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Green Hotel Consumption Intention of College Students based on the Theory of Planned Behavior

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ABSTRACT

The present study sought to adjust the traditional theory of planned behavior (TPB) to explain college student's intention of green hotel consumption. The findings showed that student's attitude, subjective norm, and perceived behavior control positively and significantly influenced the intention of green hotel consumption, and the attitude played the greatest role. Moreover, the moderated-mediation model showed that student's green attitude mediated the relationship between subjective norm and intention, and student's perceived behavior control moderated the effect of attitude on intention. This study provided new insights into green hotel consumption intention in the context of college students, and highlighted the important and new roles of attitude and perceived control behavior in the formation of intention.

Keywords: green hotel; intention; college students; TPB

1. Introduction

Although tourism is regarded as a smokeless industry (Machlis & Burch, 1983; Mathew, 2009), hotels consume a great of energy, especially the full-service hotels. According to the UNWTO report, the hotel industry accounts for around 1% of global carbon emissions, which is increasing with the fast development of tourism. So the United Nations cooperates with the hotel industry to reduce carbon emissions by 66% by 2030 and 90% by 2050. Being green goes gradually to hotels' goals (Wolfe & Shanklin, 2001; Han et al., 2011). Meanwhile, the government also requires hotels to take green actions. For example, in China, the Shanghai government released the

document in 2019, to stop the hotel providing guests with disposable items (e.g. toothbrushes, combs, bath sponges, shaving kits, nail files, and shoe brushes) unless they are requested by guests.

Green hotel is defined as “environmentally friendly property whose managers are eager to institute programs that save water, save energy, and reduce solid waste-while saving money-to help protect our one and only earth” (Green Hotels Association, 2020). Not only green hotel can help protect the environment, but also help reduce operating costs and improve revenue through reducing energy consumption (Manaktola & Jauhari, 2007; Tsai & Tsai, 2008; Han & Kim, 2010; Chia-Jung & Pei-Chun, 2014). However, the success of green hotels depends on the consumers’ green habits and behaviors. So understanding consumers’ attitudes and intentions of green hotels is important for the hotel to attain a competitive edge in the lodging market.

A wide range of literature has identified consumers’ green hotel consumption intentions and behaviors (Manaktola & Jauhari, 2007; Tsai & Tsai, 2008; Han & Kim, 2010; Han, Hsu & Sheu, 2010; Han et al., 2011; Chia-Jung & Pei-Chun, 2014; Verma & Chandra, 2018). But few studies focus on college students’ green hotel consumption intentions. Students are the current/potential customers of the hotels. Their attitudes and intentions determine the acceptance of hotel green consumption in our society in the future. Understanding students’ intentions not only can help the hotel understand their customers, especially future customers, but also can help it adjust its marketing strategies.

This study uses the theory of planned behavior to research college students’ green hotel consumption intentions. We find that green consumption attitude, subjective norms, and perceived behavior control all had significant and positive effects on green consumption intentions, among which attitude plays the most important role. Meanwhile, we adjust the traditional model of TPB, and find the mediation effect of attitude in the relationship between subjective norm and students’ green hotel consumption intention, and the moderation effect of perceived behavior control in the relationship between attitude and students’ consumption intention.

The remainder of this paper is organized as follows. In the following section, we discuss the related literature and provide theoretical arguments that relate green hotel consumption intentions. Next, we introduce the method and data. Then we present and discuss the results. Finally, we outline the conclusions and some directions for future

research.

2. Conceptual Framework

2.1 Theory of Planned Behavior (TPB)

It is a difficult work to explain consumer behavior, which is affected by psychological factors, social factors, and economic factors. Various theories of consumer behavior have been proposed (Ajzen, 1991; Kalafatis et al., 1999). The theory of planned behavior (TPB) is put forward in the 1990s, which is widely used to explain consumer's behavior in many fields, such as health behaviors (Godin & Kok, 1996; Conner, Norman & Bell, 2002), leisure choice (Ajzen & Driver, 1992; Hrubes, Ajzen & Daigle, 2001), internet using (George, 2004; Pavlou, & Fygenson, 2006), as well as green behaviors (Harland, Staats & Wilke, 1999; Han, 2015; Paul, Modi & Patel, 2016; Verma & Chandra, 2018).

