



## Social Support Determines Consumer Performance of Environment-friendly Behaviors

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### ABSTRACT

Environmental degradation is a global problem. In South Korea, despite an increase in environment-friendly attitudes, such behaviors and actions have been declining. This study examines the impact of social support on environment-friendly behaviors and explores potential measures to improve social support. An online questionnaire was conducted with 1,000 participants. The group with high social support showed a higher level of performance in terms of environment-friendly behaviors compared with the group with low social support. In the group with lower social support, higher emotional support and material support were associated with an increase in environment-friendly behaviors. In the group with high social support, all social support variables were significantly high, especially the effect of material support. Based on these results, we conclude that inducing emotional encouragement and support could enhance environment-friendly behaviors among the group with low social support. The group with high social support must be strengthened by providing material support to enhance environment-friendly behaviors.

*Key words: environment-friendly behavior, social support, material support, emotional support, informational support, evaluative support*

### Introduce

Environmental issues are a global challenge. Single-use items, plastic items, synthetic detergents, and greenhouse gases have been identified as the major factors damaging the natural environment (Eriksen, *et. al.*, 2013; Eriksen, *et. al.*, 2014; Mausavi & Khodadoost, 2019; Schnurr, *et. al.*, 2018). Global efforts, including the adoption of environment-friendly policies, the use of environment-friendly

products, and the conducting of studies on environmental protection, have all focused on reducing environmental pollution (Arpad, 2018; Cherian & Jacob, 2012; Katsikeas, *et. al.*, 2016; Katsikeas, *et. al.*, 2016; Wu & Salzman, 2014).

In South Korea, improvements have been continually introduced to resolve environmental issues through environmental education and the creation of policies, systems, and regulations for environmental protection. Environmental education promotes changes in the attitudes and behaviors of learners toward the environment

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(Hines, *et al.*, 1987; Hungerford & Volk, 1990; Short, 2010). The South Korean Ministry of Environment has implemented environmental education projects as part of its policy. These projects focused on knowledge-based education regarding people's awareness of environmental problems, environment-friendly attitudes, and methods of environment-friendly practices. For example, the aims of the Ministry of Environment's environmental education project in 2013 included understanding environmental issues, establishing proper values regarding the environment, and adopting an environment-friendly lifestyle (Moon, *et al.*, 2014). These efforts have resulted in a continuing awareness of and growth in environment-friendly attitudes among South Korean consumers. According to environmental data collected in a social survey conducted by Statistics Korea, environment-friendly attitudes among consumers have consistently increased since 2010, from 2.97 points out of 5 in 2010 to 3.44 points in 2018 (Statistic Korea, 2020).

Conversely, the Environmental Performance Index (EPI)—a method of quantifying and numerically marking the environmental performance of a state's policies (Wendling, *et al.*, 2018)—showed a recent dip in South Korea. Its EPI in 2010 was 57.0 points (Emerson, *et al.*, 2010), and it steadily increased until 2016. However, it decreased from 70.72 in 2016 (Hsu, *et al.*, 2016) to 62.30 in 2018 (Wendling, *et al.*, 2018). Lebreton, *et al.* (2012) noted the effect of human action (e.g., plastic consumption) on the environment, and Almroth & Eggert (2019) claimed that consumer behavior, such as using recyclable material, can reduce environmental pollution. However, despite the increase in environment-friendly attitudes among South Koreans, the practice of such behaviors is showing an annual decrease. According to Statistics Korea (2020), between 2010 and 2018 there was either no change or a decline in consumer efforts to prevent environmental pollution, including reducing food waste (3.16→3.17), reducing the use of synthetic detergents (2.87→2.77), avoiding single-use items (2.93→2.83), purchasing or using environment-friendly products (2.92→2.46), and participating in environmental conservation activities (2.11→2.11). Although South Korean consumers are aware of the severity of environmental issues and the need for consumers to practice environment-friendly behaviors, the level of environment-friendly consumption in daily living is extremely low.

