

Jang, Yoon Jung

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Understanding Restaurant Customers' Environmental Behavior in the Social Media Context: An Application of Theory of Planned Behavior

Yoon Jung Jang[†]

Professor, Department of Food Service and Culinary Arts Management, Woosong University

ABSTRACT

Purpose: This study tested the applicability of the TPB model to explaining restaurant customers' attitudes toward pro-environmental behavior supported in the social media community. The specific objectives were to identify the relative influence of each construct on behavioral intention and to investigate the moderating effect of economic/social reward in the relationship between behavioral intention and environmental behavior.

Design/methodology/approach: A survey was administered to U.S. restaurant customers, and for the main study, among the 240 surveys returned, 202 usable responses were chosen for final analysis. Multiple regression and hierarchical regression analyses were conducted to test research hypotheses.

Findings: The results indicated that attitude, social norm, and perceived behavioral control were significant predictors in understanding customers' behavioral intention toward environmental activities promoted in the social media community. Hierarchical regression analysis demonstrated that economic and social reward moderate the relationship between behavioral intention and environmental behavior.

Research limitations/implications: Because of incomplete examination in the social media context, future research should further test measurements of TPB constructs to confirm their validity and reliability.

Originality/value: Since the influence of each construct of TPB model differ in different contexts, close examination in the social media context may contribute to further applications and extensions of the TPB model.

Keywords: Restaurant, Environmental behavior, Social media

I. Introduction

As environmental concerns have escalated, customers have increasingly paid attention to the social or environmental responsibilities of companies they patronize or have relationships with (Han, Hsu, & Sheu, 2010; Jang, Zhang, & Bosselman, 2017) by demonstrating a greater intention to pay more for

eco-friendly products/services from such companies (Jang, Kim, & Lee, 2010; Laroche, Bergeron, & Barbaro-Forleo, 2001). With an increase in the number of customers pursuing environmental products/services, hospitality companies' environmental initiatives have helped position them as competitively advantageous over other competitors (Jang & Zheng, 2020). Similarly, restaurant customers tend to look for establishments that attempt to reduce environmental harm by considering adoption of environmental actions such as water or energy saving, waste reduction, and recycling, causing restaurant marketers to increasingly consider developing

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[†] Yoon Jung Jang

E-mail: yjang@wsu.ac.kr

strategies advertising their pro-environmental actions (National Restaurant Association, 2018).

In some restaurant companies, social media has been used to actively advertise and share information about their environmental initiatives (e.g., sourcing organically-grown food, using reusable mugs), thereby encouraging members' involvement in such activities (Sigala, 2014). The use of such channels allows a company to communicate with target customers concerned about environment and to connect members sharing similar values. Members connected to the community will be more likely to engage in behavior aligned with community's environmental values and committed to practical participation in environmental activities supported in restaurants (Hajli, Shanmugam, Papagiannidis, Zahay, & Richard, 2017).

Previous studies have examined environmental behavior in the hospitality industry through perspectives of theory of planned behavior (TPB) theory (Han, 2015; Moon 2021; Shin, Im, Jung, & Severt, 2018; Teng, Wu, & Liu, 2015) and identified the relative influences of attitudes, subjective norms, and perceived behavioral control on behavioral intentions to visit green restaurants or stay at green hotels. Although these studies contribute to the literature, only rarely have studies been performed on customers' participation intention towards environmental activities supported or promoted by a restaurant. In addition, few studies have investigated the impact of participation intention on actual environmental behavior and the moderating roles of publicly-recognized rewards that may reduce gaps between the two constructs.

To fill this research gap, this study aims to identify customers' pro-environmental decision-making processes formulated in the social media context by applying TPB with the consideration of two contextual factors, economic and social rewards. While the relative impact of each construct may vary across contexts (Ajzen, 1991; Miao & Wei, 2013), many environmental studies applying the TPB model have indicated differential effects of each construct on behavioral intention; in some studies attitude was the strongest factor, followed by subjective norms and perceived behavioral control, while subjective norms was the most salient factor in

other studies, making it critical to investigate individual environmental behavior in different settings (Miao & Wei, 2013). Given this restriction, investigation of underlying factors leading to customers' pro-environmental actions in the social media context while considering contextual components (e.g., rewards) will provide further insight into behavior towards sustainability, a critical element for development of pro-environmental marketing strategies to be delivered via restaurants' social media.

