: Second-hand clothing is not durable. [0.833] FR2: I won't be able to wear second-hand clothing for a long time. [0.844] FR3: Second-hand clothing is likely to wear out faster than general clothing. [0.827] FR4: Second-hand clothing is likely to damage its style or color if washed. [0.844]	0.857	Kim et al. [3]

Table 2. *Cont.*

Constructs	Measurement Items and Scale	Cronbach's α	Source
Aesthetic Risk (AR)	AR1: Second-hand clothing would not fit well because it does not vary in size. [0.882] AR2: Second-hand clothing does not vary in design. [0.875] AR3: Second-hand clothing would not reflect the latest trends in design or style. [0.837] AR4: Second-hand clothing would not be easy to coordinate with other clothing. [0.874]	0.890	Kim et al. [3]
Sanitary Risk (SR)	SR1: Second-hand clothing is unlikely to be clean. [0.873] SR2: Second-hand clothing is likely to have stains or dirt. [0.826] SR3: Second-hand clothing is unlikely to be hygienic. [0.875] SR4: Second-hand clothing would not be seen as a new products. [0.739]	0.849	Kim et al. [3]
Purchase Intention (PI)	PI1: I intend to buy second-hand clothes. [0.810] PI2: I plan to purchase second-hand clothes. [0.760] PI3: I will purchase second-hand clothes in my next purchase. [0.751]	0.665	Han et al. [68]
Word of Mouth (WOM)	WOM1: I want to introduce second-hand clothing to people around me. [0.780] WOM2: I am willing to recommend second-hand clothing to people around me. [0.772] WOM3: I want to tell others about the experience and feeling of wearing second-hand clothing. [0.781] WOM4: If someone asks me for advice on second-hand clothing, I would highly recommend it. [0.811]	0.793	Park and Choo [69]

3.3. Data Analysis

Exploratory factor analysis (EFA) with varimax rotation and principal axis extraction was conducted to test the constructs in the proposed model. Measurement items with low factor loadings, less than 0.70, were dropped [70]. Unidimensionality was met when one underlying construct accounted for the variation in examinee responses [71]. Before the individual hypotheses were tested, the reliability, convergent validity, and discriminant validity of each construct were tested to prove model adequacy. Cronbach's alpha was used to measure the reliability of the items, with values above 0.70 indicating good consistency and above 0.60 considered acceptable [72]. Convergent validity was valid when average variance extracted (AVE) scores for all constructs were above the desired threshold of 0.50 [73]. When the AVE score is compared to the squared correlation between the two constructs of interest, the AVE should be greater than the squared correlation in order to demonstrate satisfactory discriminant validity [74].

Once the adequacies of all constructs were demonstrated, a single score was obtained for each construct by averaging across the measurement items [52]. The normality assumption for each construct was examined using skewness and kurtosis, with normality being considered met when skewness fell within ± 2 and when kurtosis coefficients were within ± 3 [75]. Multicollinearity among predictor variables was evaluated using variance inflation factors (VIF). If a VIF is less than 10.0, the possibility of multicollinearity is ruled out [76]. Pearson correlation analysis was applied to examine the relationship between constructs. To avoid multicollinearity, the correlation coefficient value (r) should not exceed a value of 0.8 [72]. To test the proposed hypotheses, multiple regression analysis was conducted using SPSS 27.

4. Results and Discussion

4.1. Statistical Assumption Check and Measurement Reliability

After exploratory factor analysis, measurement items labeled as SQ1, SQ2, SQ6, HV3, UV2, and EV2 were dropped due to low factor loading. The remaining items have factor loadings ranging from 0.700 to 0.882. Chi-square tests of all constructs were insignificant, providing evidence of unidimensionality. In addition, Cronbach's α coefficients for the items in each construct range from 0.636 to 0.890 (Table 2), indicating internal consistency. AVE scores for all constructs surpass the 0.50 threshold and exceed the squared correlations, which confirms convergent validity and discriminant validity. All skewness and kurtosis values fall within the range of +3.0 and -3.0, indicating that the normality assumption is met. All VIF values fall below ten, indicating the absence of multicollinearity concerns among constructs and variables.

