



Article

Determinants of Consumers' Willingness to Participate in Fast Fashion Brands' Used Clothes Recycling Plans in an Omnichannel Retail Environment

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Abstract: Omnichannel retailing and sustainability are two important challenges for the fast fashion industry. However, the sustainable behavior of fast fashion consumers in an omnichannel environment has not received much attention from researchers. This paper aims to examine the factors that determine consumers' willingness to participate in fast fashion brands' used clothes recycling plans in an omnichannel retail environment. In particular, we examine the impact of individual consumer characteristics (environmental attitudes, consumer satisfaction), organizational arrangements constitutive for omnichannel retailing (channel integration), and their interplay (brand identification, impulsive consumption). A conceptual model was developed based on findings from previous research and tested on data that were collected online from Chinese fast fashion consumers. Findings suggest that consumers' intentions for clothes recycling are mainly determined by individual factors, such as environmental attitudes and consumer satisfaction. Organizational arrangements (perceived channel integration) showed smaller effects. This study contributes to the literature on omnichannel (clothing) retail, as well as on sustainability in the clothing industry, by elucidating individual and organizational determinants of consumers' recycling intentions for used clothes in an omnichannel environment. It helps retailers to organize used clothes recycling plans in an omnichannel environment and to motivate consumers to participate in them.

Keywords: fast fashion; omnichannel retailing; sustainability; used clothes recycling; willingness to participate in used clothes recycling plans



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1. Introduction

The development of the fast fashion industry may be seen as both a curse and a blessing at the same time. It is a blessing, since it allows ordinary people to purchase fashionable clothes in various designs at affordable prices [1]. It is a curse, since it fuels the consumption of clothes, which has disastrous side effects on the environment [2]. The United Nations Conference on Trade and Development (UNCTAD) claims that the clothing industry is the second largest polluter in the world—trailing only oil in its impact on the environment. Faced with that situation, the industry has come to recognize that the recycling of clothes and other fast fashion products is a practical and effective method of reducing resource wastage and refuting criticism on that front [3]. In an attempt to swing their business model to a more sustainable one, H&M was the first fast fashion retailer to launch a used clothes recycling plan (UCRP) in 2013, which was designed to halt the rocketing clothes waste statistics. They collected 20,649 tons of textiles for recycling and upcycling in 2018, and 29,005 tons in 2019, proving that there is growing demand from customers for circular services [4]. The core brand of the Japanese Fast Retailing group, Uniqlo, collected approximately 620,000 down garments through a recycling campaign in Japan between September 2019 and January 2021. From September 2020 onwards, the campaign was expanded to 22 other markets [5]. Inditex, a worldwide fashion retailer that

sells its products in 216 markets through its online platform and stores, collected more than 49,000 tons of garments in 2019 and increased the use of recycled materials by 250% [6]. Hence, it is worthwhile to ask how such initiatives can be put on a broader base and how more consumers can be motivated to participate in UCRPs.

Upscaling UCRPs is complicated by another trend in the retailing industry, which is the development towards omnichannel retailing [7]. Omnichannel retailing aims to provide customers with a seamless and unified shopping experience across all channels [8] so that they can switch channels between and during shopping processes without any friction. Omnichannel retailing is defined as a synchronized operating model in which all of the company's channels are aligned and present a single face to the customer [9]. New models that fuse physical stores and e-commerce operations are expected to drive future business growth. H&M, for example, strives to offer a convenient and inspiring experience in which channels interact and strengthen each other—in stores, on websites, in digital marketplaces and on social media [4]. Fast Retailing rebuilds its business platforms in individual markets to increase the synergies between stores and e-commerce [5]. While omnichannel retailing increases convenience for customers by giving them maximum shopping flexibility, it also poses new challenges to retailers with regard to the design of effective omnichannel strategies. So far, UCRPs have mainly been implemented in the physical stores of fast fashion brands. When consumers visit the store to shop for new clothes, they can drop off their old textiles in the garment-collecting boxes, which tell them to “drop off clothes from any brand, in any condition”. In an omnichannel environment, however, consumers may want to send their used clothes to online recyclers by mail, or bring them to offline stores, regardless of where they purchased them, and on the same terms.

Against this background, this paper aims to investigate the factors that determine consumers' willingness to participate in fast fashion brands' UCRPs in an omnichannel retail environment. In particular, we examine the influence of individual consumer characteristics (environmental attitudes, consumer satisfaction), organizational arrangements (channel integration), which are constitutive for omnichannel retailing, and their interplay (impulsive consumption, brand identification) on consumers' willingness to participate. Empirical research was conducted on a sample of $n = 564$ Chinese fast fashion consumers.

The remainder of the paper is organized as follows. Based on a review of the relevant literature, hypotheses are formulated and a conceptual model is developed. Then, the methodology of the empirical analysis is described, including the sample, measures, and data collection process. Data analyses and findings are presented thereafter. At the end, we discuss our conclusions, the implications for practice and further research, as well as this study's limitations.