This study therefore tested the applicability of the TPB model in explaining restaurant customers' intentions toward pro-environmental activities supported in the social media community. Its specific objectives were: 1) to identify the influence of each TPB construct on behavioral intention; 2) to explore the impact of behavioral intention on offline pro-environmental behavior; and 3) to investigate the moderating effect of economic/social rewards on relationships between behavioral intention and offline environmental behavior.

II. Literature Review

A. Theory of Planned Behavior

The theory of planned behavior (TPB), widely applied to prediction of human behavior, has been supported by many studies (Han, 2021). The model includes three factors that help explain an individual's behavioral intention: attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). Attitude is "the degree to which a person has favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p188). Subjective norm represents social influence in the theory and is defined as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p188). Perceived behavioral control refers to "the perceived ease or difficulty of performing the behavior" (Ajzen, 1991, p188), and reflects an individual's perceptions of barriers to performing specific behaviors. The theory postulates that an individual with a more favorable attitude, greater behavior-related subjective norm, and higher perceived

behavioral control is more likely to display stronger intention to perform and eventually engage in a certain behavior (Ajzen, 1991).

In hospitality studies, the TPB model has been proven effective in predicting an individual's pro-environmental behavior, such as customer intention to choose eco-friendly menu items (Shin, Im, Jung, & Severt, 2018), customer intention to patronize environmentally-friendly restaurants (Moon, 2021; Raab, Baloglu, & Chen, 2018), guest intentions to stay at green hotels (Han, 2015; Teng, Wu, & Liu, 2015), and managers' behavioral intentions toward sustainability-oriented innovations (Garay, Font, & Corrons, 2019). Although there have been prior studies of TPB in diverse contexts, the majority of studies have mainly been focused on customers' behavioral intentions as an outcome variable, not considering how such behavioral intentions lead to their actual environmental behavior. There also have been few studies devoted to understand customers' environmental behavior in the social media context, and given existing contextual differences, investigation of environmental behavior in the social media context would be worthwhile. This study therefore explored how TPB constructs influence customers' participation intentions towards environmental activities supported in the restaurant social-media community and how behavioral intentions are transferred into actual environmental behavior.

In the study's context, attitude refers to the degree to which a person has favorable or unfavorable feelings about engaging in environmental activities promoted in restaurants' social media. Subjective norm refers to a person's perception of social pressure to engage in environmental activities promoted in restaurants' social media, and perceived behavioral control can be defined as a person's perception regarding his/her capability to engage in environmental activities promoted in restaurants' social media.

B. Relationship among TPB Constructs

The TPB model has been applied to prediction of customers' intentions to choose organic menu items

at restaurants (Shin et al., 2018), to patronize green or environmentally-friendly restaurants (Kim, Njite, & Hancer, 2013; Moon, 2021), or to visit environmentally-friendly hotels (Han et al., 2010; Teng et al., 2015). Applying the model, Shin et al. (2018) examined consumers' intentions to choose organic menu items at restaurants and to visit restaurants featuring organic menu items. They indicated that attitude, subjective norm, and perceived behavioral control are important determinants of intention to choose organic menu items, thereby leading to consumer intentions to visit restaurants featuring organic menu items. Attitude was found to have the strongest influence on choice intention, followed by subjective norms and perceived behavioral control. Attitude was found to be a particularly noteworthy factor in choice intention toward organic menu items, emphasizing the role of marketing managers seeking to create favorable consumer attitudes. Teng et al. (2015), in investigating how individual characteristics of the TPB model influenced guest intention to visit green hotels, showed that all TPB constructs significantly influenced such intentions. Subjective norm was found to be the most influential factor, followed by attitude and perceived behavioral control, suggesting that subjective norm should be regarded as a crucial element of focus in increasing visitors' intention to choose a green hotel. Han et al. (2010) tested the TPB model's effectiveness in explaining hotel customer intentions to visit a green hotel and showed that all three TPB components — attitude, subjective norm, and perceived behavioral control — positively affected guest intentions to stay a green hotel, in the following order: attitudes at the highest level, followed by subjective norm and perceived behavioral control. Moon (2021) attempted to identify customer-belief structure related to green restaurant patronage by applying the extended TPB model. She demonstrated the validity of the TPB for predicting green restaurant patronage intention and confirmed that, among the three constructs, perceived behavioral control was the most significant variable for green patronage intention and that the formation of perceived behavioral control was significantly affected by control beliefs. The second most important TPB construct was attitude, found to be significantly

associated with behavioral beliefs. The least important one was subjective norm, related to normative beliefs.

