

Article

The Persuasive Effect of Competence and Warmth on Clothing Sustainable Consumption: The Moderating Role of Consumer Knowledge and Social Embeddedness

Yoon Yong Hwang, Gin Young Jo and Min Jung Oh *

College of Business, Chosun University, 309 Pilmundae-ro, Dong-gu, Gwangju 61452, Korea; yyhwang@chosun.ac.kr (Y.Y.H.); sailsouth@naver.com (G.Y.J.)

* Correspondence: lemona13@daum.net; Tel.: +82-62-230-6853; Fax: +82-62-226-9664

Received: 23 January 2020; Accepted: 24 March 2020; Published: 27 March 2020



Abstract: Commonly, most companies regard consumer satisfaction to be their major goal. Companies have in the past been focusing on consumer choice in product sales from a utility theory perspective. However, these days, in addition to personal choice, clothing disposal and sustainable consumption are also becoming main concerns of consumers because of growing environmental problems in many parts of the world. In this research, two studies were conducted, and the results of study 1 were economic factors that affected sustainable consumption behavior positively, and competence cognition was the basis of this effect. A philanthropic factor also positively influenced sustainable consumption behavior, and this effect was mediated by warmth cognition. Economic factors influenced consumers' product disposal behavior not only through competence cognition but also through warmth cognition. Therefore, to encourage disposal behaviors, such as recycling and donation, strategies are needed that can appeal to economic advantages. Study 2 examined the clothing disposal behavior considering environmental economic factors by scenarios. As a result, it was confirmed that environmental economics factors influenced clothing disposal behavior. In addition, we could confirm the moderated mediating effect as well as the moderating effects of knowledge level. The implications of these results and some suggestions for future research are discussed.

Keywords: philanthropic awareness; environmental economic factors; clothing disposal behavior; sustainable consumption; competence; warmth; environmental knowledge; social embeddedness

1. Introduction

Consumption is the sole end purpose of all production which, in turn, brings happiness to customers. Like Adam Smith [1] said, consumption activity is the most directly fulfilling behavior of consumers' satisfaction.

Reflecting this, although customer satisfaction is the most important goal for all companies today, considering the contribution of consumption to individual and social welfare, corporate marketing activities also require a wider perspective. In other words, most companies have focused on selling products and have been interested in consumer choice from the viewpoint of utility theory. However, with globally growing concern about the pollution of the environment, it is time to take an interest in consumer disposal behavior for social well-being.

Consumers dispose of products temporarily or permanently when they are no longer useful [2] or are perceived to be old-fashioned. In the past, clothing disposal was usually treated as a personal concern, but now, because of environmental problems, product disposal has become an issue of public concern. That is, product disposal has created a growing garbage disposal problem, which has extended

it to a global environmental issue. Because of the growing wealth and purchasing power of consumers, some prior research suggests that products that are not fully used can be easily thrown away by consumers, which encourages excessive consumption [3,4]. Still, many consumers do not know about, or have no interest in, sustainable consumption and disposal methods. Moreover, inefficient disposal behaviors are currently causing many serious problems [4]. For example, large amounts of fiber waste produce high levels of contamination and are known to present a high chemical threat [5].

However, the research on the factors affecting consumer disposal and how to control consumers' disposal behavior is very limited. Thus, in this study, we examined the influencing factors to better understand consumer disposal behavior from a sustainability perspective. Disposition can be largely divided into physical detachment and emotional detachment. Physical detachment refers to the process by which an object is physically transferred to another person or place, and emotional detachment involves the pain of breaking apart from objects over time, which is more specific and time consuming than emotional disposal of property. Therefore, consumer disposal behavior should consider emotional disposition as well as physical transfer. We want to understand what mechanisms cause environmental dispositions and those with strong philanthropic perceptions to induce sustainable dispositional behavior, depending on the importance of physical and emotional detachment. Specifically, study 1 examines the perceptions of environmental economic factors related to consumer disposition behavior at the individual level and the effects of philanthropic awareness on altruistic disposition behavior at the interpersonal level as drivers of sustainable consumption. In addition, to examine the role of emotional factors influencing willingness toward disposal behaviors, we review the effects of mechanisms of competence and warmth. Study 2 confirms the results of study 1. We also examine the moderating role of consumer knowledge and social embeddedness in considering the influence of others on the mechanism effects of sustainable consumption behavior.

1.1. Sustainable Consumption Behavior

A consumer's disposal behavior can be explained as a consumer's decision-making behavior during the disposal of a product that is no longer in use. In the past, the main concern of scholars was with the product acquisition and consumption-related decision-making process [6]. Therefore, the literature about product disposal was regarded as relatively unimportant. However, since 1970, marketers have extensively studied the impact of environmental issues on consumer behavior [7]. The main issue in the study of sustainable consumption is whether the material needs and desires of present and future generations can be satisfied without harming natural systems or losing the ability of the environment to recover [8]. Consumption generally consists of three stages: acquisition, use, and disposal. Jacoby, Berning, and Dietvorst [2] explained that pre-purchase, purchasing, and post-purchase factors constitute a complete consumption process, and that each of the three stages must be considered as equally important steps to achieve sustainable consumption. However, existing studies have focused more on the decision-making process related to the acquisition and use phases of the product [6], and research on the disposal process of products has been relatively weak. Therefore, this study focuses on consumer attitudes and behaviors regarding product disposal. From this perspective, sustainable consumption is defined as "consumption that supports the ability of present and future generations to meet their material and other needs, without causing irreversible damage or loss of function in natural systems" [8].

1.2. Clothing Disposal Behaviors

A consumer's clothing disposal behavior is a decision-making action that is made in connection with the disposal of a product that the consumer no longer uses. As mentioned earlier, clothing disposal occurs when clothing is temporarily or permanently eliminated or when it is not in use but is retained by the consumer [2]. Consumers often have a logical and rational motive behind their disposal behaviors. Situational or product-related factors may also affect disposal behavior. In some cases, for example, clothing may be disposed of through resale or in trash cans, but donations to charitable

organizations or giving it to family or friends is the most sustainable disposal method, providing opportunities for re-use [3]. This study focuses on sustainable disposal behavior.

1.3. Environmental Economic Factors

Hanley et al. [9] suggest that the environmental economic factor is a measure of the consumer's attitude to environmental consequences of economic activities. As the name suggests, this factor is a combination of the environmental and economics factors. Usually, consumers with a high awareness of environmental factors in consideration of economic issues tend to conduct themselves more positively in terms of sustainable consumption behavior [9]. Despite numerous campaigns, consumers who do not fully understand how their product disposal behavior could affect the economy can react differently. Therefore, we hypothesize that the economics factor prompts sustainable consumption behavior.