2. Theoretical Background and Hypotheses Development

2.1. Environmental Effects of the Fast Fashion Industry

Facilitated by globalization, fast fashion brands offer fashionable clothes at affordable prices, thus allowing more people to participate in fashion consumption [1]. The regular and rapid changes of designs and styles, inherent in the concept of fashion, prompt consumers to buy new clothes more frequently, driving total fashion consumption to continuous new heights [2]. In addition, fast fashion consumption is characterized by impulsive purchasing behavior, which is distinguished from contemplative purchasing behavior [10] and occurs when “a consumer experiences a sudden, often powerful and persistent urge to buy something immediately” [10]. Impulsiveness, seen as a consumer trait [11,12], is defined as the degree to which an individual is likely to make unintended, immediate, and rash purchases [13]. Together, these aspects explain the thriving of the fast fashion industry and the rising concerns about its environmental effects.

2.2. Used Clothes Recycling as a Step towards More Sustainability

Along with rising public awareness of the importance of environmental protection, more and more companies are creating strategies for sustainable development. Beyond

manufacturing conditions, sustainability projects in the clothing industry mainly refer to the disposal or recycling of used clothes [14]. So far, there is little research on consumers' recycling behavior when it comes to used clothes, as well as on the management of used clothes recycling [15]. In general, previous studies have shown that companies' environmentally friendly behavior affects consumers' willingness to purchase environmentally friendly products and to participate in sustainability projects launched by these companies [16]. Likewise, research has shown that companies' environmental commitment, image and behavior encourages consumers to save resources themselves [17]. Research on consumers' recycling behavior is usually included in research on environmental protection behavior and focuses on two aspects: first, the impact of personal characteristics, such as attitudes, traits, values, etc., on recycling behavior [18], and second, the role of external stimuli, including information, education, incentives, and other organizational arrangements [19]. While there is extant research on consumers' environmental protection behavior in general, fewer studies focus on their recycling behavior, and to the best of our knowledge, there is no research yet on the recycling behavior as it pertains to used clothes, especially in an omnichannel retail environment.

2.3. Challenges of an Omnichannel Retail Environment

Since the turn of the century, multichannel retailing has been evolving into omnichannel retailing [20], a move that has been facilitated and pushed by information technology [7]. Different from multichannel retailing, omnichannel retailing provides customers with simultaneous access to multiple channels, e.g., store, online, mobile, and social media [20], calling for a holistic management of the parallel channels to make customers' cross-channel transitions seamless and their shopping experience integrated [21]. Omnichannel retailing is not just a simple compilation of different channels, but emphasizes the synergetic management of all channels. Consequently, it is defined as a synchronized operating model, in which all of a company's sales channels are aligned and present a single face to the customer [9]. While omnichannel retailing increases convenience for consumers in terms of maximum shopping flexibility, it also creates new challenges for retailers and supply chains with regard to designing effective strategies that emphasize cross-channel objectives over single-channel interests [22].

The degree to which a company provides customers with a seamless shopping experience across channels is referred to as channel integration quality [23]. When consumers expect to shop at any location and at any time [22], the separation between offline and online retailing becomes blurred [24] and retailers must have products available at any location and at any time, too [25]. To ensure that this is achievable, retailers have to utilize stores as fulfillment centers, operate advanced information technology systems [26], and pay particular attention to logistics service quality [27].

2.4. Brand Identification as a Mediator

According to social identity theory, a part of every person's identity is derived from being a member of some social group, such as a school, club, political party, or a company. As with groups, brands can serve as objects of social identification [28], since they connect the fans of a brand with each other and to some kind of virtual group, a so-called brand community [29]. This is especially true for brands with a strong identity [28]. Brand identity refers to the unique characteristics of a brand that allow consumers to distinguish it from its competitors [30]. Consumer identification with a brand is considered to have positive effects on, e.g., consumer satisfaction [31,32].

2.5. Hypotheses Development

Omnichannel retailing and sustainable development are currently the most important challenges for fast fashion brands. The UCRPs that are offered by fast fashion brands constitute one small step towards more sustainability. To date, however, there is no research concerning consumers' participation in UCRPs in an omnichannel environment.

To close that gap, this paper examines the effects of consumer (individual) and channel (organizational) characteristics on consumers' willingness to participate in the UCRPs of fast fashion brands. In addition, mediation effects are investigated. The assumed individual determinants are consumers' environmental attitudes and consumer satisfaction. The organizational determinant to be examined is channel integration quality. In addition, we look for mediation effects, including impulsive consumption and brand identification. In the following, we develop the conceptual model, which is thereafter tested on empirical data, and substantiate our hypotheses.