Since this discussion suggests that because of the significant contextual influence on behavior, it appears meaningful to investigate individual environmental behavior in different settings (Miao & Wei, 2013), this study attempted to investigate how each construct influences customers' behavioral intentions to engage in environmental activities supported or promoted in the social-media community of restaurants.

Hypothesis 1: Attitude has a positive influence on behavioral intention towards environmental activities supported in restaurants' social media.

Hypothesis 2: Social norm has a positive influence on behavioral intention towards environmental activities supported in restaurants' social media.

Hypothesis 3: Perceived behavioral control has a positive influence on behavioral intention towards environmental activities supported in restaurants' social media.

Hypothesis 4: Behavioral intention towards environmental activities supported in restaurants' social media has a positive influence on offline environmental behavior.

C. Moderating Effect of Economic/Social Reward

According to cognitive evaluation theory (CET), reward type affects customers' behavioral intention at different levels (Deci & Ryan, 1985; Lee, Tsang, & Pan, 2015). CET theory suggests two types of rewards, social/internal and economic/external. Internal rewards imply intrinsic satisfaction of a behavior related to the basic reasons for exhibiting such behavior (Melancon, Noble, & Noble, 2011). Internal rewards, comparable to social rewards in the hospitality context, implies obtaining preferential treatment or personalized attention from service providers. External rewards can be explained in terms of monetary rewards in return for specific behavior, e.g., money is generally regarded as an external reward (Rummel & Feinberg, 1988).

Social rewards have been found effective in increasing the sense of belonging and emotional attachment to

an organization (Rosenbaum, Ostrom, & Kuntze, 2005) by strengthening the intrinsic reasons for emotional relationships with organizations (Berry, 1995). Customers receiving social rewards such as specialized or customized offers/services may regard themselves as privileged customers, thereby inducing them to maintain long-term relationships with an organization (Muniz & O'Guinn, 2001). Economic rewards such as monetary incentives or special discounts/deals on products/services also tend to enhance trust and commitment (Van Kenhove, Wulf, & Steenhaut, 2003), and may be central to establishing commitment in developing relationships with firms (Peterson, 1995). While some researchers claim that social rewards are more effective than economic rewards in building affective commitment (Deci & Ryan, 1985), others contends that economic rewards are stronger drivers of relational marketing in retaining customer commitment (Noble, Esmark, & Noble, 2014), so it seems worthwhile to examine the extent to which economic and social rewards affect and moderate customers' sustainable behavior in the context of social media.

Discrepancies also exist between behavioral intentions and actual environmental behavior, and they might be alleviated through situational factors such as social and economic rewards (Trudel, 2019). In a qualitative study, Mazhenova, Choi, and Chung (2016) found that good feelings resulting from participating in various environmental activities (e.g., recycling, saving water use) was a critical predictor for environmentally-friendly behavior such as purchasing eco-friendly products. Positive feedback from service providers of green products/services achieved through various methods would tend to induce customers to continue responsible behaviors. Individuals rewarded or recognized for their environmental behavior on social media will be more likely to become committed to such behaviors in the real world than those who are not (Trudel, 2018). Based on this discussion, the following hypotheses were formulated.

Hypothesis 5: Economic rewards have a moderating effect on relationships between behavioral intention on social media and offline environmental behavior.