Hypothesis 1 (H1). *Environmental economic factors positively affect product disposal behavior.*

1.4. Philanthropic Awareness Factor

Schervish [10] defined philanthropy as “a social relationship governed by a moral obligation that matches a supply of private resources to a demand of unfulfilled needs and desires that are communicated by entreaty.” Prior study indicates that consumers who donate to others have a high philanthropic awareness, which has a significant effect on U.S. consumer sustainable consumption behavior [11]. In addition, these disposal behaviors can cause mild emotions (i.e., warmth) based on social judgment because they are perceived to be non-profit behaviors that are devoted to social benefits rather than profitable activities.

Hypothesis 2 (H2). *Philanthropic awareness factors positively affect product disposal behavior.*

1.5. Competence and Warmth

The literature on social psychology and organizational behavior is replete with findings showing that people differentiate others based on their competence and warmth. Warmth typically includes perceptions of generosity, kindness, honesty, sincerity, helpfulness, trustworthiness, and thoughtfulness, whereas competence includes confidence, effectiveness, intelligence, capability, skillfulness, and competitiveness [12,13].

These two dimensions are not only central to personal perception, but they also account for a large share of the variance when targets are judged. For example, groups such as the rich are often seen as high in competence but low in warmth, whereas housewives and the elderly often are high in warmth but low in competence [14–16]. Therefore, philanthropic awareness could induce feelings of warmth, and environmental economics could induce feeling of competence. Therefore, we hypothesize that the environmental economics factor that prompts product disposal behavior is mediated by a consumer's competence cognition. Likewise, the philanthropic awareness factor that prompts product disposal behavior is mediated by a consumer's warmth cognition.

Hypothesis 3 (H3). *The effect of the environmental economic factors on product disposal behavior is mediated by a consumer's competence cognition.*

Hypothesis 4 (H4). *The effect of the philanthropic awareness factor on product disposal behavior is mediated by a consumer's warmth cognition.*

1.6. Environmental Knowledge

Environmental knowledge is defined as the consumer's cognitive realm related to the environment, that is, facts, concepts and relation to environmental problems, and is an important basis for practicing environmentally friendly behavior [17], and knowledge is a necessary precondition for shaping the

attitudes of consumers' disposal behavior [18]. The reason is that first, knowledge helps consumers choose the right consumer behaviors. Second, knowledge can help involvement in a sustainable society by gaining a better understanding of the various social issues related to consumer behavior or of programs supported by companies. Thus, in order to increase demand and consumption, companies need to provide consumers with information that increases knowledge.

Laroche et al. [19] suggest that environmental behavior is influenced by values, attitudes, and knowledge. Environmental knowledge is considered as a variable of individual ability to understand impact on the environment. In a study examining the relationship between environmental knowledge and environmental behavior, Antil [20] reported that consumers with more environmental knowledge had more socially responsible consumption behaviors than those who did not. In addition, Schahn and Holzer [21] suggest that specific knowledge of the environment is a necessary condition for a proper environmental protection movement and that knowledge is linked to responsible behavior toward the environment. Therefore, this study predicted that environmental knowledge influences the relationship between environmental economic factors on disposal behavior, and specifically, it was predicted that groups with high environmental knowledge have more positive disposal behavior than those without. The hypothesis is as follows.

Hypothesis 5 (H5). *The level of environmental knowledge plays a role in the relationship between environmental economic factors and disposal behavior. In other words, groups with high environmental knowledge have more positive disposal behavior than the group with lower environmental knowledge.*

1.7. Social Embeddedness

In consumers' consumption behavior, social belonging is an important factor in promoting sustainable consumption behavior. The reason for this is that social connections of members of a particular community can affect individual choices and beliefs. This sense of social belonging can be best specified through social embeddedness, which acts as a representative indicator. Lee and Burdney [22,23] report that people with strong social embeddedness tend to volunteer more and tend to believe that they can share more volunteer benefits with others. Kurz et al. [23,24] also found that a sense of community has a positive effect on participation in the recycling movement. Therefore, companies need to increase consumers' sense of belonging to society in order to increase social responsibility. This suggests that perceptions of philanthropy, which are closely related to social relations, can ultimately reinforce the impact on sustainable consumer behavior. The hypothesis is as follows.

Hypothesis 6 (H6). *Social embeddedness has a moderating effect in the relationship between philanthropic awareness and disposal behavior. In other words, the group with higher social embeddedness has a more positive disposal behavior than the group with lower social embeddedness.*

Figure 1 summarizes the relationship between the influencing factors, the mediating factors, and the moderating factors on the above product disposal behavior.

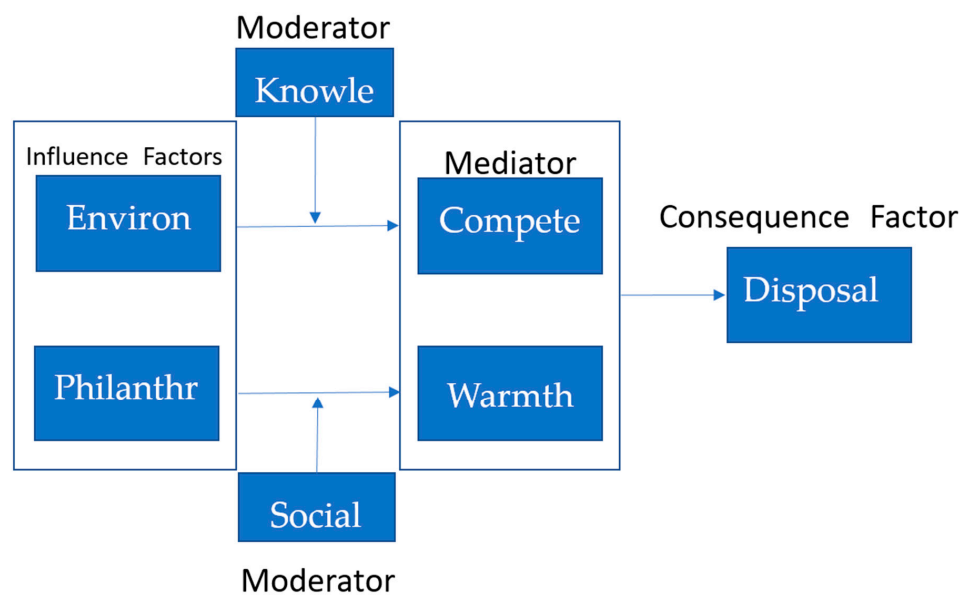


Figure 1. Research conceptual framework.