4.2. Hypothesis Testing Results and Discussion

Once the adequacies of all constructs were demonstrated, the proposed hypotheses were tested using the multiple regression technique. A single score was obtained for each construct by averaging across the measurement items [20,56]. Table 3 presents the results of hypothesis testing for the relationship between stimuli and organisms. Product quality was found to enhance perceived hedonic value ($\beta = 0.369$, $p < 0.001$), perceived utilitarian value ($\beta = 0.312$, $p < 0.001$), and perceived environmental value ($\beta = 0.303$, $p < 0.001$), supporting H1a, H2a, and H3a. As product quality improves, consumers perceive higher levels of hedonic, utilitarian, and environmental values. These findings align with previous studies, suggesting that despite being pre-owned, high-quality second-hand clothing provides consumers with greater emotional satisfaction [16]. The unpredictability and the possibility of finding unique and one-of-a-kind items add pleasure and excitement to the consumers' shopping experience. In addition, consumers view high-quality second-hand clothing as offering greater financial value due to its more affordable purchase price relative to new items. This supports the findings of Bardhi and Arnould's [77] study, which stated that consumers who shop for second-hand products seek high-quality clothing at a low price. Moreover, buying second-hand clothing is a sustainable option. Consumers feel joyful

when they are making a positive environmental impact and reducing the amount of waste that ends up in landfills.

Table 3. Results of hypothesis testing (stimuli to organisms).

Hyp.		DV	IDV	Std. Coef. (β)	*t*-Value	Sig. at $p < 0.05$	Control Variable	Std. Coef. (β)	*t*-Value	Sig. at $p < 0.05$	Total R^2	Sig. at $p < 0.05$
		HV	Constant		5.097	<0.001	Age	0.063	1.771	0.077		
H1a	Y		PQ	0.369	7.405	<0.001	Gender	−0.004	−0.121	0.904	0.478	<0.001
H1b	Y		IQ	0.265	4.521	<0.001	Education	0.026	0.752	0.452		F = 57.470
H1b	Y		SQ	0.138	2.567	0.011	Income	−0.157	−4.463	<0.001		
		UV	Constant		2.361	0.019	Age	−0.044	−1.531	0.126		
H2a	Y		PQ	0.312	7.723	<0.001	Gender	0.031	1.059	0.290	0.656	<0.001
H2b	Y		IQ	0.299	6.281	<0.001	Education	−0.038	−1.344	0.180		F =
H2c	Y		SQ	0.285	6.538	<0.001	Income	0.005	0.159	0.873		120.057
		EV	Constant		6.003	<0.001	Age	−0.033	−0.876	0.382		
H3a	Y		PQ	0.303	5.686	<0.001	Gender	0.029	0.766	0.444	0.406	<0.001
H3b	Y		IQ	0.269	4.310	<0.001	Education	0.017	0.457	0.648		F = 42.875
H3c	Y		SQ	0.136	2.369	0.018	Income	−0.107	−2.848	0.005		
		FR	Constant		3.600	<0.001	Age	−0.005	−0.118	0.906		
H4a	N		PQ	−0.076	−1.213	0.226	Gender	−0.143	−3.209	0.001	0.176	<0.001
H4b	N		IQ	0.116	1.578	0.115	Education	−0.051	−1.164	0.256		F = 13.466
H4c	Y		SQ	0.295	4.369	<0.001	Income	0.137	3.087	0.002		
		AR	Constant		3.615	<0.001	Age	−0.047	−1.056	0.292		
H5a	N		PQ	−0.037	−0.587	0.558	Gender	−0.136	−3.031	0.003	0.170	<0.001
H5b	N		IQ	0.105	1.420	0.156	Education	−0.076	−1.739	0.083		F = 12.874
H5c	Y		SQ	0.263	3.882	<0.001	Income	0.118	2.658	0.008		
		SR	Constant		4.923	<0.001	Age	−0.012	−0.258	0.797		
H6a	N		PQ	−0.086	−1.363	0.174	Gender	−0.151	−3.368	<0.001	0.165	<0.001
H6b	N		IQ	0.030	0.399	0.690	Education	−0.075	−1.677	0.094		F = 12.449
H6c	Y		SQ	0.333	4.899	<0.001	Income	0.140	3.144	0.002		