With the present challenge of climate change, containing environmental pollution is vital, and consumers' environmental awareness is growing rapidly. Sustainable, green consumption emphasizes consumers' responsibility for the protection of the environment, and encourages them to purchase environmentally friendly products and reduce consumption in general [33]. In contrast to the logical conclusion that an environmental attitude is an important determinant of sustainable consumption behavior [34], research on environmental awareness and consumer behavior delivers inconsistent results. While in the UK, according to research conducted by Dermody and colleagues (2015) [35], environmental attitudes have not been found to significantly affect the actual consumption behavior of environmentally friendly products, Dong and colleagues (2020) [33] found that Chinese consumers with a passion for, intimacy with, and connectedness to nature reveal a clear tendency towards green purchasing and recycling. These inconsistencies make the relationship between environmental attitudes and sustainable behavior (in our case, willingness to participate in a UCRP) worth testing further. Since data for our study were collected in China, we assume a positive effect of environmental attitudes on the willingness to participate in a UCRP and hypothesize accordingly:

Hypothesis 1. *Environmental attitudes positively affect the willingness of consumers to participate in a UCRP.*

Consumer satisfaction is based on a product's, service's, or brand's performance meeting or exceeding the consumers expectations in that regard [36]. Offering a UCRP is one of a brand's services. Tam (2004) [37] showed that customer satisfaction not only affects re-purchasing behavior, but also post-purchasing behavior. Since participation in a UCRP can be seen as post-purchasing behavior, we propose the following hypothesis:

Hypothesis 2. *Consumer satisfaction positively affects the willingness of consumers to participate in a UCRP.*

Channel integration quality is pivotal for the success of omnichannel retailing [38]. One of the dimensions that determines channel integration quality is the consistency of process and content. With regard to a UCRP, this means that a brand offering it does so consistently across channels. In addition, consistency also refers to time. Consistency of previous and present experiences [39], and of formerly and currently used channels [40], represents a quality feature and affects omnichannel purchasing behavior. Following this line of reasoning, we assume that the higher the channel integration quality, the more consumers will know about, start, and continue to participate in an offered UCRP. Therefore, we propose the following hypothesis:

Hypothesis 3. *Channel integration positively affects the willingness of consumers to participate in a UCRP.*

While contemplative consumption is a deliberate and cognitively controlled process, impulsive consumption is characterized by high levels of emotional activation and low levels of cognitive control [41]. Previous research has shown that channel integration quality affects consumer attitudes as well as behaviors [42,43]. It enhances customers' value perceptions and reduces information asymmetries, thus creating more transparency

in the shopping process and allowing for more cognitive control [43]. This is, why we suggest the following hypothesis:

Hypothesis 4. *Channel integration negatively affects impulsive consumption.*

It is known from research that impulsive and contemplative shoppers differ in terms of personality [44]. While impulsive shoppers prioritize short-term benefits, contemplative shoppers are more concerned about the long-term costs of their consumption behavior. The term 'environmental attitudes' refers to people's awareness of environmental issues, support for solving them, and willingness to contribute to the solutions [45]. As such, taking the long-term environmental costs of consumption into consideration is the foundation of environmentally friendly consumption behavior [46]. Taken together, we therefore propose the following hypothesis:

Hypothesis 5. *Environmental attitudes negatively affect impulsive consumption.*

The rapid update of fast fashion products stimulates consumers to buy new designs frequently [2]. Impulsive consumers tend to purchase products spontaneously, unplanned, and on the spur of the moment [13,47]. More consumers buying more fashion items more often raises the question of what to do with fashion waste [13,47]. While on first sight, one might assume that impulsive consumers, buying clothes thoughtlessly, thereby harming the environment, will not be inclined to participate in a UCRP, we argue differently. Unlike contemplative consumers, impulsive consumers will possess more clothes that are more idle and more useless and, hence, have a greater need to deal with them. Consequently, participating in the recycling of used clothes may become an option for impulsive consumers to handle their idle clothes, particularly when participation is connected to a discount for buying new clothes. Accordingly, we propose the following hypothesis:

Hypothesis 6. *Impulsive consumption positively affects the willingness of consumers to participate in a UCRP.*

Sousa and Voss (2006) [23] proposed a conceptual framework for channel integration quality, consisting of channel service configuration quality and integrated interaction quality. Channel service configuration quality reflects channel choice breadth and channel service transparency. Channel choice breadth describes the degree to which consumers can access information and services from different channels. Channel service transparency refers to the level of customers' familiarity with the attributes of available channels [39]. Finally, integrated interaction quality expresses the consistency of cross-channel interactions in two dimensions: process and content consistency. Combined, they produce a unified, reliable, and consistent service experience for consumers [39]. Whether it is through physical or online stores, what is important to the customer is that they can immediately buy what they want, when they want it. Fast fashion brands strive to achieve a truly unique and integrated relationship between the customer and the brand. Fast Retailing, for example, aims to unify sales channels through its StyleHint app, which allows customers to access up-to-the-minute information on their phones and buy the products that they want immediately, whether in-store or online [5]. Although there is scarce evidence in the literature on the effect of channel integration quality on customer commitment, customer engagement, and brand attractiveness [39,48], we assume that a broad choice of channels, familiarity with channel attributes, and experience of a reliable service contribute to brand identification, and we thus offer the following hypothesis:

Hypothesis 7. *Channel integration positively affects brand identification.*

The prevalent model for understanding consumer satisfaction is the expectancy confirmation paradigm [36]. Accordingly, satisfaction is the outcome of a product or service's

performance meeting or exceeding the consumer’s expectations [36]. Building on social identification theory, brand identification is commonly defined as consumers’ psychological state of perceiving, feeling, and valuing their belongingness with a brand [28,49,50]. The literature is somewhat divided on the matter of the causal relationship between consumer satisfaction and brand identification, however [51]. On the one hand, identification is seen as an antecedent of satisfaction [30,52], with the assumption that identification enhances satisfaction through a more favorable overall judgement that is based on an affective attachment with the brand [53]. On the other hand, there is also the view that identification is motivated by the satisfaction of consumers, assuming that consumers will particularly identify with brands that satisfy their needs and wants [28,54,55]. Since positive paths from satisfaction to identification were also confirmed in empirical research [56], we hypothesize that:

Hypothesis 8. *Consumer satisfaction positively affects brand identification.*

Brand identification is a psychological state referring to consumers’ perceiving, feeling, and valuing their belongingness with a specific brand [50]. Through identification, consumers internalize and integrate the brand and its image. To them, the brand has a positive and attractive meaning, which meets their needs [57]. Therefore, we assume that consumers who identify with a brand will consequently also view its UCRP as a wise choice and be inclined to participate in it. Hence, we hypothesize:

Hypothesis 9. *Brand identification positively affects the willingness of consumers to participate in a UCRP.*

2.6. Structural Model

The complete structural model is shown in Figure 1. Based on the argumentation above, it assumes that consumers’ environmental attitudes and satisfaction will have direct, positive effects on their willingness to participate in a UCRP. Likewise, it assumes that channel integration encourages participation. Moreover, it entails two indirect paths, assuming that channel integration and consumer satisfaction drive brand identification, thus enhancing their positive effect on participation, and that environmental attitudes and channel integration curb impulsive consumption, thus alleviating its positive effect on the willingness to participate in a UCRP.

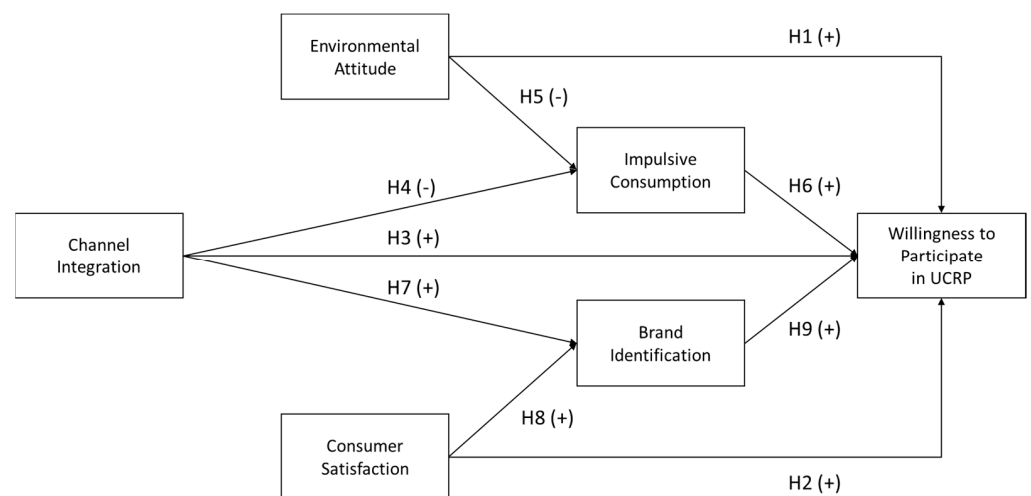


Figure 1. Structural Model.

3. Method

3.1. Sample and Data Collection

To test the conceptual model, a survey was conducted among Chinese consumers who bought fast fashion clothes in the past. To ensure the validity of the sample, we asked participants whether they bought fast fashion before. Respondents answering “I never bought fast fashion before” were automatically excluded from the sample. Data were collected in May 2019 and January 2020 by means of an online questionnaire, which was distributed on an online platform in China (wjx.com). After eliminating incomplete and otherwise invalid questionnaires, the sample consisted of 564 questionnaires ($n = 564$). A demographic description of the sample is included in Table 1.

Table 1. Sample Description.

Feature	Coding	Values	Frequency	Percentage
Gender	1	Male	235	41.7
	2	Female	329	58.3
Age	1	<18	4	0.7
	2	18–30	326	57.8
	3	31–39	191	33.9
	4	40–55	42	7.4
	5	>55	1	0.2
Education	1	Junior college and below	82	14.5
	2	Undergraduate	433	76.8
	3	Master’s and above	49	8.7
Income (per month)	1	≤2500	55	9.8
	2	2501–4000	41	7.3
	3	4001–6000	145	25.7
	4	6001–10,000	194	34.4
	5	>10,000	129	22.9
Occupation	1	Governmental agency or government-sponsored institution	49	8.7
	2	Company employee	400	70.9
	3	Freelancer	29	5.1
	4	Owner of private enterprise	15	2.7
	5	Student	64	11.3
	6	Others	7	1.2

Wherever possible, validated scales from the literature were used and adjusted to fit the fast fashion context. Independent experts (experienced researchers) helped to ensure the validity of the adjustments

3.2. Measures

Environmental attitudes (EA) were measured using four items (concern about environmental pollution, importance, necessity, and value of controlling environmental pollution) based on the work of Dunlap and van Liere (1978) [58] and Nadeau and Niemi (1995) [59].