Hypothesis 6: Social rewards have a moderating

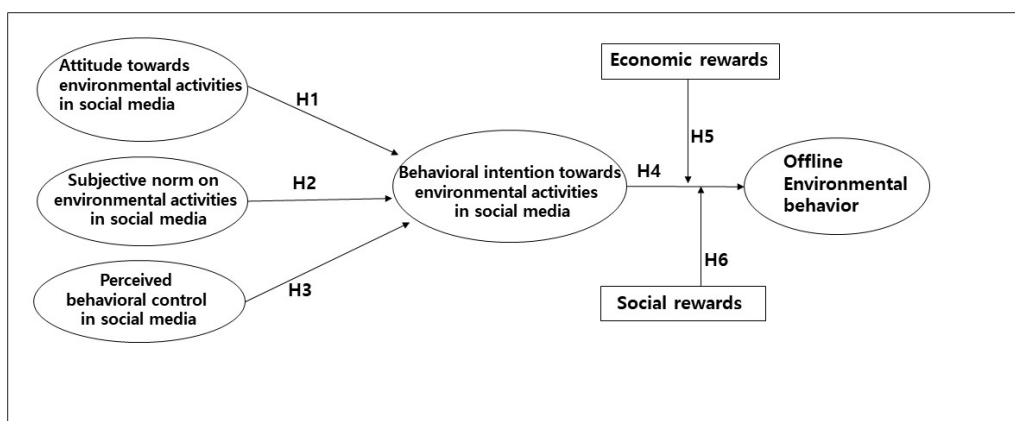


Figure 1. Research Model

effect on relationships between behavioral intention on social media and offline environmental behavior.

Figure 1 shows the proposed research model of customer behavior in the social media context.

III. Method

A self-administered survey of participants was performed using MTurk, a web-based survey platform. Participants were screened to select those who 1) were living in the U.S. and 2) had patronized any restaurant (including coffee shops) and within three months prior to the survey date had participated in a social-media community supporting environmental initiatives. A pilot test including 50 participants was conducted prior to the main survey. Among the 240 surveys obtained, 202 usable responses remained after deleting responses regarded as insincere.

The survey consisted of two sections. The first section included questions related to five constructs of the TPB model, with items of attitude, subjective norm, and perceived behavioral control adapted from Han, Hsu, & Sheu (2015). Items of behavioral intention and offline environmental behavior from Qu and Lee (2011) were adapted and modified to fit the purpose

of the study. The second section contained questions associated with moderating variables, including economic and social rewards, borrowed from Choi and Seo (2017) and Lee et al. (2015). The final section consisted of questions related to demographic information such as gender, age, ethnicity, marital status, etc. All items were measured with a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The questionnaire items are listed in Table 1.

Data were analyzed using the Statistical Package for the Social Sciences (IBM SPSS 26.0), with multiple regression analyses used to test main effects of TPB constructs on behavioral intention. Hierarchical regression analyses were also conducted to test the moderating effect of customers' economic and social rewards. The moderating effects of economic and social rewards on relationships among behavioral intention and offline environmental behavior were also hypothesized and tested.

IV. Results

A. Respondent Profile

Table 1 presents respondents' demographic information. Approximately 60% were male and 40% were female. The majority of respondents (77.2%) were of ages

between 25 and 44 years. About 63% were Caucasian American, while the rest were Hispanic (21.3%), African-American (10.4%), and Asian (1.0%). Approximately 96% of respondents were married respondents. Approximately 78% of the respondents held at least a bachelor's degree, and 33.2% had annual household incomes between \$50,000 and \$74,999; 31.2% had less than \$50,000; and 25.7% were in the range \$75,000-\$99,999.

B. Test of Validity and Reliability

Results from factor and reliability analysis of study variables are shown in Tables (Tables 2~6). The factor loadings of the constructs ranged from 0.732 to 0.865 at significant levels (Bagozzi & Yi, 1988), and Kaiser-Meyer-Olkin (KMO) measures were above the acceptable value of 0.6. Bartlett's Test of Sphericity was proven

Table 1. Demographic Information of Respondents

Variables		Frequency	%
Gender	Male	122	60.4
	female	80	39.6
Age	18-24	10	5.0
	25-34	59	29.2
	35-44	97	48.0
	45-54	27	13.4
	55-64	8	4.0
	65 and above	1	.5
Ethnicity	Caucasian, non-Hispanic	127	62.9
	Hispanic or Latino	43	21.3
	African American	21	10.4
	Asian	2	1.0
	Other (specify below)	9	4.5
Marital status	Married	193	95.5
	Never Married	7	3.5
	Widowed	2	1.0
Education	High school diploma or below	28	13.9
	Some college	6	3.0
	2-year college	8	4.0
	4-year college	126	62.4
	Professional degree	16	7.9
	Post graduate	16	7.9
	Others (specify)	2	1.0
Occupation	Technical/Administrator	70	34.7
	Sales/Service	52	25.7
	Professional	49	24.3
	Managerial	25	12.4
	Operator/Fabricator/Laborer	4	2.0
	Homemaker	2	1.0
Annual household income	Less than \$50,000	63	31.2
	\$50,000~\$74,999	67	33.2
	\$75,000~\$99,999	52	25.7
	\$100,000~\$149,999	20	9.9
Total		202	100