However, product quality was found to have no significant impact on perceived functional risk ($p = 0.226$), perceived aesthetic risk ($p = 0.558$), and perceived sanitary risk ($p = 0.174$). Thus, H4a, H5a, and H6a were not supported. Improving product quality does not reduce consumers' perceived functional, aesthetic, or sanitary risks associated with second-hand clothing. This may be because although high quality in second-hand clothing suggests durability, the fact that it has been previously worn by others raises concerns about unknown wear and tear or hidden defects. Moreover, high-quality second-hand clothing might not align with current fashion trends. Consumers who are driven by fashion trends might hesitate to purchase second-hand clothing even if it is of high quality. Additionally, the concern about potential contamination still remains for consumers even for high-quality second-hand products. This finding is in line with previous research, indicating that consumers are worried about cleanliness and hygiene when it comes to second-hand clothing [3].

Information quality was found to enhance perceived hedonic value ($\beta = 0.265$, $p < 0.001$), perceived utilitarian value ($\beta = 0.299$, $p < 0.001$), and perceived environmental value ($\beta = 0.269$, $p < 0.001$). Thus, H1b, H2b, and H3b were supported. Information quality has a positive impact on consumers' perceived hedonic, utilitarian, and environmental values. This finding confirms the importance of providing comprehensive and accurate information about second-hand products to consumers [41]. When sellers provide detailed information about the story and history behind the item, it builds emotional connections and leads to greater pleasure and satisfaction in consumers' purchases. Furthermore, the information provided helps consumers make informed decisions and ensures that the product aligns with their needs and expectations. For consumers who value the environment, it is essential to provide

transparent information about the environmental impact of second-hand products [12]. This approach can enhance consumer awareness of environmental and social responsibility. However, information quality was found to have an insignificant impact on perceived functional risk ($p = 0.115$), perceived aesthetic risk ($p = 0.156$), and perceived sanitary risk ($p = 0.690$). Therefore, H4b, H5b, and H6b were not supported. This finding is consistent with Tsai and Yeh's [48] study, indicating that even when adequate information is provided, the perceived risk of second-hand clothing remains the same. Consumers are still concerned about the inherent uncertainty regarding the functional, aesthetic, and sanitary risks associated with pre-owned products. These risks cannot be addressed by information alone.

Service quality was found to enhance perceived hedonic value ($\beta = 0.138$, $p = 0.011$), perceived utilitarian value ($\beta = 0.285$, $p < 0.001$), and perceived environmental value ($\beta = 0.136$, $p = 0.018$) and reduce perceived functional risk ($\beta = 0.295$, $p < 0.001$), perceived aesthetic risk ($\beta = 0.263$, $p < 0.001$), and perceived sanitary risk ($\beta = 0.333$, $p < 0.001$). Therefore, H1c, H2c, H3c, H4c, H5c, and H6c were supported. As service quality improves, consumers are more likely to perceive higher hedonic, utilitarian, and environmental values. At the same time, they feel less risk associated with the functionality, appearance, and cleanliness of second-hand clothing. Good service quality can lead to positive attitudes and satisfaction [39]. In addition, knowledgeable and customer-oriented staff can facilitate a quick and efficient shopping experience. This is particularly useful for consumers who are task-oriented and want to find their desired products quickly. Educating customers about the environmental benefits of buying used clothing can increase consumers' environmental awareness. Hence, they place a higher value on sustainable practices and products. Furthermore, quality service can relieve consumers' stress and assist with problem-solving, thereby reducing perceived risks. This finding is consistent with previous studies, which found that dependability and responsiveness in service quality reduce consumers' perceived risks and enhance consumer confidence [20,78].