2. Methodology

2.1. Study 1

Study 1 examined the influence of environmental economic and philanthropic awareness factors on consumers' disposal behaviors and the mediating role of competence and warmth to explain the emotional mechanisms of both factors.

2.2. Data Collection

A total of 150 undergraduate students from Chosun University who experienced disposal behavior of clothing consumption participated in this survey. Looking at the consumption behavior of the Korean market, the young generation in their 20s–30s mainly consumed fashion items such as clothes and shoes, while those in their 40s spent money on drinking and cigarettes, and those in their 50s–60s spent mainly on transportation expense. Furthermore, the younger generation is reported to have increased interest in luxury consumption due to its lack of control or self-efficacy. Therefore, in order to confirm the behavior of clothing disposal, a survey was conducted because the 20–30 generation is group that most frequently purchases clothing [25].

After excluding samples that contained missing responses, one hundred forty-three samples remained. According to the final data, 67 (46.9%) were men and 76 (53.1%) were women. The age range was from 19 to 28 years.

2.3. Measures

The survey items were identified from previously studied literature. In this study, all the questionnaire items were measured on a 7-point scale (1 = strongly disagree, 7 = strongly agree).

Environmental economic factors (six items) and philanthropic awareness (five items) were measured using items validated by Shim [14]. Environmental economic factors and philanthropy awareness factors were used as independent variables. Environmental economic factors were classified into environmental factors and economic factors. First, environmental factors (three items) included "I dispose of old products/clothing for environmental reasons" and so on. Economic factors (three items) included "I sell much of my clothing for economic reasons" and so on, but environmental factors were removed, and we used economic factors to analyze the three variables.

Philanthropy awareness factors included “I think charity is an important way of preserving our community values”, “I think clothes donation brings enjoyment to people’s lives”, and so on. One of the five philanthropy awareness factors was removed, and four variables were used for analysis.

Next, competence and warmth cognition, which were used as mediating variables, were examined. The measures for competence (three items) and warmth (three items) were adapted from the scale used by Aaker et al. [16]. First, competence cognition included “I think my product disposal behavior is real” and so on. Warmth cognition measures included “I think my product disposal behavior is kind” and so on. Mediating variables were used for the analysis without removing any variables.

Finally, disposal behavior, which was used as a dependent variable, was examined. The operational definition of product disposal behavior refers to the transfer of a product physically to another person or to another location. The measures for disposal behaviors included “I put items in the recycling box, so others can reuse the products” and so on. One of the disposal behaviors was removed, and two variables were used for analysis.

2.4. Study 2

Study 2 had two main objectives. First, study 1 examined the causes of sustainable behavior considering only economic factors. However, to examine the causes of sustainable behavior, environmental factors as well as economic factors must be considered together, as in the previous study [10]. Therefore, in study 2, the purpose of this study was to examine the relationship between environmental and economic factors as independent variables affecting sustainable disposal behavior. Second, in previous research, we confirmed the mechanism of competence and warmth when economic factors and philanthropic awareness influence disposal behavior. The purpose of study 2 was to examine how each knowledge level and social embeddedness have a moderating effect.

2.5. Data Collection

The purpose of study 2 was to examine whether the level of knowledge and social embeddedness has a moderating effect, as well as the relationship between environmental economic factors and philanthropy perceptions on disposal behaviors.

To confirm the results of study 1 and to test the hypothesis of study 2, we surveyed undergraduate and graduate schools (including MBA). Specifically, the age range spanned the 30s to 60s. A total of 350 respondents participated in the survey. A total of 331 respondents, excluding 19 invalid responses, were used for the final analysis. The age range was 19 to 64 years.

2.6. Measures

Economic factors, competence, warmth, and disposal behaviors were the same as in study 1, and additional environmental factors (five items), knowledge level (three items), and social embeddedness (four items) were used as a 7-point scale. The questionnaire items were as follows. Environmental factors [26] included “Plastic cans are collected separately and discarded”, “Give or change clothes that you do not wear”, and so on. Knowledge factors [24] included “I am aware of the environmental impact of disposing of old products”, “I am aware of how I can participate in environmental action”, and so on. Social embeddedness [27] included “I think I belong to a community with a strong sense of belonging and attachment”, “I have experience in discussing and communicating environmental concerns often in my community”, and so on.

3. Results

3.1. Study 1

In this study, confirmatory factor analysis using the LISREL 8.3 program was conducted to verify the validity of the multivariate measures. Covariance data were used as input data for model validation, and the validity factor analysis for the model was $\chi^2 = 82.718$, $df = 55$ ($p = 0.002$), GFI = 0.918, AGFI

= 0.864, NFI = 0.923, NNFI = 0.954, CFI = 0.968, RMR = 0.057, which showed good fit. In the case of convergent validity, convergent validity is higher when the correlation between the indicators measuring the same constitution concept is high and the correlation with the indicators measuring other concepts is low. In addition, there is convergent validity when the parameter estimates of the observed variables for each latent variable are measured and the t-value of the parameter estimates is statistically significant [28]. As a result of confirmatory factor analysis, the environmental factors were eliminated, and the t-value of the parameter estimates of economic factor were greater than 2 as reported in Table 1, and it can be interpreted that there is a convergent validity for the measurement model of this study. In addition, the conceptual reliability for both exogenous variables and endogenous variables was higher than 0.9, which was higher than the general standard of 0.7. As a further measure of reliability, Average Variance Extracted (AVE), which can be explained by the indicator for the latent construct, was verified. The AVE value of all variables was higher than the reference value of 0.5.

Table 1. Measurement model testing results.

Environmental Economic Factors	CSFL ^a	SE	t-Value	Construct Reliability	AVE ^b
I sell much of my clothing for economic reasons	0.85	0.07	12.55	0.975	0.897
I sell clothes for money	0.97	0.06	15.58		
I trade clothing to save money	0.93	0.06	14.52		
Philanthropic Awareness Factors					
I think charity is an important way of preserving our community values	0.88	0.12	12.99	0.953	0.830
I think clothes donation brings enjoyment to people’s lives	0.94	0.11	14.36		
It is important to me to donate my clothes to charity for the needy	0.81	0.11	11.45		
Competence Cognition					
I think my product disposal behavior is effective	1.05	0.48	3.24	0.792	0.649
I think my product disposal behavior is appropriate	0.50	0.15	2.91		
Warmth Cognition					
I think my product disposal behavior is kind	0.81	0.09	12.92	0.960	0.843
I think my product disposal behavior is warm	0.92	0.09	15.55		
I think my product disposal behavior is generous	0.87	0.10	10.82		
Disposal Behavior					
I put items in the recycling box, so others can reuse the products	0.52	0.18	4.81	0.791	0.661
I donate clothes to charity to do my part in decreasing environmental problems	0.74	0.24	5.81		
Goodness of fit	$\chi^2 = 82.718$ df = 55 (p = 0.002), GFI = 0.918, AGFI = 0.864, NFI = 0.923, NNFI = 0.954, CFI = 0.968, RMR = 0.057				

a: Completely standardized factor loading; b: Average variance extracted.