Table 2. Factor and Reliability Analysis of Attitude

Construct	Items	Factor loading	Cronbach'a
Attitude	I think that engaging in environmental activities promoted on SNS community of the restaurant is wise.	.808	.794
	I think that engaging in environmental activities promoted on SNS community of the restaurant is attractive.	.806	
	I think that engaging in environmental activities promoted on SNS community of the restaurant is pleasant.	.799	
	I think that engaging in environmental activities promoted on SNS community of the restaurant is beneficial.	.732	
Total variance (%)			62.886
KMO			.728
Bartlett test			255.166 (sig .000)

Table 3. Factor and Reliability Analysis of Subjective Norm

Construct	Items	Factor loading	Cronbach'a
Subjective norm	Most people who are important to me think I should engage in environmental activities promoted on SNS community of the restaurant.	.824	.702
	Most people who are important to me would want me to engage in environmental activities promoted on SNS community of the restaurant.	.751	
	People whose opinions I value would prefer that I engage in environmental activities promoted on SNS community of the restaurant.	.801	
Total variance (%)			62.886
KMO			.663
Bartlett test			109.576 (sig .000)

Table 4. Factor and Reliability Analysis of Perceived Behavioral Control

Construct	Items	Factor loading	Cronbach'a
Perceived behavioral control	Whether or not I engage in environmental activities promoted on SNS community of the restaurant is completely up to me.	.846	.698
	I have resources, time, and opportunities to engage in environmental activities promoted on SNS community of the restaurant.	.771	
	I am confident that if I want, I can engage in environmental activities promoted on SNS community of the restaurant.	.752	
Total variance (%)			62.555
KMO			.643
Bartlett test			111.300 (sig .000)

Table 5. Factor and Reliability Analysis of Behavioral Intention

Construct	Items	Factor loading	Cronbach'a
Behavioral intention	I intend to engage in environmental activities promoted on SNS community of the restaurant.	.865	.761
	I will make an effort to participate in environmental activities promoted on SNS community of the restaurant.	.860	
	I plan to engage in environmental activities promoted on SNS community of the restaurant.	.737	
Total variance (%)			67.685
KMO			.656
Bartlett test			164.629 (sig .000)

statistically significant at the $p=0.000$ level. With respect to internal consistency, Cronbach's alpha was assessed, producing values ranging from 0.698 to 0.794, demonstrating acceptable reliability (Nunnally, 1978). Multicollinearity can be present when variables are highly correlated, and some of the indicators used to examine multicollinearity are tolerance and variance inflation factors (VIF) (Daoud, 2017). Tolerance values less than 0.10 and VIF values greater than 5 indicate presence of multicollinearity, implying that predictors are highly-correlated. In this study, the assessment of tolerance and VIF demonstrated that tolerance values were greater than 0.10 and VIF values were less than 5, confirming no sign of multicollinearity among the predictor variables.

C. Analysis of Main Effect

Table 7 presents the results of testing hypotheses 1, 2, and 3. Hypothesis 1, the effect of attitude on behavioral intention, was statistically supported ($b =$

.493; $t = 6.645$; $p < .000$). Hypothesis 2, the effect of social norm on behavioral intention, was also supported ($b = .179$; $t = 2.817$; $p < .001$). Hypothesis 3, the effect of perceived behavioral control on behavioral intention, was also supported ($b = .259$; $t = 3.400$; $p < .001$). The findings mean that three constructs of TPB model are significant variables in predicting customers' environmental behavior in the social media context. Specifically, attitude was the strongest predictor of customers' behavioral intentions to participate in environmental activities promoted on restaurants' social media.

Table 8 shows the results of testing hypothesis 4. Hypothesis 4, the effect of behavioral intention on offline environmental behavior, was statistically supported ($b = .791$; $t = 18.261$; $p < .000$), confirming that behavioral intention was a crucial variable in helping predict offline pro-environmental behavior.