Overall, this study aimed at elucidating the reasons for this decline in environment-friendly behaviors even as attitudes improve. To date, research on environment-friendly behaviors has consisted mostly of studies on purchasing environment-friendly products (Han, *et al.*, 2010; Laroche, *et al.*, 2001), on awareness of and attitudes toward environmental issues as a factor affecting behaviors (Han, *et al.*, 2010; Manaktola & Jauhari, 2007; Noor & Kumar, 2014), and on exploring the relationship between ego orientation and

environment-friendly behaviors (Barbarossa & De Pelsmacker, 2016; Prakash, *et al.*, 2019). However, it is important to study the effects of social support—defined as all positive resources that consumers can obtain from social relationships, including assistance, information, and comfort from interactions with other consumers, groups, or social systems to appease social needs (Courmeya & McAuley, 1995; Kim & Lee, 1997)—because such support can change consumers' behaviors (Liu, *et al.*, 2016; Morese, *et al.*, 2019; Park, 2017; Rueger, *et al.*, 2016; Wedgeworth, *et al.*, 2017; Wentzel, *et al.*, 2018). Environment-friendly behaviors for environmental conservation refer to a consumer's conscious behavior in striving to reduce his/her negative impact on the environment and contribute to protecting the environment (Agyeman, 2014). However, even if a consumer is interested in environment-friendly behaviors as a means to protect the environment and recognizes the importance of the environment, he/she may hesitate or fail to implement these behaviors for various reasons, such as being wary of criticism from others and lack of facilities to practice these behaviors (Lee, *et al.*, 2013; Min & Rhee, 1999; Park & Nam, 2016). However, studies on the effects of social support on consumers' environment-friendly behaviors have been restricted to the effects of one aspect of social support: informational support (Bokolo, *et al.*, 2017; Lee, *et al.*, 2018; Maeda, *et al.*, 2018).

Therefore, this study investigates the importance of social support by examining its effect on the practice of environment-friendly behaviors by consumers and explores potential measures to improve social support. To do this, we aimed at (1) ascertaining the level of social support for environment-friendly behaviors in South Korean society and the level of performance of these behaviors, (2) defining groups based on the level of social support and investigate differences between the groups in terms of the level of environment-friendly behaviors, and (3) analyzing the effects of social support on the performance of environment-friendly behaviors.

The next section describes the theoretical background, clarifying the definitions of the variables used in this study and how the hypotheses were established. In the section on the research method, the survey method, sample size, measurement variables, and analysis are discussed. The result and discussion sections present the results of the analysis of the data and how they reflect on consumers' environment-friendly behaviors and social support. In the conclusion section, strategies for improving consumer environment-friendly behavior are listed

## Theoretical Background

### Environment-Friendly Behavior

Kollmuss & Agyeman (2002) applied the concept of reasoned action (Ajzen & Fishbein, 1980) to environment-friendly behaviors and found that situational factors affect their practice. Fietkau & Kessel (1981) constructed a model of ecological behavior and identified social desirability, quality of life, and monetary savings as strengthening and supporting factors with positive effects on environment-friendly behaviors. In Kollmuss & Agyeman's (2002) model of pro-environmental behavior, situational factors, social factors, and economic factors were reported as affecting the practice of environment-friendly behaviors. Thus, socioenvironmental factors are variables with a major effect on environment-friendly behaviors.

### Social Support

Social support includes comfort, assistance, and information obtained from being in contact with other consumers or groups (Courneya & McAuley, 1995), and it has mostly been studied as an antecedent variable affecting improvements in positive behaviors in socially excluded or vulnerable groups, such as patients, the elderly (Liu, *et al.*, 2016), and adolescents (Rueger, *et al.*, 2016). Oh & Kim (2011) reported that, in situations in which an individual requires assistance, social support acts as a positive environmental factor giving the individual psychological comfort. Wedgeworth, *et al.* (2017) and Morese, *et al.* (2019) reported that social support has a positive effect on improving the quality of life in the elderly. Also, Park (2017) studied social support concerning the environmental behaviors of consumers. Analyzing differences in social support among students based on their environmental awareness and attitudes and forms of environment-friendly consumption, Park (2017) reported that social support was related to environment-friendly behaviors. Social support is generally divided into emotional support, informational support, material support, and evaluative support (Oh & Kim, 2011; Park, 1985).

#### Emotional Support

Emotional support refers to attitudes and behaviors such as love, caring, understanding, encouragement, affirmation, respect, trust, interest, and listening. According to Wentzel, *et al.* (2018), emotional support also affects behaviors about achieving a social goal. Shin & Ryan (2017) reported that emotional support reduces

negative behaviors and attitudes, and Guo, *et al.* (2019) reported that positive emotional support induces more environment-friendly behaviors. Previous studies have demonstrated that emotional support for environment-friendly behaviors can have a positive effect on the performance of these behaviors. Based on the above results, we propose the following hypothesis for this study.