Channel integration (CI) was measured using three items that addressed participants’ perceptions of the consistency between offline and online channels with regard to the description information of clothes, the inventory information of clothes, and the quality of clothes, based on the work of Shen and colleagues (2018) [39].

Consumer satisfaction was measured separately for offline and online channels. Consumer satisfaction with offline channels (CSF) was measured by asking participants for a percentage rating that determined their “satisfaction with shopping in the brand’s physical stores”. Consumer satisfaction with online channels (CSN) was measured accordingly by asking for a percentage rating that determined their “satisfaction with shopping in the brand’s online store”.

Impulsive consumption (IM) was measured with three items based on the work of Rodríguez-Torrigo and colleagues (2017) [60].

Brand identification (BI) was measured by asking respondents for a percentage rating that judged the “match between the fast fashion design concept, the brand culture, and personal values”.

Finally, willingness to participate in a UCRP (WP) was measured based on the work of Taylor and Todd (1995) [61], with three items concerning the inclination to learn about, participate in, and recommend a brand’s UCRP.

The constructed variables—EA, CI, IM, and WP—were all measured on five-point Likert scales, ranging from 1 = strongly disagree to 5 = strongly agree. An overview of all items and variables is included in Table 2 together with the psychometric properties of the scales.

Table 2. Items, Variables, and Psychometric Properties of Scales.

Variables	Items	Factor Loading	KMO, Cronbach’s α , AVE	Reference
Impulsive Consumption (IM)	I often buy clothes that are not in the purchase plan	0.875	KMO = 0.733 Cronbach’s α = 0.860 AVE = 0.783	[60]
	I often make the decision to buy clothes spontaneously	0.898		
	I don’t think twice before I buy clothes	0.881		
Environmental Attitudes (EA)	I am very concerned about environmental pollution	0.722	KMO = 0.621 Cronbach’s α = 0.651 AVE = 0.501	[58,59]
	It’s very important for me to control environmental pollution	0.772		
	I think it is necessary to control environmental pollution	0.676		
	I think it is valuable to control environmental pollution	0.657		
Channel Integration (CI)	The clothing description information obtained through the brand’s offline and online store is consistent	0.800	KMO = 0.619 Cronbach’s α = 0.607 AVE = 0.570	[39]
	The clothing inventory information provided by the brand’s offline and online store is consistent	0.664		
	The clothing quality provided by the brand’s offline and online store is consistent	0.793		
Willingness to Participate in UCRPs (WP)	I would like to learn about participating in the brand’s used clothes recycling plan	0.734	KMO = 0.655 Cronbach’s α = 0.702 AVE = 0.627	[61]
	I would like to deliver clothes that are no longer used to the brand’s used clothes recycling plan	0.829		
	I would like to introduce the brand’s used clothes recycling plan to my family and friends	0.809		

4. Data Analysis and Results

SPSS 22 and AMOS 22 were used to analyze the data and to test the hypotheses. We analyzed the measurement model and used maximum likelihood estimation to test the hypothesized structural model. We compared a fully mediated (baseline) model, which

contained all of the hypothesized predictions, with a reduced (final) model, in which insignificant paths of the baseline model were omitted.

4.1. Model Fit

As can be seen from Table 2, the measurement model is reliable and valid. KMO and Cronbach’s α values are all above the recommended threshold of 0.6. Variable factor loadings are all statistically significant and range between 0.657 and 0.898, suggesting that the scales are reliable. The AVE of all variables is above 0.5, indicating that the model has convergent validity. The AVE square root of each variable is larger than the correlation coefficient between the factors, signaling discriminatory validity.

Model adequacy was assessed using four indices: Chi-square statistics, the Tucker–Lewis index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Values for TLI and CFI close to 1.00 and values for RMSEA at 0.08 or below indicate adequate fit. The model fit values for the two models are contained in Table 3. The baseline model that contains all of the hypotheses shows adequate fit: χ^2 (108, N = 564) = 269.565, $p < 0.001$, $\chi^2/df = 2.496$, CFI = 0.934, TLI = 0.917, and RMSEA = 0.052.

Table 3. Model Fit of Measurement Models.

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	ACI	ECVI
Model 1 (baseline)	269.565	108	2.496	0.934	0.917	0.052	393.565	0.699
Model 2 (final)	271.743	112	1.944	0.935	0.921	0.050	387.743	0.689

Means, standard deviations, and correlations among the variables of the measurement model and the control variables, including gender (Gen), age (Age), education (Edu), and income (Inc), are reported in Table 4. Data were standardized before to eliminate the influence of varying numbers of items and scale widths. Correlations between the variables are in line with the hypotheses and significant at $p < 0.01$, except the one between environmental attitudes and impulsive consumption.

The standardized path estimates of the baseline model are significant except for the paths linking environmental attitudes and impulsive consumption, channel integration and brand identification, consumer satisfaction with online channels and willingness to participate in a UCRP, and brand identification and willingness to participate in a UCRP (see Figure 2). Therefore, we dropped these paths and retested the model. The standardized path estimates of the alternative model are all significant and the fit statistics shows adequate fit: χ^2 (112, N = 564) = 271.743, $p < 0.001$, $\chi^2/df = 1.944$, CFI = 0.935, TLI = 0.921, and RMSEA = 0.050.