Table 6. Factor and Reliability Analysis of Offline Environmental Behavior

Construct	Items	Factor loading	Cronbach's α
Offline environmental behavior	The SNS community of the restaurant has influenced how I go about purchasing products or services.	.795	.775
	The SNS community has influenced my behavior in some ways, such as purchasing pro-environmental products/services supported by campaign of the SNS community of the restaurant.	.789	
	Where I purchase products or services has changed as a result of my being in the SNS community of the restaurant.	.785	
Total variance (%)			62.369
KMO			.673
Bartlett test			103.083 (sig .000)

Table 7. Regression Analysis of Hypotheses 1, 2, 3

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig
		B	Std. Error	Beta		
Behavioral intention	Attitude	.524	.079	.493	6.645	.000 ***
	Social norm	.188	.067	.179	2.817	.005 **
	Perceived behavioral control	.276	.081	.259	3.400	.001 **
R = .892, R ² = .795, Adjust R ² = .792 F = 256.236 p < .000						

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8. Regression analysis of Hypothesis 4

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig
		B	Std. Error	Beta		
Offline environmental behavior	Behavioral intention	.708	.039	.791	18.261	.000 ***
R= .791, R ² = .625, Adjust R ² = .623 F= 333.455 p<.000						

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

D. Analysis of the Moderating Effect

Prior to testing for a moderating effect, each variable was standardized for multiplication to produce an interaction term (Jeong, Ryu, & Brown, 2018).

Table 9 shows the results of the moderating effect of economic reward on the relationship between behavioral intention and offline environmental behavior (Hypothesis 5). Hierarchical regression analyses were conducted in three steps to test Hypotheses 5. For prediction of environmental behavior, behavioral intention was entered during step 1, economic reward was entered during step 2, and the interaction variable (behavioral intention X economic reward) was entered during step 3.

In the first step, the independent variable behavioral intention significantly predicted offline environmental behavior ($b = 0.791$; $p < 0.000$). In the second step, behavioral intention ($b = 0.488$; $p < 0.000$) and economic reward ($b = 0.400$; $p < 0.000$) significantly influenced offline environmental behavior, and changes in R^2 were significant ($\Delta R^2 = 0.068$). In the third step, the interaction variable ($b = 0.147$; $p < 0.000$) significantly predicted offline environmental behavior along with two other variables, behavioral intention ($b = 0.593$; $p < 0.000$) and economic reward ($b = 0.375$; $p < 0.000$), and changes in R^2 were found to be significant ($\Delta R^2 = 0.014$). Hypothesis 5 was therefore supported, reflecting the significant moderating effect of economic rewards in the relationship behavioral intention and offline environmental behavior.

Table 10 shows the results of the moderating effect of social reward on the relationship between behavioral intention and offline environmental behavior (Hypothesis 6). To test Hypotheses 6, hierarchical regression analyses

were conducted in three steps. To predict environmental behavior, behavioral intention was entered during step 1, social reward was entered during step 2, and the interaction term (behavioral intention X social reward) was entered during step 3.

In the first step, the independent variable behavioral intention significantly predicted offline environmental behavior ($b = 0.791$; $p < 0.000$). In the second step, behavioral intention ($b = 0.372$; $p < 0.000$) and social reward ($b = 0.523$; $p < 0.000$) significantly influenced offline environmental behavior, and changes in R^2 were significant ($\Delta R^2 = 0.098$). In the third step, the interaction variable ($b = 0.214$; $p < 0.000$) significantly predicted offline environmental behavior along with two other variables, behavioral intention ($b = 0.485$; $p < 0.000$) and social reward ($b = .538$; $p < .000$), and changes in R^2 were found to be significant ($\Delta R^2 = .030$). Hypothesis 6 was therefore supported, reflecting the significant moderating effect of social rewards on the relationship behavioral intention and offline environmental behavior.

The findings confirmed the significant moderating role of economic and social rewards in understanding customers' pro-environmental behavior on social media, i.e., the effects of behavioral intention on offline environmental behavior was greater for customers with high levels of economic and social rewards. In other words, customers receiving greater levels of economic and social reward were more likely to change their behaviors, consequently inclining them toward purchasing pro-environmental products or services promoted or supported in the restaurant's social-media community.

Table 9. Hierarchical Regression Analysis for Hypotheses 5

Independent Variable	Dependent Variable:	Offline environmental behavior	
	Step 1	Step 2	Step 3
Behavioral intention (BI)	.791***	.488***	.593***
Economic reward(ER)		.400***	.375***
BI*ER			.147***
R^2	.625	.694	.707
ΔR^2		.068***	.014**
F	333.455***	225.194***	159.606***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table 10.** Hierarchical Regression Analysis for Hypothesis 6

Independent Variable	Dependent Variable:	Offline environmental behavior	
	Step 1	Step 2	Step 3
Behavioral intention (BI)	.791***	.372***	.485***
Social reward(SR)		.523***	.538***
BI*SR			.214***
R^2	.625	.723	.753
ΔR^2		.098***	.030***
F	333.455***	259.680***	201.217***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

V. Conclusions

A. Discussion

This study explored relationships among TPB constructs in a social-media context and also investigated the moderating effects of economic and social rewards. The results confirmed the prediction capability of the TPB model in understanding customers' pro-environmental behavior in a social-media context.