To examine the relationship between the Environmental economic factors and disposal behaviours, the items for Environmental economic factors and disposal behaviour were averaged together. The simple regression revealed no significant main effect of Environmental economic factor ($\beta = 0.150$, $p = 0.65$) or philanthropic awareness factor ($\beta = 0.536$, $p < 0.001$).

We also tested our hypotheses 2 and 4 in which consumers' competence cognition would mediate the effect of the economic factors on disposal behaviour. The results of the simple-mediation bootstrapping analysis [16] confirmed that the indirect effect of the economic factors on disposal behaviour was significant (95% confidence interval (CI): 0.0122 to 0.1470). A further mediation test indicated that consumers' warmth cognition mediated the effect of the philanthropic awareness factor on disposal behaviour (95% confidence interval (CI): 0.0319 to 0.2730). The result of the bootstrapping is shown in Table 2. Therefore, hypotheses 2 and 4 were verified, and it was confirmed that economic factors were mediated completely by competence.

Table 2. The result of the bootstrapping on the mechanism.

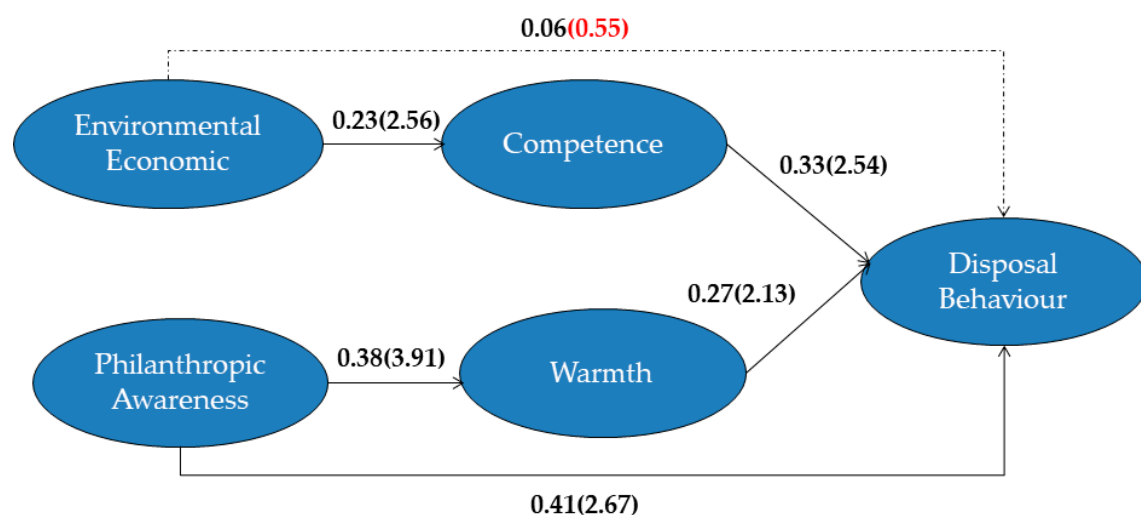
Path	Data	CI low	CI high
Environmental economic factor → competence → disposal	0.0706	0.0122	0.1470
Philanthropic awareness → warmth → disposal	0.1338	0.0319	0.2730

In addition, the fit of the model was verified by using the LISREL 8.8 program. As a result, the fit of the research model was found to be generally acceptable, as shown Figure 1 and Table 3 ($\chi^2 = 144.41$, $df = 83$ ($p = 0.000$), $GFI = 0.881$, $CFI = 0.935$, $PNFI = 0.692$ and $SRMR = 0.115$).

Table 3. Comparison of the fitness of the research model and alternative model.

Division	χ^2	df	CFI	GFI	SRMR	RMSE	PNFI
Research	144.41	83	0.935	0.881	0.115	0.072	0.692
Alternative	140.37	81	0.937	0.884	0.091	0.072	0.678

Furthermore, an alternative model, if economic factors and philanthropy awareness mediate both competence and warmth, was tested. The fitness results for this model are shown Figure 2 and Table 3 ($\chi^2 = 140.37$, $df = 81$ ($p = 0.000$), $GFI = 0.884$, $CFI = 0.937$, $PNFI = 0.678$ and $SRMR = 0.091$).

**Figure 2.** Research model (the value in parentheses is the t-value).

3.2. Study 2

Research Model

In this study, LISREL 8.30 was used to analyze the structural equation model. As a result of the analysis, as shown in Table 1, the value of the fitness index for the research model was $\chi^2 = 473.74$ ($df = 247$, $p < 0.001$). Additional fit indices such as GFI (0.897), $AGFI$ (0.865), NFI (0.895), $NNFI$ (0.935), CFI (0.946), and RMR (0.042) were reported to be generally acceptable (Table 4).

Table 4. Measurement model testing results.

Environmental Economic Factors	CSFL ^a	SE	t-Value	Construct Reliability	AVE ^b
I sell much of my clothing for economic reasons	0.88	0.09	19.80	0.912	0.738
I sell clothes for money	0.84	0.08	18.42		
I trade clothing to save money	0.93	0.08	21.39		
Plastics and cans are separated and disposed of	0.80	0.05	15.09		
Old books and newspapers are separated and disposed of.	0.72	0.07	13.36		
Batteries are separately disposed of.	0.56	0.09	9.88		
All used spray, butane gas, etc. are separated and disposed of	0.64	0.08	11.68		
Philanthropic Awareness Factors					
I think charity is an important way of preserving our community values	0.74	0.06	15.15	0.978	0.837
I think clothes donation brings enjoyment to people's lives	0.61	0.08	11.56		
It is important to me to donate my clothes to charity for the needy	0.85	0.06	18.40		
I donate a product to help others	0.76	0.05	15.70		
Clothes donation is the responsibility of a good citizen	0.80	0.07	16.72		
Competence Cognition					
I think my product disposal behavior is real	0.78	0.06	15.69	0.970	0.915
I think my product disposal behavior is effective	0.82	0.06	16.60		
I think my product disposal behavior is appropriate	0.81	0.06	16.34		
Warmth Cognition					
I think my product disposal behavior is kind	0.93	0.06	22.15	0.976	0.932
I think my product disposal behavior is warm	0.95	0.06	22.76		
I think my product disposal behavior is generous	0.84	0.06	18.73		
Social embeddedness					
I think I belong to a community with a strong sense of belonging and attachment	0.69	0.06	12.81	0.966	0.906
I have experience in discussing and communicating environmental concerns often in my community	0.83	0.06	16.01		
I have a wide network (relationship) that I often meet or talk to in the community	0.75	0.06	14.20		
Knowledge					
I am well aware of the environmental impact of disposing of old products	0.90	0.09	13.61	0.946	0.897
I am well aware of how I can participate in environmental action	0.82	0.08	12.72		
Disposal Behavior					
I donate clothes to charity to do my part in decreasing environmental problems	0.50	0.12	7.59	0.838	0.722
My recycling efforts will have a positive impact on the environment	0.59	0.11	8.41		
Goodness of fit			$\chi^2 = 473.74$, df = 247 (p = 0.000), GFI = 0.897, AGFI = 0.865, NFI = 0.895, NNFI = 0.935, CFI = 0.946, RMR = 0.042		