*H1: Emotional support for environment-friendly behaviors by consumers will have a positive effect on the practice of such behaviors.*

#### Informational Support

Informational support refers to actions that provide various types of information related to a given issue (Park, 2017). Informational support plays a positive role in the construction of environment-friendly behavior mechanisms (Maeda, *et al.*, 2018). Specifically, scientific and objective informational support promotes sustainable development and environment-friendly resource management (Bokolo, *et al.*, 2017; Lee, *et al.*, 2018). Several studies (Antil, 1984; Hines, *et al.*, 1987; Jonson & Porrott, 1995) have shown that possessing more information about environmental issues increases environment-friendly consumption behaviors. Based on the above results, we propose the following hypothesis for this study.

*H2: Informational support for environment-friendly behaviors by consumers will have a positive effect on the practice of such behaviors.*

#### Material Support

Material support includes economic support and incentives, and it refers to the provision of money, time, food, or goods (Park, 2017). In a study of environment-friendly behaviors by Norwegian consumers, Tarigan (2019) reported that material support had a positive effect on the purchase of environment-friendly vehicles. In studies on the relationship between material support and consumer behaviors, Ting, Hsieh, *et al.*, (2019) and Barbarossa & De Pelsmacker (2016) reported that material support has a modulating role in environment-friendly behaviors. Thus, material support can be seen to have a positive effect on environment-friendly behaviors. Based on the above results, we propose the following hypothesis for this study.

*H3: Material support for environment-friendly behaviors by consumers will have a positive effect on the practice of such behaviors.*

## Evaluative Support

Evaluative support refers to attitudes and actions such as praise and acknowledgment, which allow the recipient scope for self-evaluation (Park, 2017). Doran (2016) found that evaluative support affects environment-friendly traveling. Similarly, in studies by Naderi (2018) and Yadav & Pathak (2016), higher evaluative support was associated with a positive effect on environment-friendly behaviors. Based on the above results, we propose the following hypothesis for this study.

*H4: Evaluative support for environment-friendly behaviors by consumers will have a positive effect on the practice of such behaviors.*

## Research Method

### Sample

Because the Internet penetration rate is high in South Korea (99.7%) (IT Chuson, 2020), we conducted a web survey to obtain data. The questionnaire aimed to measure the behaviors and social support related to environmental issues. Survey data were collected for six days between December 3 and 8, 2019. Respondents were selected through the proportional allocation sampling method that considered gender, age, and region based on the South Korean census (Statistic Korea, 2019). The survey was administered online via a specialist survey company, Macromill Embrain Co., Ltd. A total of 1,000 respondents were selected. Among the respondents,

51.8% were male and 48.2% female. In terms of age, 22.2% were in their 20s, 22.8% in their 30s, 26.8% in their 40s, and 28.2% in their 50s and older. In terms of education, 11.4% held a master's degree or higher, 50.4% had a bachelor's degree, 19.0% had vocational school education, and 19.2% had a high school education or less. No informed consent was needed for this study as the survey did not collect any sensitive information.

### Measurement Variables

The measurement of environment-friendly behaviors is reported in <Table 1>. Tsai, *et. al.* (2013), Scott & Willits (1994), and Laroche, *et. al.* (2001) measured environment-friendly behaviors in terms of contributory behaviors to preserve the environment, such as efforts to save energy, using resources sparingly, recycling and using environment-friendly products. Lee, *et. al.* (2018) developed seven questions to measure the level of environment-friendly behaviors, focusing on behaviors that can be implemented in daily living, such as restricting the use of single-use products, separating recyclable waste, and purchasing environment-friendly products. Based on the above research, we measured the level of performance of environment-friendly behaviors.

As for social support, Sallis, *et. al.* (1992) used the Social Support for Exercise Habits Scale to measure social support in terms of emotional interactions with people in the subject's surroundings, such as family, friends, and colleagues. Also, Kim & Lee (1997) and Oh & Kim (2011) measured social support in terms of emotional support, information support, and material support. Data collection was based on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Table 1 presents the

<Table 1> Reliability analysis results

Items	Measurement Items	No. of Items	Cronbach's $\alpha$
Performance of environment-friendly behaviors	I always separate garbage by type when I throw it away	5	0.841
	I use electricity sparingly		
	I use water sparingly		
	I do not use single-use products		
	I use public transport when possible		
Emotional support	People around me, such as family and friends, encourage my environment-friendly behaviors.	2	0.758
	Our society encourages me to perform environment-friendly behaviors.		
Informational support	People around me provide information to help me perform environment-friendly behaviors.	2	0.742
	Our society provides information to help me perform environment-friendly behaviors.		
Material support	People around me provide material assistance to help me perform environment-friendly behaviors.	2	0.819
	Our society provides material assistance to help me perform environment-friendly behaviors.		
Evaluative support	People around me praise or acknowledge my environment-friendly behaviors.	2	.817
	Our society praises or acknowledges my environment-friendly behaviors.		

theoretical concepts, the items measuring them, and the reliability of the scale. All reliability values (Cronbach's alpha) were above the recommended critical point (0.70).