TPB is the extension of the theory of Reasoned Action (TRA, Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). TRA assumes that people is rational, and the behavior is mainly determined by intention. When people believe that the behavior will result in a specific outcome, they will take or not take action (Madden, Ellen & Ajzen, 1992). The intention is the core concept in TRA, which is a function of attitude and subjective norm (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). However, TRA addresses a high degree of volitional control in the decision-making process (Han, Hsu & Sheu, 2010), and ignores the non-motivational factors such as requisite opportunities and resources (Ajzen, 1991; Madden, Ellen & Ajzen, 1992). So TPB extends the boundary of conditions of TRA and incorporates perceived behavior control as one of the important factors determining individual's behavior intention (Ajzen, 1991). Thus, TPB has wider applicability than TRA, and allow us to analyze individual's intention and behavior under the circumstance of non-volitional control (Han, Hsu & Sheu, 2010).

2.2 Hypothesis Development

TPB states that attitude, subjective norm, and perceived behavior control all influence consumer's behavior intention (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). These three factors are parallel and affect each other. In our conceptual framework of green hotel consumption decision, we adjust the traditional TPB, and assume attitude mediate the effect of subjective norm on consumer's intention, and

perceived behavior control moderates the mediation effect. That is, there is an existing moderated-mediation relationship among the variables.

2.2.1 Subjective Norm

In the model of TPB, the subjective norm is defined as “the perceived social pressure to perform or not to perform the behavior”(Madden, Ellen & Ajzen, 1992). People are embedded in the social network (Lin, 1999), so they have to obey the norms (Burt 2000; Coleman 1988). Other people, especially those important to the individual, such as family, relatives, friends, co-workers, and neighbors, can influence his/her decision-making (Verma & Chandra, 2018; Han & Kim, 2010; Ajzen & Fishbein, 1980).

When the consumer makes a green hotel consumption choice, the subjective norm is an important determining factor. For the past several decades, people have realized the importance of environmental protection. Environmental protection gradually becomes a social norm, which has an important influence on green consumption (Peattie, 2010). More and more people start to change their consumption habits and demands and try to buy environmentally friendly products (Mendleson & Polonsky, 1995; Roberts, 1996; Han et al., 2011). Other people’s views on environmental protection can influence consumer’s green hotel consumption decisions. Han and Kim (2010), Verma and Chandra (2017) found that subjective norm significantly and positively influenced consumer’s green hotel visit/revisit intention. The stronger the individual’s subjective norm, the higher his/her green hotel consumption intention. Hence, we propose our hypothesis:

H1: Subjective norm has a significant and positive influence on student’s green hotel consumption intention.

2.2.2 Attitude

Attitude plays a central role in understanding individual behaviors (Kraus,1995). Attitude refers to the “degree to which a person has a favorable or unfavorable evaluation of the behavior in question”(Ajzen, 1991). As a measurable psychological component, attitude is believed to be rooted in salient behavioral beliefs and outcome evaluation (Ajzen and Fishbein, 1980; Han & Kim, 2010). Ajzen (1991) argues that people will form a favorable attitude toward behavior that is related to desirable outcomes, vice versa. Generally speaking, attitude can guide, influence, direct, shape,

or predict an individual's actual behavior (Kraus, 1995). The stronger and more stable the attitude, the more predictable someone's behavior.

In the context of green consumption, with the rise of environmentalism, consumer's environmental attitude can have a positive influence on his/her decision to choose green hotels (Verma & Chandra, 2017; Kang et al., 2012; Kim & Han, 2010; Han, Hsu & Lee, 2009). In the model of TPB, attitude is considered as the most significant factor to predict consumer's intention to visit green hotels (Verma & Chandra, 2017). Kang et al. (2012) even found that consumers with higher degrees of environment attitude would pay premiums for green hotels in the USA because of social identity.