a: Completely standardized factor loading; b: Average variance extracted.

4. Discussion

4.1. Study 1

To examine the relationship between the environmental economic factors and disposal behaviors (H1), the items for environmental economic factors and disposal behavior were averaged together. The simple regression revealed no significant main effect of environmental economic factor ($\beta = 0.150$, $p = 0.65$) or philanthropic awareness factor ($\beta = 0.536$, $p < 0.001$).

We also tested hypotheses 2 to 4 in which consumers' competence cognition would mediate the effect of the economic factors on disposal behavior. The results of the simple mediation bootstrapping analysis [16] confirmed that the indirect effect of the economic factors on disposal behavior was significant (95% confidence interval (CI): 0.0122 to 0.1470). A further mediation test indicated that consumers' warmth cognition mediated the effect of the philanthropic awareness factor on disposal behavior (95% confidence interval (CI): 0.0319 to 0.2730). The result of the bootstrapping is shown in Table 2. Therefore, hypotheses 2 to 4 were verified, and it was confirmed that economic factors were mediated completely by competence.

In addition, the fit of the model was verified by using the LISREL 8.8 program. As a result, the fit of the research model was found to be generally acceptable, as shown Figure 2 and Table 3 ($\chi^2 = 144.41$, $df = 83$ ($p = 0.000$), GFI = 0.881, CFI = 0.935, PNFI = 0.692, and SRMR = 0.115).

Furthermore, an alternative model, whether economic factors and philanthropy awareness mediate both competence and warmth, was tested. The fitness results for this model are shown Figure 3 and Table 3 ($\chi^2 = 140.37$, $df = 81$ ($p = 0.000$), GFI = 0.884, CFI = 0.937, PNFI = 0.678, and SRMR = 0.091).

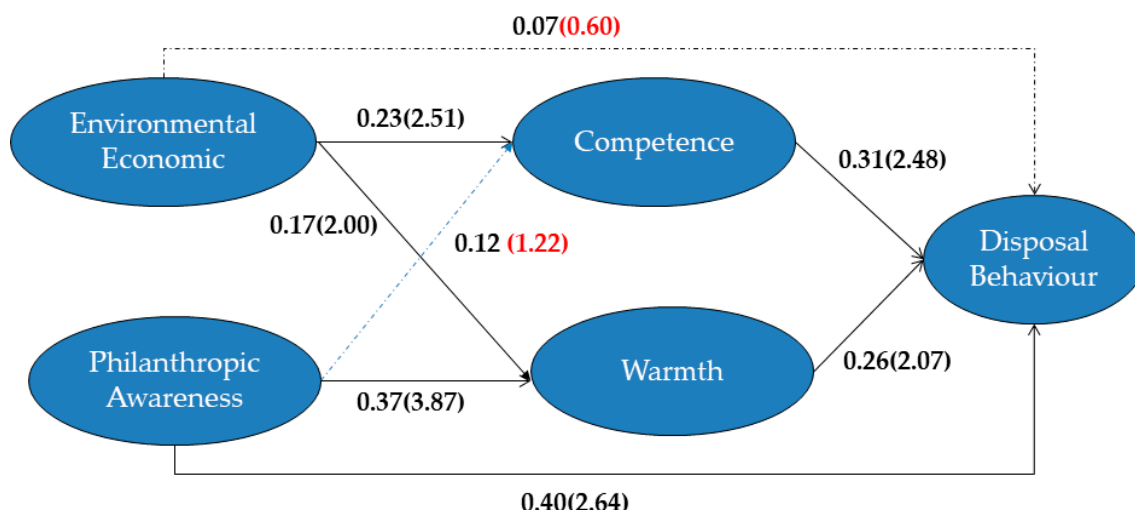


Figure 3. Alternative model (the value in parentheses is the t-value).

4.2. Study 2

Research Hypothesis Test

To test the hypotheses, we first used the average of the economic factors and the environmental factors as the environmental economic factors, and the other variables were used in the confirmatory factor analysis. To validate the research model, the hypothesis was verified through the bootstrapping method, Model 4 [29].

As a result, in study 1, although the economic factors did not directly affect the disposal behavior, as shown in Figure 4, it was confirmed that environmental economic factors directly affect disposal behavior as independent variables ($b = 0.62$, $t = 4.03$, $p < 0.01$). In addition to the direct effects of environmental economic factors, the indirect effects of environmental economic factors \rightarrow competence \rightarrow disposal behavior were also statistically significant ($b = 0.10$, CI [0.021, 0.213]). The direct and indirect effects of philanthropic awareness \rightarrow warmth \rightarrow disposal behavior were statistically significant ($b = 0.30$, CI [0.183, 0.472]). That is, as a result of re-testing hypotheses 1 to 4 of study 1, it was confirmed that all were supported.