Table 4 presents the results of hypothesis testing for the relationship between organisms and responses. Consumers' purchase intention and word of mouth regarding second-hand clothing are positively influenced by perceived hedonic value, perceived utilitarian value, and perceived environmental value. Thus, H7a, H7b, H7c, H9a, H9b, and H9c were supported. In line with prior research, hedonic, utilitarian, and environmental values are identified as key drivers influencing consumer purchase intentions [26,35]. Consumers are willing to purchase and recommend second-hand clothing when they find joy and excitement from it or when they enjoy practical benefits such as cost-effectiveness. This study further confirms the findings of previous research, indicating that environmental benefit is a primary motivation for purchasing second-hand apparel [55,79]. With growing awareness about environmental issues, sustainability-conscious consumers are increasingly drawn to second-hand products due to their environmental and social benefits.

Table 4. Results of hypothesis testing (organisms to responses).

Hyp.		DV	IDV	Std. Coef. (β)	*t*-Value	Sig. at $p < 0.05$	Control Variable	Std. Coef. (β)	*t*-Value	Sig. at $p < 0.05$	Total R^2	Sig. at $p < 0.05$
		PI	Constant		3.157	0.002						
H7a	Y		HV	0.318	7.160	<0.001	Age	0.028	0.819	0.413		
H7b	Y		UV	0.264	4.979	<0.001	Gender	0.073	2.109	0.036		
H7c	Y		EV	0.243	4.962	<0.001	Education	−0.020	−0.564	0.573	0.517	<0.001
H8a	N		FR	−0.068	−0.935	0.350	Income	0.034	1.003	0.317		F = 46.814
H8b	N		AR	0.076	1.029	0.304						
H8c	N		SR	0.007	0.088	0.930						
		WOM	Constant		0.958	0.338						
H9a	Y		HV	0.186	4.422	<0.001	Age	−0.063	−1.916	0.056		
H9b	Y		UV	0.376	7.485	<0.001	Gender	0.050	1.536	0.125		
H9c	Y		EV	0.192	4.147	<0.001	Education	0.024	0.721	0.471	0.567	<0.001
H10a	N		FR	0.026	0.375	0.707	Income	−0.045	−1.392	0.165		F = 57.333
H10b	N		AR	0.105	1.506	0.133						
H10c	N		SR	0.060	0.850	0.396						

On the other hand, this study found that perceived functional, aesthetic, and sanitary risks do not significantly impact consumers' intentions to purchase or spread word of mouth about second-hand clothing. Consequently, H8a, H8b, H8c, H10a, H10b, and H10c were not supported. While previous research has indicated that perceived risk negatively affects purchase intentions, this study suggests that such risks are not a major consideration for consumers when deciding to buy or give positive feedback on second-hand clothing. This finding may be attributed to the fact that all participants in this study had experience with second-hand clothing. Therefore, they are familiar with wearing such clothing and aware of the potential risks associated with such products. According to Koay et al. [58], consumers who have previously shopped for second-hand clothing expect a lower quality compared to brand-new items. Furthermore, they trust thrift stores to clean these items and are knowledgeable about cleaning second-hand clothing themselves.

