Impact of environmental attitude and materialism on apparel disposal intention

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Abstract. Sustainability is an important rising trend in the apparel industry. Accordingly, this study focuses on the influence of environmental attitude, materialism, channel integration, and other factors on apparel disposal recycling intention in an omnichannel retailing environment. The main findings are as follows: materialism has a significant positive impact, channel integration quality has a significant negative impact, and environmental attitude has no significant impact on impulsive consumption. Next, environmental attitude, impulsive consumption, and channel integration exert significant positive effects on used apparel recycling intention. Finally, improving channel consistency could increase female consumers’ willingness to recycle used clothes more than that of male consumers.

1. Introduction

Sustainability is an important growing trend in the apparel industry. Some environmentalists claim that the apparel industry is the second-largest polluter globally, trailing only behind the oil industry in terms of its negative impact on the environment. Fast fashion apparel is accepted by ordinary consumers because it can readily meet their fashion needs, given its rapid updates, diversified designs, and low prices. However, while many consumers are unaware of their own purchase goals when purchasing fast fashion apparel, they enjoy the sheer pleasure of consuming and owning the latest fashion designs, which leads to a higher rate of product use and a greater waste of resources. As a consequence, the apparel industry creates a lot of domestic waste and resource waste; hence, the recycling of apparel has become a practical and effective method to counter this negative impact.

This study aims to examine the factors that influence consumers’ apparel recycling intention in an omnichannel retailing environment. Our study makes the following contributions to existing research. First, previous research on sustainable purchase [1] limits itself to green purchasing, reusability, and recycling. Based on the fashion apparel consumption background, this study extends the literature by focusing on the relationship between consumers’ characteristics (materialism, impulsive consumption, and environmental attitude) and the intention to recycle used clothes. Second, differing from the secondhand apparel purchase related research [4], this study focuses on used apparel recycling in an omnichannel environment. Third, moving away from previous omni-channel retailing research, which focused on purchase-return channel consistency [12], channel consistency in this study refers to online and offline channel consistency.

The rest of the paper is organized as follows. Section 2 describes the methodology, while the results of the regression analysis and path analysis are presented in section 3. Section 4 discusses these results, and section 5 lists the implications and limitations of this study.
2. Methodology

2.1. Measurement of the Variables
This study uses research variables based on data compiled from questionnaires in previous research. Impulsive consumption (IM) and materialism (MA) are based on Rodriguez-Torrico et al. [7] and Mette et al. [5], respectively. Environmental attitude (EA) is based on Dunlap and Van Liere, and Nadeau and Niemi [2, 6], channel integration (CI) on Shen et al. [8], and recycling intention (RI) on Taylor and Todd [10]. The responses to questions on impulsive consumption, materialism, environmental attitude, channel integration, and recycling intention were measured using a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

Furthermore, gender (Gen), age (Age), education (Edu), and income (Income) were selected as control variables to further verify whether the apparel recycling intention is affected by demographic factors.

2.2. Sample Selection
A survey was conducted in May 2019 to study individuals who had bought fast fashion apparel at least once. Questionnaires were distributed through wjx.com. A total of 839 questionnaires were distributed and 423 completed questionnaires were collected. Among these, 3 questionnaires with short response times (<200s) and 50 questionnaires that revealed inconsistent responses to reverse questions were excluded. Finally, 370 questionnaires were deemed valid.

2.3. Model Fit
The model was developed using SPSS software (v22). Kaiser−Meyer−Olkin (KMO), Cronbach’s α, and variable factor loading exceeded the recommended value of 0.6, implying that the measurement items had good reliability.