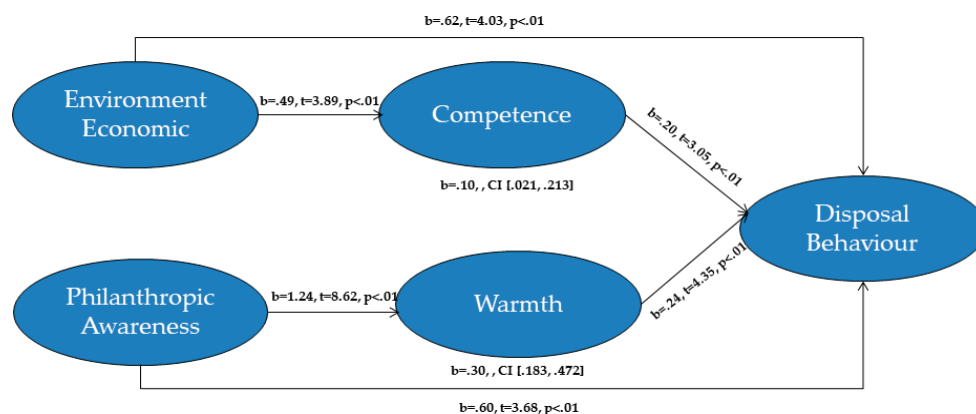


Figure 4. Study model.

Next, we confirmed the moderating effect of knowledge level (H5) and social embeddedness (H6). First, the role of competence plays a mediating role in the relationship between environmental economic factors and disposal behaviors, and the knowledge level plays a moderating role. As a detailed method, the knowledge level was divided into the low knowledge and the high knowledge

through the bootstrapping model 4, and it was verified whether there was a moderated mediating effect. The group classification was re-coded as 0 in the group lower than the average and 1 in the higher group based on the average value ($M = 4.15$). As predicted from the hypothesis, the moderating effect does not appear when the knowledge level is high. However, the respondents with low knowledge level showed a relationship between environmental and economic factors and disposal behavior through the perception of competence.

As shown in Figure 5, the hypothesis was supported in reverse. In other words, in the case of respondents with low level of knowledge, environmental economic factors were mediated by competence for the disposal behavior ($b = 0.09$, CI [0.004, 0.281]). However, respondents with high knowledge level showed statistically insignificant results ($b = 0.06$, CI [−0.001, 0.215]).

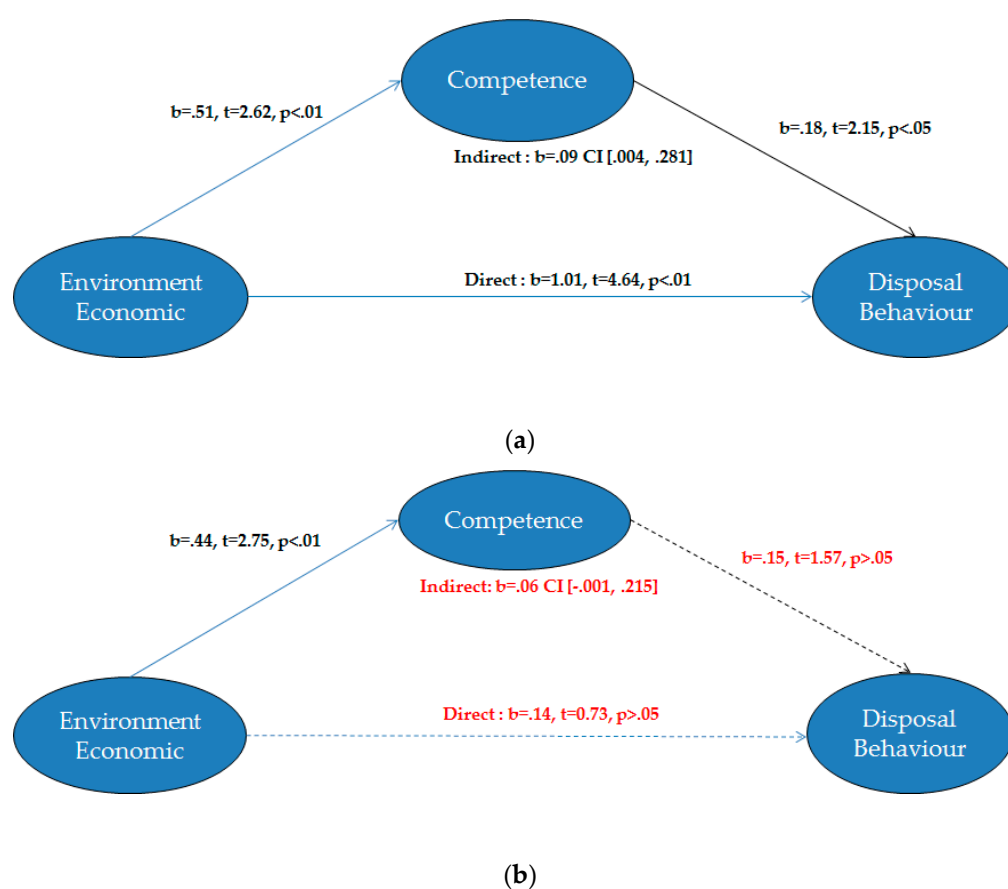


Figure 5. Mediated moderating analysis results according to knowledge level. (a) Condition 1: Knowledge_Low; (b) Condition 2: Knowledge_High.

Next, to examine the moderated mediating effects of social embeddedness, process model 4 was divided into two groups: low social embeddedness group and high social embeddedness (Figure 6). The criterion for dividing the group was the same as a previous study based on the average value ($M = 4.77$). As a result, respondents with low social embeddedness, the direct effect of the philanthropic awareness on disposal behavior was not significant ($b = 0.40, t = 1.66, p > 0.05$), but moderated mediating effects on disposal behavior were identified ($b = 0.36$, CI [0.153, 0.641]). On the other hand, in the case of the group with high social inclusion, the moderated mediating effect was predicted as expected ($b = 0.19$, CI [0.077, 0.356]). Hypothesis 6 was confirmed to be supported.