## Analysis

To investigate the levels of environment-friendly behaviors and social support, we performed descriptive statistical analysis to obtain means and standard deviations for all measurement items on the performance of environment-friendly behaviors and social support. To define groups based on the level of social support, we performed a K-means cluster analysis using all measured variables constituting social support, and we divided participants into one group with high social support and another group with low social support. Next, we performed t-tests for measuring items of performance of environment-friendly behaviors. We used social support as an independent variable and performance of environment-friendly behaviors as dependent variables. Finally, to analyze the effects of social support on the performance of environment-friendly behaviors, we calculated the mean score for each variable in <Table 1>, taking the sum of the consumer component variables and dividing it by the number of component variables, and performed a multiple regression analysis. Data analysis was performed using SPSS 23 (IBM SPSS Inc., Chicago).

## Result

### Performance of Environment-Friendly Behaviors and Level of Social Support

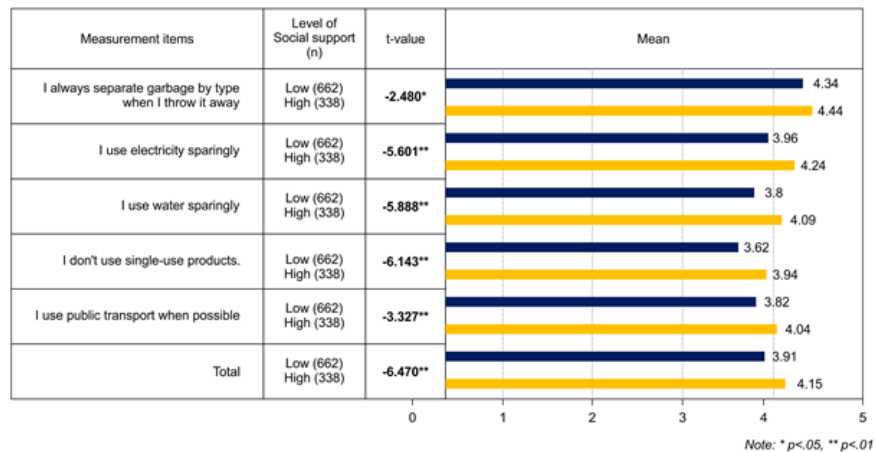
The overall score for the performance of environment-friendly behaviors was high, at over 3.73 points, and the scores for separating garbage by type and saving electricity were especially high. In terms of social support, scores for emotional support, informational support, and evaluative support were average, at around 3 points, but the scores for material support were lower than other support types, at less than 3 points. Besides, both emotional support and evaluative support showed higher scores for support from family and friends than support from social systems, while informational support and material support showed higher scores for support from social systems than support from nearby people (see <Table 2>).

### Differences in Performance of Environment-Friendly Behaviors According to the Level of Social Support

Among the respondents, 662 (66.2%) were in the low social support group, and 338 (33.8%) were in the high social support group. All variables showed statistically significant differences, with the high social support group showing higher levels of performance of environment-friendly behaviors than the low social support group (see <Figure 1>).

<Table 2> Mean survey question scores assessing the level of environment-friendly behaviors and social support

Item	Measurement Items	Mean (SD)	
Level of performance of environment-friendly behaviors	I always separate garbage by type when I throw it away	4.37(0.638)	
	I use electricity sparingly	4.05(0.748)	
	I use water sparingly	3.90(0.802)	
	I do not use single-use products	3.73(0.838)	
	I use public transport when possible	3.89(1.006)	
Social support	Emotional support	People around me, such as family and friends, encourage my environment-friendly behaviors.	3.34(0.757)
		Our society encourages me to perform environment-friendly behaviors.	3.09(0.872)
	Informational support	People around me provide information to help me perform environment-friendly behaviors.	3.05(0.899)
		Our society provides information to help me perform environment-friendly behaviors.	3.27(0.838)
	Material support	People around me provide material assistance to help me perform environment-friendly behaviors.	2.68(0.993)
		Our society provides material assistance to help me perform environment-friendly behaviors.	2.79(1.017)
Evaluative support	People around me praise or acknowledge my environment-friendly behaviors.	3.11(0.878)	
	Our society praises or acknowledges my environment-friendly behaviors.	2.94(0.898)	