3. Analysis

3.1. Regression analysis
Two models were constructed to test the effects of channel integration, materialism, and environmental attitudes on the impulsive consumption of fast fashion apparel (Table 1). In model 1 (M1), the regression coefficients of gender, age, and income level are significant, which indicates that female, younger, and high-income users are more likely to indulge in impulsive consumption behavior. In model 2 (M2), the regression coefficient of environmental attitude is not significant, indicating that, although consumers with high environmental attitude values are more likely to be aware of the seriousness of environmental pollution, it does not imply that they have a lower possibility of impulsive consumption. Based on the absolute values and significance levels of the regression coefficients, the impact of channel integration quality on impulsive consumption is greater and more significant than that of the other variables, which suggests that an improvement in channel consistency would help reduce consumers’ impulsive consumption behavior.

Two models were constructed to examine the impact of environmental attitude, impulsive consumption, and channel integration on the apparel recycling intention. In model 3 (M3), gender and income have significantly positive effects on the intention to recycle apparel, thereby indicating that females and consumers with high incomes are more likely to participate in the used clothes recycling program than male consumers and those with low incomes. In model 4 (M4), the regression coefficient of materialism is not significant, indicating that consumers with lower levels of materialism may not necessarily be more willing to recycle their used clothes. From the perspective of the absolute value and significance of the regression coefficients, environmental attitude has a greater and more significant impact on the willingness to participate in the used apparel recycling plan, followed by channel integration quality; the impact of impulsive consumption on apparel recycling intention is relatively lower.
### Table 1. Regression Analysis

| Variable | M1          | M2          | M3          | M4          |
|----------|-------------|-------------|-------------|-------------|
| Gen      | .213***     | .196***     | .150***     | .111**      |
| Age      | -.138**     | -.111**     | .037        | .031        |
| Edu      | -.045       | -.024       | .059        | .095**      |
| Income   | .162***     | .164***     | .119**      | .082        |
| CI       | -.198***    |             | .159***     |             |
| MA       | .102**      | .152        | .126        | .227**      |
| EA       | .018        |             | .401***     |             |
| IM       | .107**      |             |             |             |
| F        | 6.888***    | 7.757***    | 4.291***    | 14.851***   |
| R²       | .070        | .114        | .045        | .248        |
| ΔR²      | .060        | .099        | .034        | .231        |

Note: *** indicates \( p < 0.01 \), ** indicates \( p < 0.05 \), * indicates \( p < 0.1 \)

### 3.2. Path analysis and multi-group analysis

A structural equation model was constructed to further test the hypotheses. The resulting model fits well, with a chi square/df of 193.542/128; GFI, CFI, and IFI values of 0.944, 0.960, and 0.961 (greater than 0.9), respectively; and RMSEA of 0.037 (i.e., lower than 0.08). The standardized path coefficient and significance of the general model is consistent with the conclusion in the regression analysis (Table 2).

### Table 2. Path Analysis and Multi-group Analysis

| Path     | General Model | Male | Female | Uniqlo | Non-Uniqlo |
|----------|---------------|------|--------|--------|------------|
| CI→IM    | -.258***      | -.279*** | -.170** | -.353*** | -.110      |
| MA→IM    | .118*         | .152 | .126   | .227** | .006       |
| CI→RI    | .330***       | .270** | .358*** | .336*** | .298***    |
| EA→RI    | .487***       | .592*** | .346*** | .369*** | .655***    |
| IM→RI    | .201***       | .148 | .190** | .229** | .157***    |

The regression analysis reveals differences in the impulsive consumption and recycling intentions of male and female consumers. In addition, Uniqlo is the most popular apparel brand in the sample, which can be subdivided by specific apparel brands. Multi-group analysis was carried out based on gender and brand, and the resulting standardized coefficients and significance levels were compared. In the gender-based grouping, it was found that improving channel consistency is more effective in reducing the impulsive consumption of male consumers. Moreover, male consumers with the same level of environmental attitudes had a higher willingness to recycle clothes. Meanwhile, improving channel consistency was more useful in increasing the female consumers’ recycling intention. In the brand-based grouping, we found that, compared with other apparel brands, the promotion of channel consistency can better reduce the impulse consumption of Uniqlo’s consumers and improve their willingness to participate in the recycling program.