Attitude is affected by various factors. Chang (1998) developed a modified model of TPB, which indicated that there was existing causal linking between subjective norm and attitude. Han, Hsu, and Sheu (2010), Han and Kim (2010) also found that subjective norm has a significant and positive impact on attitude toward green hotel consumption. It means that significant others (such as family, friends, and so on) can influence an individual's attitude formation through social pressure (Han & Kim, 2010, Ryu & Jang, 2006). Hence, we put forward that:

H2: Attitude has a significant and positive influence on the student's green hotel consumption intention.

H3: Attitude is significantly and positively influenced by the student's subjective norm.

2.2.3 Perceived Behavior Control

Consumers' behavior is affected by non-motivational factors, such as resource and opportunity, which represent people's actual control over their behaviors (Ajzen, 1991). However, it is more important to study perceived control from a psychological perspective. Ajzen (1991) developed the concept of perceived behavior control which is defined as "people's perception of the ease or difficulty of performing the behavior of interest". When the individual thinks that the more resources and opportunities he has, the fewer obstacles he expects, the stronger his perceived behavioral control will be. Many studies have shown that perceived behavior control has positively related to consumer's intention, and the same is true in green hotel consumption research (Verma & Chandra, 2017; Teng, Wu & Liu, 2014; Chen & Tung, 2014; Han, Hsu &

Sheu, 2010; Han & Kim, 2010). For example, Verna and Chandra's (2010) recent research verified there is a positive relationship between perceived behavior control and green hotel consumption intention through a structural model.

Except for the direct effect, perceived behavior also can moderate the relationship between attitude and intention. Green products usually cost more than ordinary goods, and consumers should pay more for these products (Haws et al., 2014; Chia-Jung & Pei-Chun, 2014). Not all consumers are willing to pay premiums for green products (Millar & Baloglu, 2011; Kasim, 2004), especially for those students with low income, which will reduce their positive attitudes and intentions toward green hotels. In China, although most of the green hotels don't ask for premiums, they don't provide personal toiletries, which in fact cost students more. Student's perceived behavior control can mitigate attitude's effect on intention. If a student feels more control over taking certain behavior (e.g. enough resources), he/she still will have green hotel consumption intention despite he/she has a negative attitude (Han, Hsu & Sheu, 2010).

Hence, based on the discussion above, we hypothesize:

H4: Perceived behavior control significantly and positively influences the student's green hotel consumption intention.

H5: Perceived behavior control can weaken the effect of the student's green hotel consumption attitude on intention.

3. Methodology

3.1 Measures

The questionnaire in this article consists of three sections: The first section is the description of the questionnaire, mainly to explain the purpose of the questionnaire and the requirements for answering the questionnaire. The second section is the personal information survey, including the student's gender, grade, major, and monthly living expenses. The third section is the TPB model construct including the predictor construct (attitude, subjective norm, and perceived behavior control) and student's intention on green hotel consumption. There's no standard TPB questionnaire (Han & Kim, 2010). Therefore, we adopted the validated questionnaire and adjusted it according to the research needs and the Chinese situation. The items are all measured by Likert's five-level scale from 1 being "strongly disagree" to 5 being "strongly agree".

3.2 Data Collection

The research object of this study is college students. The internet-based questionnaire is considered an efficient method of investigation (Kim, 2001), so we issue the questionnaire through the internet. From January 29 to February 6, 2020, we obtained a total of 281 questionnaires. 26 of the questionnaires were considered invalid, because the time to complete is too short, or there's no change in choice. Finally, we get 260 valid questionnaires, with an effective rate of 92.5%. The demographic characteristics of respondents are shown in Table 1.

Reliability analysis is used to test whether the data collected by the questionnaire is consistent, and the most commonly used method is Cronbach's α . It is generally believed that the Cronbach's α is acceptable between 0.6-0.7, and greater than 0.7 is the best, And the higher the α , the higher the reliability of the questionnaire. The Cronbach's α in this study is 0.850, which is greater than 0.7, indicating that the overall reliability of the questionnaire is high. Table 2 is the summary statistics of variables and table 3 is the correlation matrix between all independent variables.