First, the findings of the study affirmed that the TPB constructs, including attitudes, subjective norms, and perceived behavior control, significantly affected customers' behavioral intentions to engage in environmental activities promoted in the social-media community. While this finding is consistent with results of previous studies conducted in the field of hospitality (Han et al., 2010; Shin et al., 2018; Teng et al., 2015), the relative effects of the three constructs differed in different contexts. For example, in Teng et al (2015)'s study, subjective norm was

the most influential factor, followed by attitude and perceived behavioral control. In our study, tested in a social-media context, attitude was the strongest influencing factor in predicting behavioral intention related to environmental activities, followed by perceived behavioral control and subjective norm. It can be inferred that customers who think that engaging in environmental activities promoted in the social-media community is pleasant and beneficial tend to exhibit a greater level of behavioral intention to participate in such activities. Perceived behavioral control was the second most significant construct in explaining customers' pro-environmental activities in social media, and social-media members' greater confidence was likely to result in a higher level of behavioral intentions. Finally, members exhibiting higher subjective norms showed that the social-influence factor was also significant in predicting behavioral intention to participate in pro-environmental activities in a social-media context.

B. Implications

This study has both theoretical and practical implications. While using the TPB for predicting an individuals' pro-social or pro-environmental behavior has been widely discussed, the influence of each TPB model construct differs depending on context, and closer examination in the social-media context may contribute to further applications and extensions of the TPB model. In applying the TPB model, this study demonstrated that the proposed model is applicable to prediction of customers' intention toward pro-environmental behavior in the social-media context, and the proposed research model is also a worthwhile tool that provides fuller insight to understanding of restaurant customers' intentions of involvement in pro-environmental activities in social media. Restaurant companies highly committed to environmental initiatives are likely to actively use social media to inform customers and encourage them to participate in environmental activities in their establishments (Sigala, 2014). Given the increase in the number of restaurants who attempt to initiate environmental activities in stores (Jang et al., 2011), understating factors influencing customers environmental behavior in the social media context through the lens of TPB model would offer insights into this topic. Moreover, most prior studies using the TPB model failed to examine how individual intentions lead to actual environmental behaviors. This study elucidated the mechanism whereby actual behaviors can be reinforced through positive feedback in public such as social/economic rewards, which would be another contribution to the extant knowledge.

From a practical perspective, identifying important factors related to customer intentions of become involved in pro-environmental actions is beneficial for restaurants seeking to develop marketing strategies for enhancing customer involvement in green actions promoted by the company. Restaurateurs aiming at attracting environmentally-conscious customers may need to examine both current and potential customer characteristics such as attitude, social norm, and perceived behavioral control. Since this study revealed that attitude was a salient factor in influencing customer intention, restaurants expending

of efforts to create customers' favorable attitudes toward engaging in environmental activities promoted within the social media community of the restaurant brand may enhance customers' intentions and thus influence their offline behavior. It is thus recommended that marketing practitioners try to identify factors that formulate customers' favorable attitude toward engaging in environmental activities and develop appropriate strategies based on such identification. Since the findings also reveal that subjective norms positively influenced customers intentions to engaging in environmental activities promoted in the social-media community, restaurant marketers should probably pay greater attention to social influences of significant others and try to actively engage customers' reference groups in their marketing strategies.

C. Limitations and Future Studies

Despite its several theoretical and managerial implications, the study is not free of limitations. The data of the study were collected from an online platform, Mturk, and this may limit the generalization of the findings. Using such a small sample from a single country may suggest conducting further research with larger samples from different cultural backgrounds to improve model validity. Measurements of TPB constructs in a social-media context require further testing to confirm their validity and reliability in future research because of incomplete examination in this context. While the study model includes five TPB model constructs, adding other variables based on other theories (e.g., norm activation theory) may enhance the predictability of customer pro-environmental behavior in a social-media context. To promote actual pro-environmental behavior which may result from members' intimate relationships with other members, inclusion of significant variables other than economic and social rewards should be considered in further studies.

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