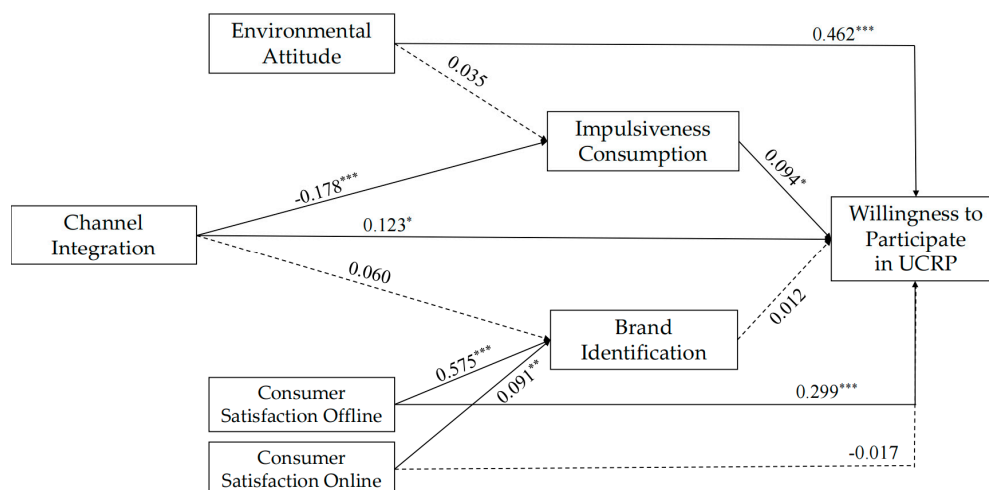


Figure 2. Baseline Measurement Model. Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; dotted lines indicate insignificant relations.

Table 4. Means, Standard Deviations, and Correlation Analysis.

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 Gen	1.58	0.49	1										
2 Age	2.49	0.65	-0.065	1									
3 Edu	2.92	0.58	0.061	-0.008	1								
4 Inc	3.53	1.20	-0.101 **	0.370 ***	0.195 ***	1							
5 CSF	77.67	12.82	-0.031	0.086 **	0.019	0.146 ***	1						
6 CSN	72.87	15.02	-0.033	-0.025	0.035	0.098 **	0.439 ***	1					
7 BI	75.44	13.76	-0.077 *	0.105 **	0.021	0.110 ***	0.622 ***	0.367 ***	1				
8 CI	3.67	0.60	-0.100 **	0.074 *	0.104 **	0.120 ***	0.299 ***	0.389 ***	0.258 ***	0.755			
9 IM	3.02	0.97	0.203 ***	-0.084 **	-0.052	0.055	0.031	0.011	0.016	-0.152 ***	0.885		
10 EA	4.33	0.51	0.037	0.014	-0.077 *	0.003	0.183 ***	0.157 ***	0.199 ***	0.110 ***	0.019	0.708	
11 WP	4.22	0.69	0.077 *	0.056	0.053	0.095 **	0.327 ***	0.186 ***	0.239 ***	0.175 ***	0.072 *	0.415 ***	0.792

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The diagonal value represents the square root of the AVE value for the corresponding construct.

A comparison of the alternative and the baseline model using the Akaike information criterion (AIC) and expected cross-validation index (ECVI) (see Table 4) shows that the alternative model is a better fit (AIC = 387.742 versus 393.565, ECVI = 0.689 versus 0.699). Hence, we accepted the alternative model as our final model (see Figure 3).

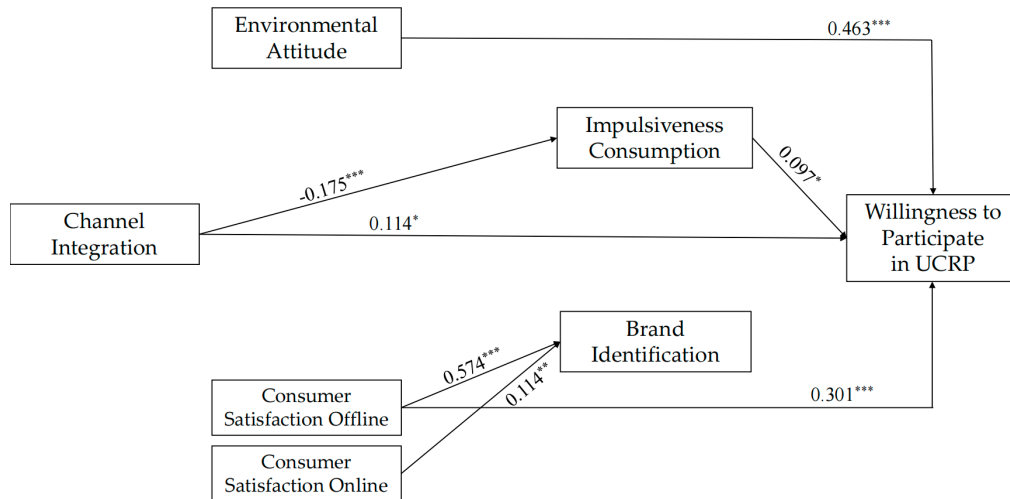


Figure 3. Final Measurement Model. Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2. Hypotheses Testing