Table 1. Demographic characteristics distribution table

Variables	Frequency	Percentage (%)
Gender		
Male	119	45.8
Female	141	54.2
Grade		
Freshman	23	8.8
Sophomore	42	16.2
Junior	60	23.1
Senior	109	41.9
Master and above	26	10.0
Major		
Science and Engineering (MajorSE)	64	24.6
Economy and Business (MajorEB)	86	33.1
Literature, History and Philosophy (MajorLHP)	70	26.9
Others	40	15.4
Monthly living expenses (LivingEx)		
Below 1000RMB	37	14.2
1000-1500RMB	108	41.5
1501-2000RMB	69	26.5
Above2001RMB	46	17.7

Table 2. Summary statistics of variables

Variables	n	mean	sd	median	min	max
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Gender	260	0.542	0.499	1	0	1
Grade	260	3.281	1.123	4	1	5
MajorSE	260	0.246	0.432	0	0	1
MajorEB	260	0.331	0.471	0	0	1
MajorLHP	260	0.269	0.444	0	0	1
LivingEx	260	2.477	0.944	2	1	4
AT	260	3.924	0.741	4	1.2	5
SN	260	3.960	0.727	4	1	5
PBC	260	3.744	0.872	4	1.25	5
Intent	260	4.099	0.604	4.25	2	5

Note: AT=attitude, SN=subjective norm, PBC=perceived behavior control, Intent=Intention

Table 3. Correlation matrix

	Gender	Grade	MajorSE	MajorEB	MajorLHP	LivingEx	AT	SN	PBC
Gender	1.000								
Grade	0.320***	1.000							
MajorSE	-0.031	-0.071	1.000						
MajorEB	-0.010	0.006	-0.402***	1.000					
MajorLHP	0.123*	0.034	-0.347***	-0.427***	1.000				
LivingEx	0.072	0.095	-0.052	-0.113	0.042	1.000			
AT	0.010	-0.029	-0.132*	0.044	0.044	-0.04	1.000		
SN	-0.070	-0.123*	-0.064	0.090	-0.107	0.023	0.351***	1.000	
PBC	0.005	0.016	-0.027	-0.007	-0.088	0.001	0.280***	0.318***	1.000

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

4. Result

4.1 Effect of attitude, subjective norm and perceived behavior control

We test the effect of student's attitude, subjective norm, and perceived behavior control on green hotel consumption intention. We use OLS regression to estimate the coefficients. Table 4 gives the result. In model1, we estimate the basic specification including control variables. The coefficient estimates show that there's no significant relationship between demographic characteristics and green hotel consumption intention. In the model2, we estimate the coefficients of core independent variables. In

the model3, we estimate the specification that includes both control variables and independent variables. The coefficients of attitude, subjective norm, and perceived behavior control in the model3 are respectively 0.286($p=.000$), 0.231($p=.000$), and 0.104($p=.006$). The result shows that the student's attitude, subjective norm, and perceived behavior control positively and significantly influence green hotel consumption intention. H1, H2, and H4 are validated. Moreover, we find that attitude has a greater effect than the subjective norm and perceived behavior control. This result coincides with former studies (Verma & Chandra, 2017; Han, Hsu & Sheu, 2010).

Table 4. TPB model

Variables	Model1		Model2		Model3	
	Estimate	t value	Estimate	t value	Estimate	t value
Gender	0.127	1.590			0.118	1.806*
Grade	-0.050	-1.402			-0.023	-0.804
MajorSE	-0.218	-1.769*			-0.046	-0.449
MajorEB	-0.105	-0.891			-0.041	-0.425
MajorLHP	-0.202	-1.666*			-0.079	-0.790
LivingEx	-0.045	-1.121			-0.038	-1.151
AT			0.289	6.484***	0.286	6.333***
SN			0.231	5.028***	0.231	4.927***
PBC			0.108	2.887***	0.104	2.755***
Constant	4.320	22.320***	1.649	7.860***	1.708	6.157***
R2	0.030		0.355		0.367	
Adjusted R2	0.007		0.347		0.344	
F	1.292		46.89		16.08	