<Figure 1> Differences in performance of environment-friendly behaviors

<Table 3> Multiple regression analysis for environment-friendly behaviors

Group	Low Social Support Group				High Social Support group			
	n	662			338			
Item	B	SE	β	t-value	B	SE	β	t-value
(coefficient)	3.325	.133		24.914***	2.590	.232		11.167***
Emotional support	.246	.046	.241	5.406***	.151	.069	.148	2.192*
Informational support	.057	.044	.061	1.286	.178	.069	.173	2.569*
Material support	.091	.036	.103	2.498*	.213	.057	.249	3.730***
Evaluative support	.032	.040	.035	.795	.130	.062	.141	2.090*
R <sup>2</sup> = 0.241, adjusted R <sup>2</sup> =0.234, df=4, F-value=20.383, Sig. p=0.000				R <sup>2</sup> = 0.298, adjusted R <sup>2</sup> =0.272, df=4, F-value=30.860, Sig. p=0.000				

Note. \*p<.01, \*\*p<.01, \*\*\*p<.001

### Effects of Social Support on Performance of Environment-Friendly Behaviors

The low social support group showed statistically significant positive effects on the performance of environment-friendly behaviors only for emotional support and material support. However, the high social support group showed statistically significant positive effects on emotional support, informational support, material support, and evaluative support (see <Table 3>). Compared with the high social support group, the low social support group showed significantly lower levels of performance of environment-friendly behaviors. This indicates that, in the low social support group, emotional support and material support play an important role in increasing the performance of environment-friendly behaviors; in particular, the effects of emotional support were greater than material support.

In the high social support group, all types of social support had significant effects, but the effect of material support was greater than other types of social support. Therefore, although emotional support, provision of information, and evaluative support, such

as acknowledgment, are important, it is essential not to overlook the relative importance of material support enabling environment-friendly behaviors (see <Table 3>).

### Discussion and Conclusion

As environmental issues have become more severe, including climate change and environmental pollution (Intergovernmental Panel on Climate Change, 2014), the present study identified the factors that strengthen the environmentally friendly behaviors of consumers aimed at reducing environmental pollution and contributing to the sustainability of the human race. The findings reveal that social support is a major factor in strengthening environmentally friendly behaviors.

The results show that South Koreans' performance of environment-friendly behaviors is affected by social support. Specifically, the group with low social support showed lower levels of environ-

ment-friendly behaviors, but when emotional and material support was high, the group showed higher levels of environment-friendly behaviors. The largest effects were observed for emotional support. Therefore, to increase the performance of environment-friendly behaviors in this group, support offering emotional encouragement for these behaviors must be provided. Conversely, the group with high social support showed higher levels of environment-friendly behaviors with statistically significant effects for all social support variables, although the effect of material support was especially strong. Thus, to help this group continue to perform environment-friendly behaviors, more material support is required. This finding is consistent with Park's (2017) study, as social support affects environment-friendly behaviors. However, Park's study differs in that it does not consider detailed forms of social support.

Leaders need to provide emotional support to encourage environment-friendly behaviors in everyday life in regions or institutions in which environment-friendly behaviors are not well implemented. It is also important for them to distribute text or images encouraging the practice of an environment-friendly lifestyle in relevant facilities (e.g., waste disposal areas, electricity switches, water outlets, places where single-use products are used). Also, for groups demonstrating high levels of environmentally friendly practices in daily living to continue to do so, material social support, in particular, should be provided. For example, support could be in the form of incentives or awards for those who perform environment-friendly behaviors well.

In the present study, we investigated social support as a factor in increasing environment-friendly behaviors among the public. The study demonstrates that social support is an important variable for increasing environment-friendly behaviors. However, the present study has the following limitations. First, we focused only on social support among particular values in South Korea. Because there are different values and cultures (Kim, 2003; Wang & Kim, 2018), future studies should consider the role of such values in the performance of environmentally friendly behaviors. Second, future studies should verify the overall causal model considering social support, not just the effects of consumer variables and elements.

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