As far as the direct effects are concerned (H1–H3), the structural model indicates that, in accordance with our hypotheses, consumers’ environmental attitudes affect their willingness to participate in UCRPs ($\beta = 0.463, p < 0.001$). This is by far the strongest effect disclosed by the structural model. It proves that consumers with higher environmental awareness are more likely to participate in the UCRPs of fast fashion brands, because they strive to avoid waste and hope that their clothes can be reused. A weaker effect emanates from channel integration ($\beta = 0.114, p < 0.05$), indicating, albeit to a less degree, that the consistency between offline and online channels with regard to UCRPs, e.g., concerning the possibility of bringing used clothes, bought online, back to a physical store for recycling, or vice versa, facilitates consumers’ willingness to participate. As far as the effect of consumer satisfaction is concerned, results show that there is a significant path from satisfaction with offline channels ($\beta = 0.301, p < 0.001$)—but not from satisfaction with online channels—to the willingness to participate in UCRPs. This indicates that fast fashion brands’ customers are still split between the ones who predominantly use offline and the others who mainly use online channels. Offline customers seem to be better acquainted with UCRPs, which have been, to date, primarily offered online. This is why hypotheses 1 and 3 are confirmed, but hypothesis 2 is only partly confirmed.

Concerning the indirect paths, the structural model partly confirms the indirect links via impulsive consumption. As assumed (H4), channel integration alleviates impulsive consumption. The more consistent offline and online channels are, the less impulsive consumption occurs ($\beta = -0.175, p < 0.001$). However, the path from environmental attitudes to impulsive consumption (H5) is not significant. Seemingly, awareness of the environmental costs of fast fashion consumption neither protects against, nor does it stimulate, impulsive consumption. The link between impulsive consumption and willingness to participate in UCRPs (H6) is in the hypothesized direction and is statistically significant, albeit rather small ($\beta = 0.097, p < 0.1$). As we reasoned before, the motive for impulsive consumers to participate in UCRPs may be that their clothes are not much worn, hence more likely to be reused, and that fast fashion brands’ UCRPs allow them to buy new clothes at a discount.

The second indirect path, which was expected to pass via brand identification, could not be proved. As we hypothesized (H8), consumer satisfaction, offline as well as online, contributes to brand identification. Interestingly, the effect of satisfaction with offline

channels is remarkably higher ($\beta = 0.574, p < 0.001$) than that of satisfaction with online channels ($\beta = 0.114, p < 0.001$), indicating that identification with real objects (store, displays, salespeople, etc.) is easier than with virtual ones. However, there is no statistical evidence for the impact of channel integration on brand identification, and, importantly, of brand identification on willingness to participate in a UCRP. That is to say, the fans of a brand are neither more nor less inclined to participate in the brand's UCRP than are non-fans.

To further prove the mediating effect of impulsive consumption, we used the bootstrap estimation procedure with a sample of 2000. We found that the indirect effect of channel integration on the willingness to participate in UCRPs via impulsive consumption is significant ($\beta = -0.017$), since the 90% confidence interval ($-0.037, -0.002$) does not include 0.

5. Discussion and Implications

5.1. Research Findings

This study collected data from Chinese fast fashion consumers to investigate the factors determining their willingness to participate in fast fashion brands' UCRPs.

In accordance with the literature [33,34], the findings confirm that the main determinant of consumers' willingness to participate in a fast fashion brand's UCRP are their environmental attitudes. Consumers who are concerned about the environment are more willing to participate than those who are not. In addition, consumers who are satisfied with their offline shopping experience are more inclined to participate in the UCRPs of their brands than those who are not. This is to say, consumer satisfaction does indeed have an effect on post-purchasing behavior [37]—in this case, recycling behavior. Interestingly, this does not apply to satisfaction with online shopping. Obviously, offline customers are more familiar with existing UCRPs thus far. Finally, we found that organizational arrangements also affect consumers' willingness to participate in UCRPs. Channel integration—the fact that a UCRP is offered consistently across channels—affects consumers' readiness to participate positively.

Based on theoretical reasoning, we expected two indirect effects. We supposed that consumer satisfaction and channel integration would foster brand identification, and that brand identification would foster the willingness to participate in the brand's UCRP, thus boosting the direct positive effects of consumer satisfaction and channel integration. This is not the case; at least, not according to our data. There is no evidence for an effect of channel integration on brand identification, and more importantly, no effect of brand identification on the willingness to participate in a UCRP. The fans of a brand are neither more nor less inclined to participate in the brand's UCRP than are the non-fans, indicating that brand identification in the fast fashion industry is primarily mediated through 'hip' products and designs and not through responsible corporate behavior. In line with the literature [56], a positive effect of consumer satisfaction on brand identification was found. Again, the effect of offline satisfaction was much higher than that of online satisfaction, which is explicable by the greater simplicity of identifying with real instead of virtual objects. We further supposed that environmental attitudes and channel integration would alleviate impulsive consumption, while impulsive consumption would foster the willingness to participate in UCRPs, thus diminishing the direct positive effects of environmental attitudes and channel integration. This indirect effect could indeed be proven. However, it is minimal ($\beta = -0.017, p < 0.001$). There is a small positive effect of impulsive consumption on the willingness of consumers to participate in a UCRP, which can be explained by impulsive buyers' greater need to bring unused clothes to a recycling box. In line with the literature [43], channel integration quality alleviates impulsive consumption by increasing the transparency of the shopping process, thus giving consumers more control over it. Counter to our expectation, however, environmental consciousness does not protect against impulsive consumption. Impulsiveness happens—by definition—inconsiderately [11,44], and, therefore, even environmentally conscious buyers act impulsively without reflecting upon the environmental consequences of their purchases.