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

4.1.2 *The mediation effect of attitude*

In this part, we use a causal process to test the mediating role of attitude between subjective norm and intention (Judd & Kenny, 1981; Baron & Kenny, 1986). Firstly we test the relationship between the independent variable and dependent variable. Secondly, we test the relationship between the independent variable and the mediator. Thirdly we test the relationship between the mediator and dependent variable. The

result shows in table 5. In model1, we find that subjective norm has a significant influence on student's green hotel consumption intention ($\beta=.373, p=.000$). In the model2, we find that subjective norm also has a significant influence on the student's attitude ($\beta=.360, p=.000$). In the model3, we find that attitude has a significant influence on student's intention ($\beta=.310, p=.000$). Although the coefficient of the subjective norm is still significant ($p=.000$), it is smaller than that in the model1($\beta=.262 < \beta=.373$). The result shows that attitude has a partial mediation effect between subjective norm and green hotel consumption intention. H3 is verified.

Table 5. The mediation effect of attitude

Variables	Model1		Model2		Model3	
	Intention		Attitude		Intention	
	Estimate	t value	Estimate	t value	Estimate	t value
Gender	0.136	1.898*	0.046	0.495	0.122	1.850*
Grade	-0.019	-0.604	0.001	0.025	-0.020	-0.668
MajorSE	-0.128	-1.157	-0.192	-1.343	-0.069	-0.673
MajorEB	-0.085	-0.809	-0.042	-0.310	-0.072	-0.746
MajorLHP	-0.101	-0.922	0.050	0.353	-0.116	-1.157
LivingEx	-0.054	-1.499	-0.047	-1.005	-0.040	-1.193
SN	0.373	7.932***	0.360	5.929***	0.262	5.675***
AT					0.310	6.902***
Constant	2.697	10.050***	2.590	7.483***	1.895	6.953***
R2	0.224		0.14		0.347	
Adjusted R2	0.202		0.12		0.327	
F	10.37		5.94		16.7	

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

To further illustrate the mediation effect, we use the Mediation package in R to test the effect (Tingley et al., 2014). Both of non-bootstrap and bootstrap are used to estimate the average causal mediation effects (ACME) and average direct effect (ADE). The result shows in table 6. We find that estimated ACME and ADE are both statistically significantly different from zero in the 95% confidence interval, which indicates that attitude mediates the relationship between subjective norm and intention. And the moderating effect accounts for 30.8% of the total effect.

Table 6. The mediation effect of attitude with Mediation package

	Estimate	P	Estimate	P
			Bootstrap10000	
ACME	0.0995	0.000	0.104	0.000
ADE	0.2537	0.000	0.233	0.000
Total Effect	0.3532	0.000	0.337	0.000
Prop.Mediated	0.2820	0.000	0.308	0.000

4.3 Moderating effect of perceived behavior control

In this part, we estimate the moderating effect of perceived behavior control between the student's attitude and intention. Figure1 depicts the moderating roles of perceived behavior control. Table 7 lists the results of the regression. The estimated coefficient of the moderating effect is negative and significantly different from zero ($\beta=-.093, p=.030$ in model3). This means that perceived behavior control can weaken the effect of the student's attitude on green hotel consumption intention. So H5 is verified.