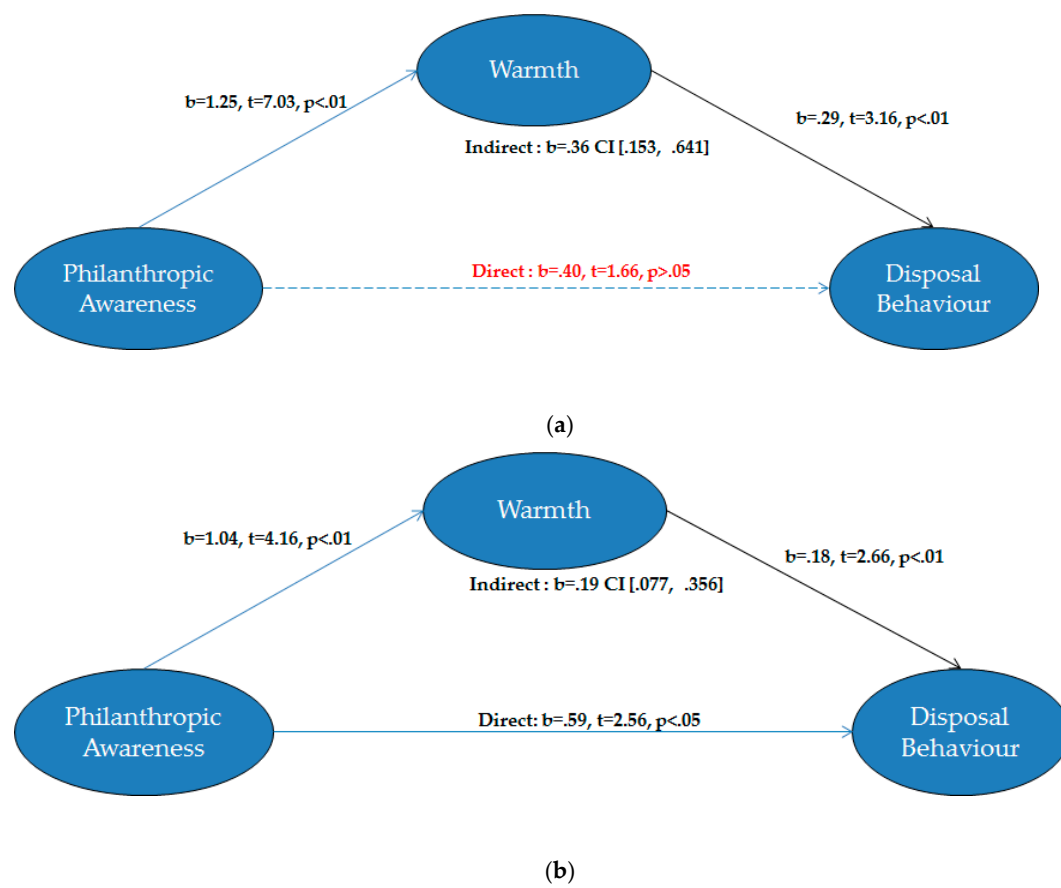


Figure 6. Mediated moderating analysis results according to social embeddedness. (a) Condition 1: Embeddedness Low; (b) Condition 1: Embeddedness_High.

5. Conclusions

From a practical point of view, this study provides clues for companies on how they can induce sustainable consumption behavior by identifying logical and rational motives for consumer disposal behavior. Furthermore, by grasping the relationship between disposal and sustainable consumption behavior in terms of product-related factors, companies can use this study to influence proper consumption behaviors.

The practical implication is that consumers who are aware of the importance of the economic factors will be able to increase responsible disposal behavior through competence. On the contrary, if consumers are highly aware of philanthropy, messages that produce feelings of emotional warmth will increase sustainable disposal behavior. Specifically, to distinguish between for-profit and non-profit companies, marketing strategies should be introduced. In the case of non-profit companies, consumers should be encouraged to improve their disposal behavior through strategies that stimulate their emotions. On the other hand, for-profit companies will encourage it through capacity, such as corporate asset value and financial structure. In addition, according to the results of the analysis of the alternative model test, it was found that economic factors can induce consumers' disposal behavior by communicating warmth as well as competence.

Corporate sustainability management has focused on developing eco-friendly materials or making products that use eco-friendly materials. In addition, from the perspective of the consumption of developed products, we have focused on the recycling of resources and have been interested in explaining the direct cause of recycling. However, sustainable behaviors such as responsible disposal behavior require not only corporate effort but also a means of motivating consumers to put forth their own effort. Therefore, consumers' disposal behavior can create opportunities for corporations to

increase their sustainability by actively responding to social problems such as excessive consumption and waste of resources.

Theoretical implications are that this study focuses on this part and attempts to differentiate it from previous research by examining what mechanism elements attract the direct factors influencing disposal behavior that have been proposed in previous studies. Furthermore, this study identified the factors that moderated mediating the level of knowledge about the environment and the level of social embeddedness, and the social disposal behavior of respondents with low knowledge of the environment was high. This study finds that the persuasion communication strategies of companies that pursue sustainability management are more effective at inducing sustainable disposal behavior from an economic point of view when competence and warmth factors are considered. In addition, philanthropic factors can be persuasive only from a social judgment point of view. Finally, understanding the right product disposal behavior for the public can create opportunities for companies to increase social sustainability by forcing them to actively address social issues such as overproduction and waste of resources.

The limitations of this study and future research directions are as follows.

First, we did not consider cultural differences because this was a study examining the disposal behavior of Korean people. Future research will require comparative study of sustainable disposable behavior between Eastern and Western cultures.

Second, Disposal can be broadly divided into physical and emotional detachment [18]. Physical detachment refers to the process by which an object is physically transferred to another person or place, and emotional detachment entails emotional disposal of possessions, which involves a painful break because the process takes a long time. Therefore, future research should consider not only physical detachment but also emotional disposal behavior.

Third, the hypothesis of the knowledge level came out reversed. In other words, the higher the level of knowledge of clothing disposal behavior, the more environmental and economic factors do not affect consumers' disposal behavior. Therefore, it is deduced that there may be another influencer, and further study is needed.

Fourth, the sample of this study was limited to students, so study 2 tried to generalize the results by extending the age from 20s to 60s. However, the frequency of those in their 40s and 60s was insufficient compared to those in their 20s and 30s. Therefore, in order to generalize the results of this study, it is necessary to conduct further research by different age groups. Specially, in the future research, it is necessary to divide the method into a younger generation and an older generation to supplement the methodology.

Finally, this study needs to be supplemented from a theoretical point of view. This research hypothesis suggested that economic factors have a positive effect on disposal behavior through competence, and that philanthropic awareness has a positive effect on disposal behavior through warmth. However, as can be seen from the alternative model, economic factors mediate disposal behavior through both warmth and competence. Therefore, an alternative hypothesis cannot be ruled out. For example, it is likely that the level of involvement of the product will be different and the results may vary depending on the product type (hedonic vs. utility). Therefore, additional studies are necessary.

Author Contributions: The following statements should be used “conceptualization, Y.Y.H.; methodology, M.J.O.; software, M.J.O.; validation, Y.Y.H., M.J.O. and G.Y.J.; formal analysis, M.J.O.; investigation, Y.Y.H. and G.Y.J.; resources, Y.Y.H.; data curation, G.Y.J.; writing—original draft preparation, Y.Y.H. and G.Y.J.; writing—review and editing, M.J.O.; visualization, M.J.O.; supervision, Y.Y.H.; project administration, Y.Y.H.; funding acquisition, Y.Y.H.”. All authors have read and agreed to the published version of the manuscript.

Funding: This study was supported by research fund from Chosun University (2019).