5. Conclusions and Implications

As consumers are increasingly aware of fast fashion's negative impact, there is a growing trend towards purchasing second-hand fashion products. This study explored how product quality, information quality, and service quality affect consumers' perceived value and risk in the context of second-hand shopping. It also examines the impact of these perceptions on consumer purchase intentions and word-of-mouth recommendations. The study enriches the existing literature in four significant ways. First, it offers a deeper understanding of the S-O-R framework by uniquely identifying the stimuli and organisms specific to second-hand consumption. Product quality, information quality, and service quality were identified as external stimuli. The organism component was evaluated from an integrated perspective, measuring not only perceived values but also the perceived risks associated with second-hand clothing consumption. Behavioral responses were measured in terms of purchase intention and word of mouth. Second, the study suggests that service quality has the most significant effect on consumers' internal emotions. It not only enhances consumers' values but also mitigates perceived risks. This finding highlights how important it is for retailers to enhance their consumer services to both attract and retain consumers. Moreover, this study reveals that consumers' perceived values have a more significant role than perceived risks in shaping positive behavioral responses, emphasizing the necessity for retailers to create and fulfill consumers' desired values to succeed in the second-hand market. Third, this study proposes a research model using primary consumer survey data and rigorous statistical methods. A large sample size was utilized to represent U.S. second-hand shoppers, which ensures the findings' applicability and relevance. Second-hand clothing consumption not only reduces textile waste but also promotes circular economy practices and fosters sustainable consumption behaviors. This research contributes to the broader conservation of recycled consumption by providing a more comprehensive understanding of the complexities and dynamics of sustainable consumption practices. These results offer practical guidance for retailers and marketers to develop green marketing strategies to encourage more sustainable consumption practices.

This study provides meaningful implications for second-hand retailers and marketers by revealing that three external stimuli, namely product quality, information quality, and service quality, improve consumers' perceived values. Service quality, in particular, also mitigates consumers' perceived risk related to functional, aesthetic, and sanitary concerns. Given the importance of product quality, second-hand retailers should enhance the quality of second-hand garments by implementing rigorous quality control measures. This includes inspecting each item for any damage, wear, or stains and thoroughly cleaning it before sale. Second, to ensure high information quality, second-hand retailers should provide detailed and accurate descriptions of each item, including its condition, size, color, fabric, price, quality scale, and a brief product history. Using high-quality images to showcase the products can help online buyers make informed decisions. Additionally, it is important for retailers to offer high-quality services such as offering exchanges and returns and providing quick responses to consumers' complaints. This will ensure a smooth shopping experience

and facilitate sustainable behaviors. Second-hand retailers should also educate consumers on how to care for these items and provide recommendations on styling second-hand clothes to alleviate potential uncertainties related to contamination and aesthetics.

Furthermore, this study emphasizes the need to improve consumers' perceived hedonic, utilitarian, and environmental values. To enhance consumers' hedonic value, retailers should create an engaging and enjoyable shopping experience. This can be achieved by using visually attractive displays, a comfortable store layout, and pleasant background music. In terms of utilitarian value, second-hand retailers should offer detailed product descriptions and use clear signage to streamline the shopping process. It is also essential to have a user-friendly interface and reliable customer service to ensure that the online purchase process is convenient and efficient. Lastly, retailers should promote the environmental benefits of purchasing second-hand garments using store signage, online content, and educational campaigns. By highlighting these environmental values, second-hand retailers not only attract shoppers who are conscious about sustainability but also educate and encourage others to embrace more sustainable consumption.

6. Limitations and Future Studies

This research has some limitations. First, it only collected data from U.S. consumers who have previous second-hand shopping experiences. Since the purchase of second-hand products is a common practice worldwide, future research could collect data from multiple countries. In addition, it would be interesting to investigate consumers who do not have any second-hand shopping experience and compare the results between second-hand shoppers and non-second-hand shoppers. Second, a majority of survey participants in this study were male (62.5%), were White/Caucasian (92.2%), and had an annual income between USD 35,000 and USD 74,999 (53.5%). Future research could investigate other ethnicities as well as consumers from lower and higher classes. Third, the focus of this study was limited to second-hand clothing. Since consumer perceptions may vary for different types of second-hand items, such as shoes or jewelry, future studies could expand on the current study to focus on other second-hand fashion products. Lastly, examining factors like consumers' environmental knowledge and attitudes as potential moderators could offer deeper insights into the influences on second-hand consumption behaviors.

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