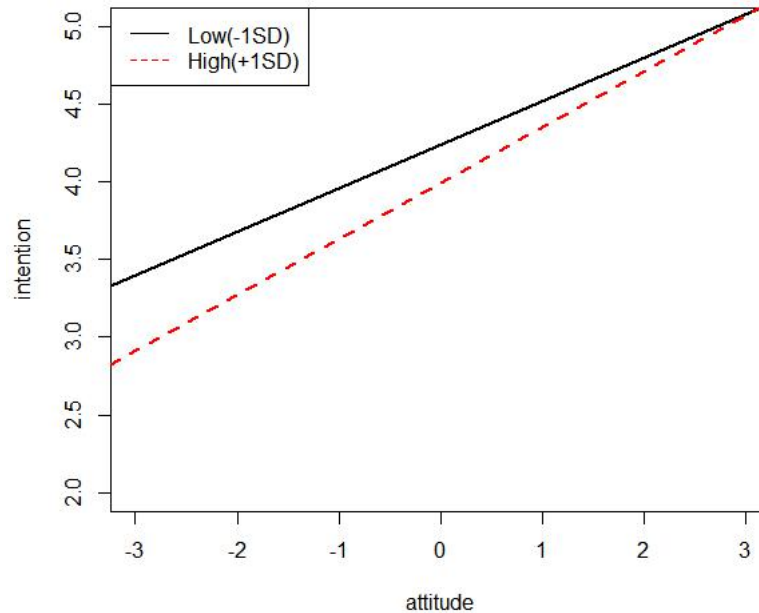


Figure 1. Figure of moderating effect

Table 7. Moderating effect of perceived behavior control

Variables	Model1		Model2		Model3	
	Estimate	t value	Estimate	t value	Estimate	t value

Gender	0.112	1.609	0.119	1.755*	0.130	1.999**
Grade	-0.038	-1.241	-0.034	-1.130	-0.016	-0.563
MajorSE	-0.107	-0.987	-0.081	-0.771	-0.060	-0.597
MajorEB	-0.080	-0.784	-0.061	-0.601	-0.068	-0.711
MajorLHP	-0.183	-1.729	-0.144	-1.378	-0.105	-1.052
LivingEx	-0.030	-0.851	-0.023	-0.660	-0.031	-0.953
AT	0.399	8.949***	0.353	7.848	0.288	6.434***
SN			0.140	3.627	0.094	2.490***
PBC					0.233	5.011***
AT*PBC			-0.089	-1.985**	-0.093	-2.189**
Control	2.664	10.628***	4.178	25.427***	3.189	12.654***
R2	0.264		0.316		0.379	
Adjusted R2	0.243		0.291		0.354	
F	12.89		12.83		15.17	

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

5. Conclusion and Discussion

5.1 Conclusion

Based on the former research, this study adjusted the model of TPB, and discuss the impact of college student's attitude, subjective norm, and perceived behavior control on green hotel consumption intention. We verified the traditional model of TPB and find that attitude, subjective norm and perceived behavior control have significant and positive influences on student's green hotel consumption intention. And we also find that attitude plays the greatest role in the student's green hotel consumption decision-making process. These results coincide with the former studies.

Moreover, we find that attitude has a mediating role in the relationship between subjective norm and intention. Not only does subjective norm directly affect student's intention, but also indirectly affects it through attitude. Meanwhile, we find that perceived behavior control has a moderating role in the relationship between attitude and intention. Perceived behavior control can weaken the effect of attitude.

Although some studies found that there is a demographic difference in consumers' intentions (Han & Ryu, 2006; Han et al., 2011). For example, Female customers are more likely to purchase green lodging product (Han et al., 2011). There's little evidence showing that demographic characteristics have significant

influences on students' intentions in our study.

5.2 Implication

College students are future customers, and their intentions on hotel green consumption are of great significance to the future social environmental protection and sustainable development. Because attitude is one of the most influential factors in determining an individual's intention, the university should take green education to improve students' green consumption attitude. Especially the school should advocate the concept of green consumption on campus, and promote it to be social norms.

In order to encourage green consumption, the hotel should strive to reduce costs and provide a variety of options, which can improve the customer's perceived behavior control. Meanwhile, the hotel also needs to continuously improve service quality to make customers feel that green consumption is worthwhile.

5.3 Future research

Green hotel consumption is an interesting topic. Although we find the mediation effect of attitude and moderation effect of perceived behavior control, there are still some limitations that deserve further study in the future. Firstly, we should expand the survey samples to further verify our hypothesis. Secondly, we should find more mediation and moderation factors in determining an individual's green hotel consumption intention. Thirdly, we should expand our model to other green products, not just limited to green hotels.

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