Acknowledgments: Our researchers would like to thank anonymous reviewers and editors.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Rodolfo, E.M.; Seshadri, A. Human Capital and the Wealth of Nations. *American Eco. Rew.* **2014**, *104*, 2736–2762.
2. Ha-Brookshire, J.E.; Hodges, N.N. Socially Responsible Consumer Behavior? Exploring Used Clothing Donation Behavior. *Cloth. Text Res. J.* **2009**, *27*, 179–196. [CrossRef]
3. Birtwistle, G.; Moore, C.M. Fashion Clothing: Where Does It All End Up? *Int. J. Retail Distrib. Manag.* **2007**, *35*, 210–216. [CrossRef]
4. Yee, L.W.; Hassan, S.H.; Ramayah, T. Sustainability and Philanthropic Awareness in Clothing Disposal Behavior among Young Malaysian Consumers. *SAGE Open* **2016**, *6*, 1–10.
5. Treloar, G.; Crawford, R.; Treloar, A.; Thomas, S.; Burry, M. Assessing Environmental Impacts of Manufacturing: Technologies for Informing Design. In *Space Between, The-Conference Proceedings Volume 2*; Curtin University of Technology: Perth, Australia, 2003.
6. Lin, I.C.; Chang, K.F. A Study to Explore How Disposing Old-Goods Factors Influence Consumer's Behavior. *J. Adv. Man. Sci.* **2013**, *1*, 372–377. [CrossRef]
7. Doane, D. *Taking Flight: The Rapid Growth of Ethical Consumerism: The Ethical Purchasing Index*; New Economics Foundation: London, UK, 2001.
8. Jackson, T.; Michaelis, L. Policies for Sustainable Consumption, London. *Sustain. Dev.* **2003**.
9. Hanley, N.; Shogren, J.; White, B. *Introduction to Environmental Economics*, 2nd ed.; Oxford University Press: New York, NY, USA, 2013.
10. Morgan, L.R.; Birtwistle, G. An Investigation of Young Fashion Consumers' Disposal Habits. *Int. J. Con. Stud.* **2009**, *33*, 190–198. [CrossRef]
11. Schervish, P. *Encyclopedia of Politics and Religion*, 1st ed.; Congressional Quarterly; Routledge: Washington, DC, USA, 1998; Volume 2, pp. 600–602.
12. Grandey, A.; Fisk, G.; Mattila, A.; Jansen, K.; Sideman, L. Is 'Service with a Smile' Enough? Authenticity of Positive Displays during Service Encounters. *Org. Behav. Hum. Dec. Process.* **2005**, *96*, 38–55. [CrossRef]
13. Judd, C.M.; James-Hawkins, L.; Yzerbyt, V.; Kashim, Y. Fundamental Dimensions of Social Judgment: Understanding the Relationship between Judgments of Competence and Warmth. *J. Pers. Soc. Psych.* **2005**, *89*, 899–913. [CrossRef]
14. Fiske, S.T.; Cuddy, A.J.; Glick, P.; Xu, J. A Model of (Often Mixed) Stereotype Content: Competence and Warmth Respectively Follow from Perceived Status and Competition. *J. Pers. Soc. Psych.* **2002**, *82*, 878–902. [CrossRef]
15. Shim, S. Environmentalism and Consumers' clothes disposal patterns: An exploratory study. *Cloth. Text Res. J.* **1995**, *13*, 38–48. [CrossRef]
16. Aaker, J.; Vohs, K.D.; Mogilner, C. Nonprofits are Seen as Warm and For-Profits As Competent: Firm Stereotypes Matter. *J. Consum. Res.* **2010**, *37*, 224–237. [CrossRef]
17. Hayes, A.F. Process: A Versatile Computational Tool for Observed Variable Mediation, Moderation, and Conditional Process Modelling. *Analysis*. 2012. Available online: <http://www.afhayes.com/public/process2012.pdf> (accessed on 27 March 2020).
18. Hoyer, W.D.; MacInnis, D.J. *Consumer Behavior*, 5th ed.; Prentice Hall: Upper Saddle River, NJ, USA, 2008.
19. Laroche, M.; Bergeron, J.; Barbaro-Foreleo, G. Targeting Consumers Who are Willing to Pay More for Environmentally Friendly Products. *J. Con. Mar.* **2001**, *18*, 503–520. [CrossRef]
20. Antil, J.H. Socially Responsible Consumer: Profile and Implications for Public Policy. *J. Macromar.* **1984**, *4*, 18–39. [CrossRef]
21. Schahn, J.; Hozler, E. Studies of Individual Environmental Concern: The Role of Knowledge, Gender and Background Variables. *Environ. Behav.* **1990**, *12*, 157–166. [CrossRef]
22. Lee, Y.J.; Brudney, J.L. Rational Volunteering: A Benefit-Cost Approach. *Int. J. Sociol. Soc. Pol.* **2009**, *29*, 512–530. [CrossRef]
23. Kurz, T.; Linden, M.; Sheehy, N. Attitudinal and Community Influences on Participation In New Curb side Recycling Initiatives In Northern Ireland. *Environ. Behav.* **2007**, *39*, 367–391. [CrossRef]
24. Kim, Y.; Sunyoung, Y.; Joosung, L. Can Companies Induce Sustainable Consumption? The Impact of Knowledge and Social Embeddedness on Airline Sustainability Programs in the U.S. *Sustainability* **2014**, *6*, 3338–3356. [CrossRef]

25. Koh, I.K. An Exploratory Study on Korean 20's Consuming Behaviors in Luxuries and Limitations. *J. Bus. Vent. Entrep.* **2015**, *10*, 77–84.
26. Choi, E.J.; Kim, Y.S. An Effect of Values, Environmental Knowledge, and Environmental Involvement on the Ecologically Concerned Bahvior of College Students. *Kor. Consump. Cul. Assos.* **2007**, *10*, 15–41.
27. McEachern, M.G.; Warnaby, G. Exploring the Relationship between Consumer Knowledge and Purchase Behavior of Value-based Labels. *Int. J. Con. Stud.* **2008**, *32*, 414–426. [[CrossRef](#)]
28. Bagozzi, R.; Youjae, Y. On the Evaluation of Structure Equation Models. *J. Acad. Mar. Sci.* **1988**, *16*, 74–94. [[CrossRef](#)]
29. Preacher, K.J.; Rucker, D.D.; Hayes, A.F. Addressing Moderated Mediation Hypotheses: Theory, Methods, and Prescriptions. *J. Mult. Exp. Psych.* **2007**, *42*, 185–227. [[CrossRef](#)]



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).