### 4. Conclusion and discussion

China is currently facing severe environmental distress, countering which will require a shift in the consumer culture to enable a fairer sharing of resource access within the limits imposed by the environmental boundaries. However, most consumers are not inclined to reduce their consumption levels, although they may be ready to change its composition toward sustainable consumerism [3].
Therefore, consumers with a greater environmental protection attitude may exhibit both impulsive consumption behavior and apparel recycling intention.

This study found that impulsive consumers are more likely to participate in the used clothes recycling programs initiated by apparel companies. A possible reason is that the impulsive consumption trait results in the consumer buying more useless clothes under nonrational conditions. The more such clothes they buy, the more likely they are to bring their used clothes to the recycling box provided.

This study finds that highly materialistic consumers have a higher level of impulse consumption, whereas there is no significant causal relationship between materialism and the willingness to recycle used clothes. High environmental protection consumers have a higher intention to recycle used clothes, but environmental protection attitudes and impulse consumption have no significant causal relationship. Based on the factors of impulsive consumption and recycling intention, consumers are classified according to their materialism and environmental attitude, as shown in Table 3.

| Category | High EA | Low EA |
|----------|---------|--------|
| I        | High IM & High-CR | I Low-IM & High-CR |
| II       | High IM & Low-CR  | II Low-IM & Low-CR |

Category I consumers exhibit the highest level of sustainability; they consume reasonably during the purchase stage and actively recycle unwanted apparel after purchase. Although Category II consumers are not highly enthusiastic about recycling used clothes, they do not buy impulsively and therefore the purchased clothes are less likely to be wasted. Category III consumers consume impulsively during the purchase stage, but also have high levels of enthusiasm for recycling used clothes. They may be fake sustainable consumers because they have purchased too many clothes that may not be needed. Category IV consumers have the lowest level of sustainability.

5. Implications and limitations

Few studies have addressed customer behaviors across channels in omni-channel retailing [11], and research on apparel recycling intention in omni-channel retailing is even scarcer. This study expands the existing research from the two aspects of sustainable apparel and omni-channel apparel retail.

In terms of sustainable apparel, first, this study differs from the research on sustainable purchase [1], which found that passion for, intimacy with, and commitment to nature positively influence green purchasing, reusability, and recycling. Based on the characteristics of apparel consumption, especially fast fashion apparel consumption, this study focuses on the impact of environmental attitude and materialism on the willingness to participate in used clothes recycling initiatives. Second, relevant research emphasizes that Chinese consumers dislike wearing others’ used clothes [4]. This study does not focus on the purchase of secondhand clothes, but on giving used clothes to apparel brands for recycling purposes. Therefore, the factors that affect the purchase of used clothes and the recovery of used clothes are not the same. That is, consumers who dislike buying secondhand clothes need not be averse to recycling used clothes.

This study focused on the reverse process, whereby consumers recycle and purchase apparel. Similar to the findings of omni-channel purchase research [9], when customers move from an offline to an online channel, the perceived compatibility between the two modes significantly determines their purchase intention. Furthermore, this study found that omni-channel integration, that is, online and offline channel consistency, has a significant positive impact on consumers’ apparel recycling intention. In addition, unlike return channel loyalty in omni-channel retailing [12], which considers channel consistency from a purchase-return perspective and finds that purchase-return channel consistency influences customers’ return channel loyalty, this study defines channel consistency in terms of online and offline channels and finds that such channel consistency has a positive impact on the willingness to participate in used clothes recycling initiatives.
This study focuses on the consumer intention to participate in recycling programs in an omni-channel environment, but does not consider the impact of intervention strategies (such as incentives) on apparel recycling intention. In actual practice, consumers can obtain discounts at stores in exchange for their used clothes. This strategy not only enables used clothes to be recycled, but also promotes the concept of environmental protection among consumers. Therefore, future research can focus on how such intervention strategies affect consumers’ apparel recycling intention.

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