5.2. Contributions to the Literature

The number of studies on omnichannel retailing in the marketing, operations, and supply chain management literature is growing rapidly, mostly focusing on the forward supply chain, i.e., distribution, logistics, and sales management [22]. Our findings contribute to the omnichannel literature by focusing on the reverse supply chain, i.e., consumers' recycling behavior. Our study addresses consumer behavior across channels in an omnichannel retail environment, examining its individual and organizational determinants and their interaction. Taken together, our findings show that consumers' motivation to participate in a fast fashion brand's UCRP in an omnichannel retail environment is neither determined by individual dispositions (e.g., environmental attitudes, consumer satisfaction), nor organizational arrangements (e.g., channel integration quality) alone, but by both simultaneously, including their interactions (e.g., impulsive consumption).

Our findings also contribute to the literature on sustainability in the clothing industry. While existing research mainly studies sustainable purchasing by examining its individual motives (e.g., passion for nature, intimacy with nature, commitment to nature) [33], our study addresses the sustainable disposal of used clothes by examining individual and organizational determinants of consumers' recycling intentions and their interaction.

Finally, our findings contribute to the literature on omnichannel clothing retail. From research on buying behavior as it concerns clothes in an omnichannel retailing environment, it is known that perceived compatibility between offline and online channels determines the purchasing intentions of customers who switch between modes [62]. Our study reveals that channel integration also determines customers' recycling intentions.

5.3. Implications for Further Research

Our study concentrated on a selection of possible individual and organizational determinants of consumers' willingness to participate in UCRPs and their interactions. Further research should widen and vary the scope of possible individual (e.g., values, beliefs, attitudes, perceptions) and organizational (e.g., product, price, promotion, place) determinants and their interactions (e.g., commitment, loyalty) and study their influences. Furthermore, our study did not look into the effect of incentivization strategies on consumers' willingness to participate in UCRPs. In practice, customers often obtain a discount on new clothes for delivering old ones as part of the recycling plan. Whether and how such incentivization strategies affect consumers' willingness to participate in the fast fashion brand's UCRP needs to be investigated in further studies. Moreover, studies need to examine whether UCRPs can contribute to attracting new customers. Research on second-hand clothing purchase [63] revealed the importance of cultural influences on consumer behavior in that regard. While buying second-hand clothes is quite normal in the western world, Chinese urban consumers dislike wearing someone else's used clothes. Therefore, future research could collect data on consumers' recycling behavior as it pertains to clothes and its determinants in different geographies to study whether the determinants vary across cultures. Finally, a qualitative approach, i.e., in-depth interviews with consumers who are actually participating in fast fashion brands' UCRPs, could help to understand their actual motivations better.

5.4. Implications for Practice

Fast fashion brands must develop and implement strategies that contribute towards increased sustainability in order to counter the rising criticism about the environmental damages of their business model. One small step is to offer a UCRP that allows consumers to bring back clothes that they no longer use. To avoid the impression of pure greenwashing, the disposed clothes must be ecologically recycled and returned into the utilization and production cycle. They must also ensure that the plan is not a niche option for a small group of environmentally conscious consumers, but that it becomes a widely accepted normality. Our research delivers some more indications for how to do that, beyond simply providing information about, promoting, and possibly incentivizing participation in the

plan. Assuming that they operate an omnichannel retail model, fast fashion brands must work on channel integration quality and ensure consistency across channels, in particular as it concerns the UCRP. The possibility to buy clothes online and return them for recycling offline, and vice versa, contributes to the acceptance of and participation in the plan. Furthermore, fast fashion brands need to keep an eye on consumer satisfaction with offline and online channels, e.g., by continuously monitoring and improving service quality. This is important, not only because satisfied consumers are more likely to participate in the UCRP, but also because consumer satisfaction pushes brand identification.

5.5. Conclusions and Limitations

This paper aimed to examine the factors that determine consumers' willingness to participate in fast fashion brands' used clothes recycling plans in an omnichannel retail environment. A conceptual model was developed and tested on data collected online from Chinese fast fashion consumers. The study is limited by the risk of common method bias, since all data originate from one source and were collected online. In addition, some studies have pointed out that the product recycling behavior of respondents from China and Europe may be affected by different factors [64]. Since our sample was composed of Chinese consumers only, findings should be generalized with all necessary care. Moreover, results may be prone to a social desirability bias. Although anonymity was guaranteed, it cannot be excluded that respondents answered questions according to what they assumed is socially expected. Beyond that, we did not measure actual participation behavior, but willingness to participate, which may not necessarily result in corresponding action.

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